APPLICATION OF DIGITAL STORYTELLING FOR IMPROVING SPEAKING SKILLS IN CHINESE UNIVERSITY EFL STUDENTS

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A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in English Language Studies

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การประยุกต์ใช้การเล่าเรื่องด้วยสื่อดิจิทัลเพื่อพัฒนาทักษะการพูด สำหรับนักศึกษาระดับมหาวิทยาลัยชาวจีนที่เรียนภาษาอังกฤษในฐานะภาษาต่างประเทศ

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วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตรดุษฎีบัณฑิต
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Suranaree University of Technology has approved this thesis submitted in partial fulfillment of the requirements for the Degree of Doctor of Philosophy.

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ฉีเหว่ย เว่ย : การประยุกต์ใช้การเล่าเรื่องด้วยสื่อดิจิทัลเพื่อพัฒนาทักษะการพูดสำหรับนักศึกษาระดับมหาวิทยาลัยชาวจีนที่เรียนภาษาอังกฤษในฐานะภาษาต่างประเทศ (APPLICATION OF DIGITAL STORYTELLING FOR IMPROVING SPEAKING SKILLS IN CHINESE UNIVERSITY EFL STUDENTS) อาจารย์ที่ปรึกษา : อาจารย์ ดร. พีรศักดิ์ สิริโยธิน, 298 หน้า

งานวิจัยนี้ศึกษาประสิทธิภาพการเล่าเรื่องด้วยระบบดิจิทัล (DST) ที่มีต่อความสามารถทางการพูดของนักศึกษาชาวจีนที่เรียนภาษาอังกฤษในฐานะภาษาต่างประเทศ ตลอดจนศึกษาความคิดเห็นของนักศึกษาและอาจารย์ผู้สอนที่มีต่อวิธีการการเล่าเรื่องด้วยระบบดิจิทัล และความคิดเห็นของนักศึกษาที่มีต่อการประเมินทางเลือกและกิจกรรมการเรียนรู้ด้วยตัวเองของผู้เรียน ผู้เข้าร่วมวิจัยจำนวน 100 คน เป็นนักศึกษาชาวจีนที่เรียนภาษาอังกฤษในฐานะภาษาต่างประเทศ ซึ่งกำลังศึกษาในมหาวิทยาลัย Qiannan Normal University for Nationalities โดยวิธีการคัดเลือกจากห้องเรียนปกติแล้วแบ่งออกเป็น 2 กลุ่ม คือ กลุ่มทดลอง จำนวน 50 คน และกลุ่มควบคุม จำนวน 50 คน งานวิจัยนี้เป็นการวิจัยแบบกึ่งทดลอง รวมระยะเวลา 12 สัปดาห์ โดยทำการทดลองในช่วงเทอม 1 ปีการศึกษา 2559-2560 โดยกลุ่มทดลองจะเรียนรู้ผ่านการเล่าเรื่องด้วยระบบดิจิทัลและกิจกรรมการเล่าเรื่องด้วยระบบดิจิทัลทั้งในและนอกห้องเรียน ในขณะที่กลุ่มควบคุมจะเรียนรู้ผ่านการสอนในห้องเรียนแบบดั้งเดิมเท่านั้น

งานวิจัยนี้ใช้ระเบียบวิธีวิจัยแบบผสม โดยใช้ระเบียบวิธีวิจัยเชิงปริมาณเพื่อศึกษาความแตกต่างของความสามารถทางการพูดของนักศึกษา การประเมินตนเอง การประเมินโดยเพื่อน และการประเมินโดยอาจารย์ ส่วนระเบียบวิธีวิจัยเชิงคุณภาพใช้เพื่อวิเคราะห์บทสัมภาษณ์เชิงลึกของนักศึกษา อาจารย์ผู้สอน และสมุดบันทึกสะท้อนความคิดเห็นของผู้เรียนต่อการเล่าเรื่องด้วยระบบดิจิทัล เครื่องมือวิจัยประกอบไปด้วย แบบทดสอบการพูดก่อนและหลังเรียน แบบสอบถาม การสัมภาษณ์แบบกึ่งโครงสร้าง และสมุดบันทึกของผู้เรียน

ผลการวิจัยพบว่า หลังสิ้นสุดการสอน นักศึกษาในกลุ่มทดลองมีความสามารถทางการพูดสูงกว่านักศึกษาในกลุ่มควบคุมอย่างมีนัยยะสำคัญทางสถิติในทุกด้านที่ได้รับการทดสอบ คือ การเล่าเรื่อง การพูดในหัวข้อที่กำหนด และการแสดงบทบาทสมมุติ และผลการวิจัยพบความสัมพันธ์ทางบวกในระดับสูงระหว่างการประเมินตนเอง การประเมินโดยเพื่อน และการประเมินโดยอาจารย์

นอกจากนี้ การเล่าเรื่องด้วยระบบดิจิทัล ยังมีความน่าสนใจ มีความท้าทาย ช่วยในการเรียนรู้ เกิดความสนุกในการเรียน และส่งผลต่อการพัฒนาการเรียนรู้ด้วยตนเองของนักศึกษา การประเมินทางเลือก เป็นตัวช่วยในกระบวนการเรียนรู้ กระตุ้นให้ผู้เรียนมีความรับผิดชอบต่อการ

เรียนรู้ของตนเองมากขึ้น ส่งผลให้เกิดการเรียนรู้มากขึ้นและดีขึ้น และยังพบความแตกต่างอย่างมีนัยยะสำคัญทางสถิติในด้านความคิดเห็นต่อความเป็นอิสระของผู้เรียน ระหว่างผู้เรียนที่ความสามารถสูงกว่า และความสามารถอ่อนกว่า ผลการการวิจัยสะท้อนให้เห็นว่าความสำเร็จด้านการเรียนมีความสัมพันธ์กับการเรียนรู้ด้วยตนเอง กล่าวอีกนัยหนึ่งก็คือการเรียนรู้ด้วยตนเองนำไปสู่ความสำเร็จ และความสำเร็จเกิดจากการเรียนรู้ด้วยตนเอง

ผลการวิจัยนี้ชี้ให้เห็นว่า การเล่าเรื่องด้วยระบบดิจิทัลมีประสิทธิภาพในการพัฒนาทักษะการพูดภาษาอังกฤษ นอกจากนี้ เมื่อเปรียบเทียบกับวิธีการสอนแบบดั้งเดิม การเล่าเรื่องด้วยระบบดิจิทัลทำให้ผู้เรียนสนใจในการเรียนมากขึ้น ก่อให้เกิดความกระตือรือร้นและการมีส่วนร่วมของทั้งผู้เรียนและอาจารย์ผู้สอน ผลการวิจัยนี้ได้พิสูจน์ให้เห็นว่า การเล่าเรื่องด้วยระบบดิจิทัลมีบทบาทหน้าที่สำคัญเป็นอย่างยิ่งในการพัฒนาการเรียนการสอนภาษาอังกฤษ

สาขาวิชาภาษาต่างประเทศ
ปีการศึกษา 2560

ลายมือชื่อนักศึกษา Qiwei Wei
ลายมือชื่ออาจารย์ที่ปรึกษา
ลายมือชื่ออาจารย์ที่ปรึกษาร่วม

QIWEI WEI : APPLICATION OF DIGITAL STORYTELLING FOR IMPROVING SPEAKING SKILLS IN CHINESE UNIVERSITY EFL STUDENTS. THESIS ADVISOR : PEERASAK SIRIYOTHIN, Ph.D., 298 PP.

DIGITAL STORYTELLING/ ENGLISH SPEAKING SKILLS/ ALTERNATIVE ASSESSMENT/ LEARNER AUTONOMY

This study was conducted to investigate whether a digital storytelling (DST) intervention could improve Chinese university EFL students' speaking skills. In addition, it investigated students' and teacher's perceptions of DST approach and students' perceptions of alternative assessment and learner autonomous activities embedded in the intervention. One hundred Chinese university EFL students were selected on the basis of their intact classes in Qiannan Normal University for Nationalities (QNUN) and were assigned into two groups each containing 50 participants. A 12-week quasi-experiment was conducted in the English speaking course during their first term of the Academic Year 2016-2017. The experimental group students participated in the DST intervention and were exposed to the DST activities both inside and outside classroom while the control group students only received conventional instruction.

A mixed method design was employed: a quantitative framework was used to detect any differences in students' speaking proficiency, self-, peer-, and teacher-assessments and learner autonomy activity use, while a qualitative framework was used to analyze the students' and the teacher's in-depth interviews and student diaries for their

reflections on DST intervention. Specifically, instruments employed in the study were speaking tests as pre- and posttests, questionnaires, semi-structured interviews and student diaries.

The findings revealed that after the treatment the experimental group significantly outperformed the control group in all areas tested: retelling a story, talking on a given topic, and roleplaying. The findings also showed that a strong correlation between self-, peer-, and teacher-assessments could be estimated.

In addition, the DST intervention was considered interesting, challenging, helpful, and enjoyable and contributed to the development of students' autonomous learning. Alternative assessment was viewed as an enabler of process of learning which could encourage learners to become more fully responsible for their learning and could result in more and better learning. And there were significant differences found between successful and less successful learners, as regards their perceptions of learner autonomy. The survey showed that success was related to autonomy. In other words, autonomy leads to success, and success is achieved through autonomy.

The encouraging results indicate that the DST intervention was effective in improving English speaking learning. Furthermore, compared to the traditional approach, the atmosphere was more active in class, which encouraged not only the students' but also the teacher's enthusiasm and participation to a great extent. The findings prove that DST played an important role in improvement of English language instruction.

School of Foreign Languages

Academic Year 2017

Student's Signature Qiwei Wei

Advisor's Signature

Co-Advisor's Signature

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LIST OF ABBREVIATIONS

DST	Digital Storytelling
DIY	Do-It-Yourself
EFL	English as a Foreign Language
ESLA	English as second language acquisition
ICT	Information and Communication Technology
MOE	Ministry of Education, China
MET	Matriculation English Test
ESI	English Speaking Instruction
PBL	Project-Based Learning
QNUN	Qianan Normal University for Nationalities
QNBMAP	Qiannan Bouyei & Miao Autonomous Prefecture
SPSS	Statistical Package for the Social Sciences
TEFL	Teaching English as a foreign language
TEM	Test for English Majors
TEM4-Oral	Test for English Majors-Band 4 Oral Test

CHAPTER 1

INTRODUCTION

The present study aims at improving the English speaking skills of Chinese university students learning English as a foreign language (EFL) by applying a digital storytelling (DST) approach embedded in a project-based learning (PBL) environment. This chapter is an introduction to the thesis presenting a background as well as a context for the present study. The ensuing sections cover statement of the problem, significance of the study, purposes, research questions, definitions of the key terms, and finally the scope of the study.

1.1 Background of the study

English language learning is one of the main courses taught at all education levels in China from elementary to higher education. All levels of education in China emphasize improving students' speaking skills. Of the four macro skills in language learning, i.e., listening, speaking, reading, and writing, speaking has been considered the most challenging since it involves a complex process of representing meaning (Celce-Murcia & Olshtain, 2000). Speaking proficiency is the fundamental factor for students to learn any other courses. Without speaking proficiency, it's difficult for

students to improve their reading and writing abilities (August & Shanahan, 2017). Moreover, speaking and literacy difficulties are closely inter-related (Catts et al., 1999; Snow & Powell, 2004; Nation, 2005; Snowling, 2005; Liu, 2015; Ahmad, 2017). Extremely important for learners' reading and writing learning, the successful use of language in speaking plays a critical role for the students' wellbeing. Actually, any classroom-based learning has to rely on speaking (Herrington & Herrington, 2006). At its most fundamental level, speaking is about communicating with people, entertaining a series of applied thinking, knowledge and skills so as to speak and listen effectively, hence it is central to the lives of all people. Yet, although it is complicated, speaking is a skill that language teachers are required to teach their students (Kamil, 2017). This is because the ability to speak enables the expression of one's ideas and thoughts in a variety of person-to-person interactions. Furthermore, a person's speaking ability is one of the important indicators of language mastery (Fauzan, 2014).

The ability to speak English specifically (as opposed to other languages), is ranked as an essential job skill for vocational college graduates in China (Wu, 2011). However, after spending years learning English, Chinese university EFL students are still found to be fairly weak in their English proficiency, particularly in their speaking ability. According to Education First (EF) (2017), China ranks 36th out of 80 countries in the world and 8th out of 20 countries in Asia in English proficiency and Guizhou province in which this study was conducted ranks second to last in English proficiency

in China. Zhang (2002) concludes that two short phrases can summarize the outcomes of English teaching in Chinese universities: "much input, little output," and "high grades, low ability." Hence the urgent need for developing ways of improving Chinese university EFL students' speaking ability, especially those enrolled as English majors in pre-service teacher training programs, since they will directly influence future EFL learners in China.

The problem of Chinese university English teaching "much input, little output," has long been a subject of fervent discussion among Chinese EFL researchers. The problem is that their "much input" is not comprehensible input. It is necessary to be able to understand and process the input for English as second language acquisition (ESLA) or teaching English as a foreign language (TEFL) to take place. This is because ESLA/TEFL occurs on a development continuum. We follow the trail of this continuum by taking what Krashen (1982) named *comprehensible input*, which intends to include the students marginally beyond their present level of the language. That's to say, if *i* stands for the language learner's current level of competence in the foreign language, then *i*+1 should be the next actual step along the development continuum. As the target of language teaching is to enable students to advance forward in their task, it is of great necessity to supply the learners with *comprehensible input* [*i*+1]. In contrast to Krashen's "comprehensible input," Swain (1985) has proposed the "comprehensible output hypothesis" stating that only when learners have opportunities to produce the language

personally can they master speaking skills and become fluent speakers. Yu (2009) stated that in Swain's comprehensible output hypothesis, the development of a learner's communicative competence depends not only on comprehensible input but also on the learner's output, and comprehensible output has a crucial role to play in language learning. The problem of "little output" of Chinese university EFL students' implies a low communicative competence and a lack of knowledge of English. Canale and Swain (1980) claim that *communicative competence* is a synthesis of an underlying system of knowledge and skill needed for communication. In their point of view, knowledge in communicative competence refers to the conscious or unconscious knowledge of an individual about language and other aspects of language use. They claimed that there are three types of *knowledge*: knowledge of underlying grammatical principles, knowledge of how to use language in a social context in order to fulfill communicative functions and knowledge of how to combine utterances and communicative functions with respect to discourse principles. They also claimed that *skill* refers to how an individual can use the knowledge in actual communication. According to Canale (1983), skill requires a further distinction between underlying capacity and its manifestation in real communication, that is to say, in performance.

In order to solve the problem of "much input, little output," some measures have been taken into account, especially in the course of English Speaking. As a compulsory course for English majors, English Speaking, as with other courses, is under the

guidance of teaching objectives, teaching materials, teaching hours and processes, offered in the curriculum as described by a programmatic document as published by the Ministry of Education (MOE) in 2000 (MOE, 2000). The curriculum allows specialized courses to occupy between 2,000 to 2,200 hours in total over 4 years in order to meet the needs of universities in different contexts, which means each university can set appropriate teaching hours according to the conditions applicable to a specific cohort of students. English Speaking has been normally distributed into 4 semesters within the first two years at a university with each semester of 18 weeks offering 72 hours for a total 288 hours, which is far from enough for English majors. As a result, many universities increase the teaching hours in the course of English Speaking either formally or informally under the priority of being able to use the language fluently and naturally.

The university in which this study was conducted is Qianan Normal University for Nationalities (QNUN). QNUN was established in the year 2000. Located in Qiannan Bouyei & Miao Autonomous Prefecture (QNBMAP), in south Guizhou Province, with 3,820,000 inhabitants with a diversity of 37 ethnic minority groups, the prefecture is subdivided into 12 county-level divisions, including 2 county-level cities, 9 counties, and 1 autonomous county. There are 16 academic schools and one attached junior high school in QNUN. There are 62 undergraduate programs offered, among which 18 are teacher training programs. In the year 2015, 200 full time students were enrolled in three

majors in the School of Foreign Languages, among which, 100 were enrolled in English for education, while others studied English for tourism and English for business. English Speaking is compulsory for all three majors. The number of teaching hours for English Speaking has increased from the suggested number of 288 hours to an extra 2 hours of English Corner and 1 Office Hour each week, to encourage students to practice English outside the classroom. However, it has long been observed that when considering the 2 hours of classroom teaching, the extra 2 hours of English Corner and the 1 Office Hour are considered, the activities involved in learning are more teacher-centered than student-centered. Measures for encouraging student centered of English language learning still need to be increased.

Language learning is complex in nature both in terms of its context and in terms of the learners. Studies in various areas such as learning strategies (O'Malley & Chamot, 1990; Cohen, 2014), motivation (Dörnyei, 2001) and cognition (Gass et al., 2003; Schmidt, 1990) have found that many elements are involved in the process of learning and that language learning should be a central attention for research. Moreover, a shift from teacher-centered to learner-centered classrooms (Nunan, 1999) has caused students to be more active in the learning process. Approaches to increase student centered learning for teaching of EFL to the Chinese university students is thus of great necessity and urgency.

The abovementioned problems of Chinese university EFL learning are

concerned with teaching and learning hours, and the lack of a student-centered teaching and learning. It is also necessary to reflect more on students' current learning environments so as to put the present study in context. Another obvious problem of Chinese university EFL learners is that they lack technology-enhanced learning. Smeda et al. (2014) claimed that in recent years the use of new technologies in educational systems has increased worldwide as digital cameras, personal computers, scanners, and easy-to-use software have become available to educators to harness the digital world. Technology-enhanced learning is increasingly being adopted in developing countries like China, India, Vietnam, etc. However, language instruction frameworks still face numerous difficulties; one of which is the means by which to improve student engagement to give better instructive results by utilizing new innovative technology. It has turned out to be progressively essential to utilize imaginative innovative direction to draw in students.

More and more scholars have begun to focus on technological instruction given the popularity of information technology and the rapid development of global knowledge. Researchers have tried to develop various computerized systems or guiding strategies to assist students in improving their learning performance (Hwang, 2003; Panjaburee et al., 2010; Hsieh et al., 2011). Chu et al. (2011) indicated that effective instruction is required to cultivate the key competences of students, in particular, technological instruction which upgrades student-centered learning and seems to differ

significantly from traditional direct instruction.

In the 21st century, because of the unprecedented richness of information and communication systems as well as unprecedented mobility and technological empowerment of ordinary people to create or find their own personal solutions in a just in time, just enough and just for me fashion (Lian & Pineda, 2014)，learning has become a highly individualized process that depends essentially on each person's life experience (Lian & Moore, 2014). Project-based learning which involves the personal experience of accomplishing a certain task, was considered by many scholars an excellent form of instruction to encourage the self-learning of students (Chang & Lee, 2010; Gerber et al., 2001; Chun-Ming et al., 2012; Rahman et al., 2015). David (2008) mentioned that project-based learning could provide students with more learning opportunities and interpersonal interactions, as it conforms to the requirements of technological instruction. Hung et al. (2008) indicated that students should look for more efficient learning methods based on their background knowledge and skills, and project-based learning, as a favorable learning strategy, could guide students in the application of knowledge and problem solving.

Digital storytelling (DST), a modern way of storytelling and a popular project-based learning teaching approach, is one of the innovative pedagogical approaches that can engage students in deep and meaningful learning (Smeda, et al., 2014), because it can expand learning beyond the traditional face-to-face methods of teaching and

learning and lead to high levels of student engagement with their studies through which they have to do it by themselves. Johnston (2016) claims that storytelling mirrors the way that we make sense of our lives and the lives of others; it is part of every discipline, every thought, and every image. Digital storytelling, as a specific form of storytelling, can thus motivate and create new opportunities for learners to succeed in speaking. To create a digital storytelling episode, learners have to depend on themselves and the community they live in. There are more and more autodidacts as a result of technological development in today's Do-It-Yourself (DIY) society where people clearly prefer solving many of their problems by themselves (Lian, 2017). From a modern pedagogic perspective where, at least according to some, learner knowledge is constructed individually according to each person's logical and representational systems (e.g. Lian, 2004). Signes (2010) claims that DST helps develop autonomous learning, since the student will, after a brief period of instruction, have become comfortable with writing the story and using the software to create a digital version of it. As a practical approach of technology-enhanced learning, the collaborative learning opportunities in DST are learner-centred, with an emphasis on interaction and doing, and working in groups towards developing solutions to real-world problems. Since students have the chance to create stories in groups, a lot of discussion and different points of view will appear. Technology-enhanced learning can thus help develop students' interest and engagement in EFL learning, and at the same time develop

students' autonomous learning. The students will have to come to a mutual understanding before they deliver the final version of the story. Not only will the teacher read the student's work, but other students as well. The learning will thus involve both students at the centre and the teacher as a guide.

Under the conditions mentioned above, DST learning activities to improve English speaking skills through project-based learning teaching approaches could be an alternative and valuable possibility for EFL students in QNUN. DST might help solve the existing problem of "much input and little out put" Chinese EFL students. It can also provide new evidence in the field of speaking instruction research for speaking English proficiency improvement in autonomous learning environments particularly in China as few such empirical studies have been conducted so far. It is thus anticipated that Chinese university EFL leaners would benefit significantly in terms of an improvement in learner autonomy and even lifelong learning.

1.2 Statement of the problem

The traditional teacher-centered teaching approach in Chinese EFL learning has caused the "deaf and dumb" English learning phenomenon (Wei et al., 2018). An innovative technology-enhanced learning and teaching approach which can help develop students' interest and engagement in EFL learning in order to improve their speaking skills is thus in great need. Although the Chinese Ministry of Education

(CMOE) has invested in integrating computers and technology within all areas of learning, the researcher noticed that teachers, in general, struggle to incorporate computer applications into regular classroom instructional practices to enhance learning due to the ineffective and inappropriate training and lack of vision of technology's potential for improving learning. Teachers have not been previously introduced to meaningful technology-based approaches that would give a challenge and a purpose to the activities that often happens in authentic situations (Pritchard, 2004). In addition, no previous study has examined the potential of computer-based multimedia applications, in general, or digital storytelling, in particular, in encouraging Chinese EFL teachers to integrate technology into the curriculum and engage students in a technology-rich, active and cooperative learning environment to assist students in constructing their own learning.

Thus, a technology-enhanced learning environment could be a reliable solution. A free self-access facility such as a software may help them to learn independently. The impact of new technologies in educational contexts has been mostly positive as new technologies have given educators the opportunity to enhance their knowledge, skills, and therefore enhance the standard of education. However, great things come from people – not machines (Lian, 2004). Therefore, it is crucial to design a project or implement an intervention in which there are approaches of how to use the technology.

In order to address the challenges of English Speaking instruction identified at

QNUN, the present study is attempting to improve students' English speaking skills by implementing a DST intervention based on project-based learning so that they can improve their learning environment. Since they are provided with the opportunity to build their own learning environment with technology, they can gain more free time to learn outside the classroom. Through online chatting or offline face-to-face chatting, students can obtain help, not only from their teacher, but also from their peers, and thus addressing the abovementioned challenges.

1.3 Significance of the study

The successful application of the digital storytelling intervention in this study demonstrated a new technology-enhanced approach to teach Chinese universicity EFL students to improve their English speaking skills. It's the right medicine for the syndrome of "deaf and dumb" English learning, the phenomenon mentioned previously in the background of the study. The current study provides new evidence for English speaking skills improvement in an autonomous learning environment in a Chinese university context since few such empirical studies have been conducted so far. Specifically, this study is significant not only in its findings but also in its process as presented in the following aspects:

First, the study may expand a database for innovative English speaking instruction methods providing an example of technology-enhanced student-centered

learning as a way of improving EFL learners' speaking skills.

Second, this research may present a clear picture of issues involved in integrating DST into the university environment and its significant benefits in terms of learner autonomy improvement and even lifelong learning.

Third, the planning concept of using DST as a project-based learning can be applied to designing other language syllabi or curricula in other EFL instructional contexts.

Fourth, the design of the study and the promising findings may stimulate both instructors and learners to reflect on how learning actually occurs. We usually take things as what other people are, so we don't even take things as we are, not to to mention that we take things are the things theselves are.

Fifth, the development of applying alternative assessments in DST projects may open a precedent for research in EFL studies with implications for reciprocity in the construction of learner autonomy, which may arouse provoking thoughts in understanding the connotation of learner autonomy theoretically and practically.

Finally, the findings can provide key guidelines for further research and studies in the implementation of project-based learning approaches in EFL instruction, syllabi or curricula design that use digital technology. In this case, the findings of the study may have pedagogical implications for speaking and for other skills in language learning, even in education more generally, both in China and other parts of the world.

1.4 Purposes of the study

The foremost purpose of this study is to implement a DST intervention for the Chinese university EFL learners to improve their speaking skills through online messenger chatting or offline face-to-face chatting with assessments given by three groups of assessors. More details are introduced in Chapter Three. The study investigated whether the implementation of DST intervention would help improve Chinese university EFL learners' speaking skills and whether the participants would enjoy the newly applied intervention in speaking instruction. The autonomous activities of the students in learning English were investigated to check whether Chinese university EFL learners applied learner autonomy in EFL learning and whether students of different EFL levels applied learner autonomy differently. A survey to determine learners' attitudes towards the alternative assessment (AA), i.e., self-assessment (SA) and peer-assessment (PA) were conducted, as well as a comparison of the relationship between self-assessment, peer-assessment, and teacher assessment (TA) in learners' speaking presentations.

The specific objectives of the present study are as follows:

1) To investigate whether the implementation of the DST intervention can help to improve EFL learners' speaking skills;

2) To examine the students' and the teacher's perceptions of the DST intervention;

3) To explore the students' perceptions of alternative assessments and whether

there is any relationship between alternative assessment and teacher assessment in students' speaking presentations;

4) To investigate the students' perceptions of learner autonomy.

1.5 Research questions

In order to fulfill the abovementioned research purposes of the study, the following four research questions were proposed:

1) Are there any significant differences in speaking performances between the experimental and control groups? If so, what are the causes of those differences?

2) What are the students' and the teacher's perceptions of the DST intervention?

3) What are the learners' perceptions of alternative assessments? Is there any relationship between self-assessment, peer-assessment, and teacher assessment in speaking presentations?

4) What are the autonomous activities that the students engage in when learning English? Are there any differences between successful and less successful learners, as regards their perceptions of learner autonomy?

1.6 Definitions of key terms

The following terms are those most frequently used in this study together with explanatory notes.

1) Constructivism: Constructivism holds the value that teaching and learning take place on the basis of the notion of mental construction which bring out learning or learning conditions. Students construct their own understanding by reflecting on their personal experiences, and by connecting new knowledge with what they already know. Wang (2014) states that learning is the center of constructivism in which learner autonomy should be given full play.

2) Learner Autonomy: Learner autonomy for the present study refers to students' learning EFL through self-access facilities for autonomous learning. This is based on a constructivist theory of learning whereby learners construct their own understanding using their previous knowledge and current learning experiences (Kember, 1997).

3) EFL students: The term EFL students in the present study refers to English major undergraduate students at QNUN, who, at the time of this study, had already learned English as a compulsory subject for at least six years in secondary school and were enrolled in their second year of university study.

4) Project-based learning (PBL): In the present study, PBL is described as an instructional approach that, via participating in a project, appeals to students due to learning by way of problem solving, data collection, and discussion, as well as the presentation of the results as reports (Chu et al., 2011; Howard, 2002; Koh et al., 2010).

5) Information and Communication Technology (ICT): ICT is an umbrella term

that includes any communication devices or applications, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning. For the present study, ICT is to use online messenger chatting as a communication device to communicate with others as a kind of learner autonomy.

6) Digital storytelling (DST): DST in this present study refers to a specific project-based learning activity in which a short story that is only 2-3 minutes long, where the storytellers use their own voice to tell their own story. The personal element is emphasized, and can be linked to other people, a place, an interest or to anything that will give the story a personal touch (Normann, 2011). It is a group of still images, combined with a narrated soundtrack, can constitute a digital story as long as a story is related (Kajder et al., 2005).

7) Alternative assessment (AA): AA includes self-assessment (SA) and peer-assessment (PA). SA is viewed as an individual's own evaluation of their language ability, generally according to how good they are at particular language skills, how well they are able to use the language in different domains or situations, or how well they can use different styles of the language (Mousavi, 2012).

8) English Speaking: English Speaking refers to the compulsory course for English major undergraduates in China. In the present study, it includes basic theoretical

teaching methodology together with teaching designed to improve English speaking proficiency of the second year English majors at QNUN.

9) Student diary: Students from both the control group and the experimental group were asked to keep a diary to record their activities each time they spend time on learning English Speaking, including the length of time, place, materials (content), effectiveness, feeling, and resources etc. The students wrote their diaries according to a designed format containing all the information mentioned above.

10) Pretest and posttest: Both pretest and posttest papers used for this study were chosen randomly from Test for English Majors-Band 4 Oral Test (shortened as TEM4-Oral). TEM4-Oral is one of the four tests of the TEM test battery which correspondingly consists of TEM4 and TEM4-Oral, assessing students' English proficiency at the end of the foundation stage. The purpose of the TEM is to measure the English proficiency of Chinese university undergraduates majoring in English Language and Literature and to examine whether these students meet the required levels of English language abilities as specified in the National College English Teaching Syllabus for English Majors (NACFLT, 2000).

1.7 Scope of the study

1) The English speaking proficiency to be focused on in this study refers to overall proficiency of English speaking skills including both lexical and pragmatic

features in terms of the choice of words and fluency of speaking in retelling stories, talking about given topics, role-playing and natural speech in daily life.

2) The population for this study is English major EFL students with intermediate level of English proficiency in China. The participants were chosen on the basis of convenience and availability. The two intact groups were assigned into an experimental group and a control group based on lots drawn randomly. Nevertheless, there were not equal numbers of male and female students. Different numbers of male and female students may represent a limitation. In addtion, the participants of this study were second-year undergraduate English majors. Other majors and levels were not included in this study. Because of this limitation, findings from this study should be treated with caution in making generalizations about speaking proficiency instruction of EFL learners.

1.8 Summary

This chapter gave an overall description of the present study. It provided background and put the study in related contexts of Chinese university EFL teaching and learning of English speaking. It was then followed by the significance of the study, purposes, research questions, key terms, and the scope of the study. The next chapter reviews the relevant literature concerning English speaking instruction in China and abroad which led to the construction of the study's theoretical framework.

CHAPTER 2

LITERATURE REVIEW

The purpose of this chapter is to offer a review of the literature related to the present study. The chapter consists of four sections. Firstly, it discusses theories and methods of teaching English speaking focusing research studies on English speaking teaching in China. The second section describes the theories of learner autonomy, which introduces ways to develop EFL learners' autonomy through PBL, the use of ICT, and the assessments in learner autonomy. In the third section, the current practice of DST in education is reviewed. Then, the theoretical framework of this study emerges on the basis of relevant literature reviews. Finally, a summary of the whole chapter is then presented in conclusion.

2.1 English speaking skills

2.1.1 English speaking skills from a historical perspective

Scholars have different perspectives on the notion of speaking skills. According to Lesaux and Harris (2016), speaking skills are the system through which spoken words are used to express knowledge, ideas, and feelings. To develop learners' speaking skills means to develop the skills and knowledge that provide the foundation for their

listening, speaking, and writing. Lesaux and Harris (2016) also claimed that speaking skills are broadly made up of five components, i.e., vocabulary, syntax, morphological skills, pragmatics and phonological skills.

Among the five components of speaking skills mentioned above, phonological skills are vital for learners' speaking skills and word reading development. Learners' skills in the domains of syntax, morphology, and pragmatics are crucial for putting together and taking apart the meaning of sentences and paragraphs both for spoken and written communication. Learners' skills of vocabulary, with which they choose words to engage in the communication is also a basic part of speaking skills. Just as August and Shanahan (2006) claimed that speaking skills must be cultivated from early childhood through adolescence, because they are often sources of difficulty for language learners, frastrating their literacy development.

Speaking skills involve a process of employing thinking, knowledge and skills so as to speak and listen effectively in communication. Speaking skills are considered to be the most important of the four basic language skills, as seen from the fact that they are distributed throughout every level of English curriculum from praimary to higher education. The development of speaking skills is given importance as great as that of reading and writing at all education levels in the curriculum. Speaking skills have always been considered to be of great importance, nevertheless the implementation of the speaking skill in practice has been commonly acknowledged as challenging because

the underlying framework might be unclear to some teachers as proposed by National Council for Curriculum and Assessment (NCCA, 2007). With knowledge of this, Eisenhart (2008) recommended in his PHD dissertation a model for effective speaking skills which consists of six parts as shown in the following figure.

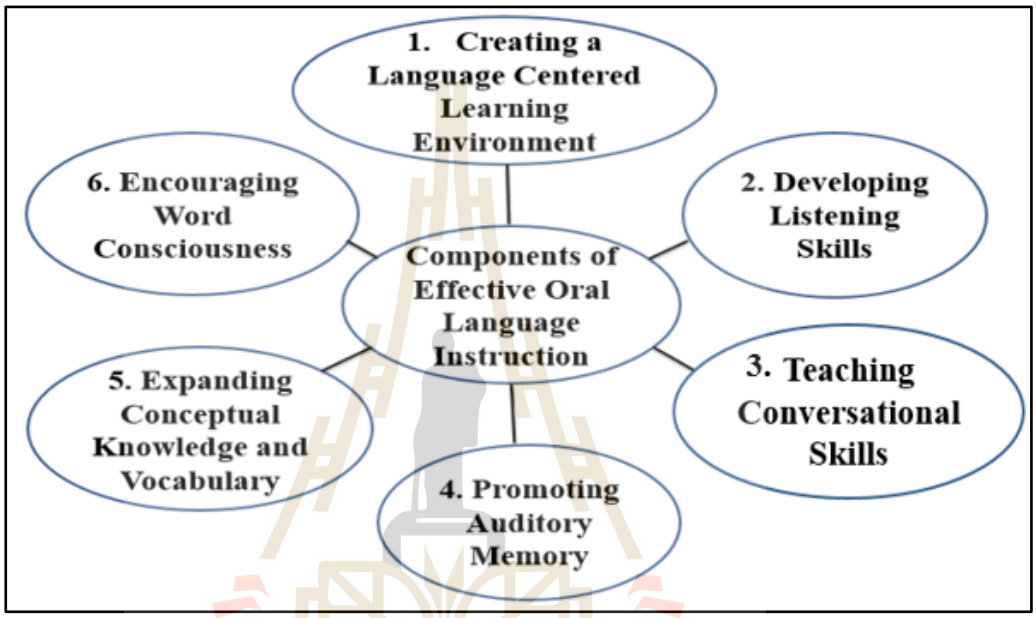

Figure 2.1 Six components of effective speaking skill instruction

There is no doubt that speaking skills are of great importance for communication in the society and it is a crucial part in our life. There are certain functions in using language. To fulfill their needs, one needs to use language to communicate. When using language, one needs to choose words that matches his/her needs. Certain functions are needed to say a sentence, to ask, to reply, to greet and etc. The purposes of using language may fall into different categories as claimed by different theorists. The most commonly known one was proposed by British linguist Michael Halliday as "Halliday's Functions of Language (1975)". These are listed below:

Table 2.1 Halliday's functions of language

Function	Examples	Classroom Experiences
Instrumental language is used to communicate preferences, choices, wants, or needs	"I want to ..."	Problem solving, gathering materials, role playing, persuading
Personal language is used to express individuality	"Here I am ...."	Making feelings public and interacting with others
Interactional language is used to interact and plan, develop, or maintain a play or group activity or social relationship	"You and me ...." "I'll be the cashier, ..."	Structured play, dialogues and discussions, talking in groups
Regulatory language is used to control	"Do as I tell you ...." "You need ...."	making rules in games, giving instructions, teaching
Representational Use language to explain	"I'll tell you." "I know."	Conveying messages, telling about the real world, expressing a proposition
Heuristic language is used to find things out, wonder, or hypothesize	"Tell me why ...." "Why did you do that?" "What for?"	Question and answer, routines, inquiry and research
Imaginative language is used to create, explore, and entertain	"Let's pretend ...." "I went to my grandma's last night."	Stories and dramatizations, rhymes, poems, and riddles, nonsense and word play

Although speaking skills are considered as unnecessary in some instructional methods like the Grammar Translation and the Reading-Based Approach, where oral communication is not an initial instructional objective, Egan (1999), Mauranen (2006) and Abrar et al. (2018) have agreed that speaking is a very challenging yet still inactive EFL skill. Before this, Rose (1994) and Bardovi et al. (1998) have also pointed out that speaking has been ignored in ESL and EFL settings. Speaking skills have become a most controversial issue because of its complexity and heterogeneity. The production of speech consists of a considerable number of cognitive, affective, and sociolinguistic competences. Learners have to master these competences in any speaker or hearer interactional or transactional situation that might be full of social or cultural differences. The purposes of the instruction of English speaking skills are thus needed to to be discussed in the present study.

2.1.2 The goal of English speaking instruction

To enable learners to communicate efficiently is the goal of English speaking instruction. In other words, learners should be able to use their current proficiency to the fullest so as to make themselves understood. Specifically, learners should be able to avoid confusion in the message owing to faulty pronunciation, grammar, or vocabulary. Meanwhile, learners need to observe the social and cultural rules that apply in each communication situation. Effective instruction to develop English speaking skills can provide students with deep, language- and content-based learning experiences that

provide many opportunities for reading, writing, and meaningful discussion (Lesaux, 2012). We should therefore bear in mind that as the goals of language courses are to enable students to communicate, it is thus of great importance that speaking skills should be taught and practiced in the language classroom. At the same time, it should also be pointed out that the three functions of speaking, among which two were proposed by Brown and Yule (1983) who made a clear distinction between the *interactional* and *transactional* functions. The *interactional* function serves to establish and maintain social relations while the *transactional* function focuses on the exchange of information. A third function *performance* was added by Rodenburg (1992) and Burns (1998) as another function of speaking. The three functions of speaking implied that speaking skills are not just taught, practiced and gained in the language classroom but moreover they should depend largely on the outside classroom autonomous and authentic learning.

Richards (1990) further explained that the *transactional* function of language refered to as the use of language was primarily for communicating information that was sensibly predictable. Nynan (1991) continued to elaborate that most spoken interactions could be placed on a continuum from relatively predictable to relatively unpredictable. Transactional speech was more predictable than interactional speech as explained by Nunan (1991) since both parties are needed to be involved in an interational speech. However, transactional strategies are not practiced in isolation, instead, they are taught

within the context of real reading events as pstated by Brown (2000). Even though at first the teacher models and explains everything, gradually students themselves are responsible for their learning.

In the light of the above, Lindsay and Knight (2007) declared that a good speaker possesses skills such as producing connected speech, the ability to interact, talking around gaps in their knowledge, speaking in a range of contexts and balancing accuracy and fluency. Bygate (2001) cites, "teaching oral language was thought to require no more than engineering the repeated oral production of structures concentrating on the development of grammatical and phonological accuracy combined with fluency" (p. 15).

In this study, the goal of English speaking instruction is to help learners to achieve the following as proposed by Nunan (2003):

- Produce English speech sounds and sound patterns.
- Use word and sentence stress, intonation patterns and the rhythm of EFL.
- Select appropriate words and sentences according to the proper social setting, audience, situation and subject matter.
- Organize their thoughts in a meaningful and logical sequence.
- Use language as a means of expressing values and judgments.
- Use the language quickly and confidently with few unnatural pauses, which is called fluency.

2.1.3 Methods of English speaking instruction

Linguists and EFL teachers mostly agree that learners learn to speak in English by interaction (Ryan & Viete, 2009; Bashir et al., 2011; Gass, 2017). Chaney (1998) states that speaking is the process of constructing and sharing meaning through the use of verbal and non-verbal symbols in different contexts. The purposes of whatever methods used for English speaking instruction is to enable students to construct and share their meaning in communication. Only when communicative teaching methods are used in EFL classes can students have the opportunities of communicating with each other in the target language. In other words, EFL teachers should create a classroom environment where students collaborate in groups to have real-life communication, authentic activities, and meaningful tasks that promote English speaking.

There are many methods for speaking instruction, among which class *discussion* is the most frequently used. Classroom discussions can offer students the opportunities to actively participate in the education process to test their ideas and opinions against those of their peers. There have been many studies focusing on class discussion, with various instruments and pedagogical methods provided that could be employed in a communication course (Surratt, 2006; Dallimore, 2008; Noblitt, 2010). For instance, in-class discussion has been advocated for a variety of reasons as claimed by Dallimore (2008), including its instinctively democratic nature, its emphasis on active learning and its impact on the development of problem solving and critical thinking skills.

Another means of getting students to speak is *role-play*. Brown (2001) claims that role-play involves at least the following aspects. Firstly, it gives a role to one or more members of a group and secondly it assigns a task that participants must accomplish. As Ladousse (2004) indicates that role-play is one of a whole series of communicative techniques which can not only develop fluency in language students but also promote their interaction and motivation in the classroom learning. Furthermore, he claims that role-play is the most flexible technique in the range of communicative techniques, and with suitable and effective role-play exercises, teachers can meet an infinite variety of needs (Ladousse, 2004).

Simulation, very similar to role-play, is another instructive method in speaking instruction. In contrast to role-plays, simulations can be more elaborate. In order to create an authentic environment, students might bring props to the class. For instance, if a student is acting as a football player, he may bring a football, and so on. Both role-playing and simulations have many advantages. Especially, they can motivate the students through their entertaining qualities. Secondly, as Harmer (2003) proposes, the self-confidence of hesitant students are strengthened since students can take different roles and not have to speak for themselves, lessening their perceived responsibility.

Information gap is another method of speaking instruction. Generally speaking, students have to communicate with one another in information gap activities, because they have to share information to solve a problem or complete a task. Thornbury (2005)

supports this definition as he states that only by using language can a knowledge gap be bridged. The students have to communicate so as to accomplish the task outcome. Specifically, individual students do not have all of the information needed to achieve the activity's goal in *information gap* activities, "gaps" are thus created. The "gaps" can only be bridged by students' speaking with other students to exchange information. Richards (2005) also states that information gap refers to the fact that in real communication, people normally communicate in order to get information they do not possess. According to Brown (2001), the information gap has two characteristics. One is that the information gap focuses on the information instead of language forms, the other being that the communicative interaction is prioritized in order to reach the objective. Since each individual learner has to ask for information so as to fulfill their tasks of activities, they will have opportunities to use the target language to a great extent and that's why the information gap activities are considered effective.

Brainstorming is another commonly used method in promoting creativity and solving problems in education, especially in language instruction. Isaksen and Gaulin (2005) claimed that brainstorming may be the most frequently used tool for group idea generation, particularly for the students with medium and higher levels of language performance. Brainstorming was defined by Honig (2001) as a multiple thinking including breaking up of old ideas, creating new connections, enlarging the limits of knowledge and kicking off wonderful ideas. A brainstorming activity is useful because

when doing so students can originate ideas or find solutions to a problem. In addition, students can also explore and expand their ability to think critically, quickly and freely. Meanwhile, as students get actively involved in the topic, they will be motivated to sepak their minds during the discussion. The outstanding feature of the brainstorming activity is that there are no right or wrong answers, in other words, students are not criticized for their ideas, so they will be more open to sharing new ideas.

Interview is also a popular method used in speaking instruction. Brinkmann (2014) claims that the interview is a conversational practice where knowledge is produced through the interaction between an interviewer and an interviewee. In order to obtain information students are motivated to speak in an interview during which there are opportunities for the students to express their opinions in English and thus increase their confidence in language learning. Through asking opinions, giving opinions, agreeing opinions, and disagreeing on opinions, students can improve their conversation ability through the interview activity. Students will not only practice their speaking ablility but also improve their social abilities in interview activities. According to Sianipar and Supardi (2015), interview is a teaching technique that encourages the students to express their ideas, emotions or feeling, and problem. Haley-James and Hobson (1980) summarize the benefits of doing interview: (1) The drive to communicate is encouraged, as students ask and answer questions. (2) Students are in control of their own language and learning. (3) Every student can succeed. (4) Interviewing unifies all the

language processes. (5) Students discover language rules and conversations about language based on their own experiences and observations.

There are many other methods that can be used in speaking instruction, such as, story telling or completion, reporting, finding the differences, playing cards, and picture describing etc., among which storytelling is worth mentioning and it is the method applied in the present study. *Storytelling*, in general, is a powerful pedagogical approach that can be used to enhance learning outcomes in general, scientific and technical education (Sharda, 2007). Students may create their own stories to tell the class or they can sum up stories they heard from others when conducting a storytelling activity. Either by creating their own stories or summing up others' stories, storytelling can cultivate storytellers' creative thinking. Stories are usually organized in a format of beginning, developing, and ending. In addition, there must be characters and settings for any story. Storytelling can thus help develop students' conceptional ability, sequential ability, descriptive ability, etc. Riddles, fables and jokes, even stories behind proverbs and sayings are the kinds of short stories which can be conducted at the very beginning of each class session as a warming-up activity in a language class. In a storytelling warming-up activity, not only can the teacher's and students' speaking ability be demonstrated, but also they will draw the attention of the class will be drawn.

Ellis and Brewster (1991) have identified several objectives when using the methods of storytelling in speaking class. The first objective is to develop

students' positive attitudes towards EFL learning. The second objective is to exercise students' imagination. The third objective is to increase students' ability to share social experience. The fourth objective is to go over the vocabulary and sentence structures learned in the previous class. The fifth objective is to improve students' other skills, such as listening and concentrating.

From those five objectives of storytelling mentioned above, it can be concluded that storytelling can not only improve speaking skills but also has many other bebefits. According to Harriot and Martin (2004), speaking practice through storytelling increases speech and spoken communication skills related to enunciation and articulation. In short, storytelling is an effective tool in improving the speaking competencies of students (Isbell et al., 2004). No matter what method may be employed, students ought to be placed as the center of activity (Ge, 2017).

2.1.4 Studies on English speaking instruction in China and abroad

China has been laying great emphasis on the course of English in all levels of educations considering English proficiency as a needed skill for its citizens to participate in international cooperation and global competition (Li, 2005). As a fundamental aspect of language skills, English speaking should not be devalued (Goh, 2006), because speaking is an indispensable tool for language teaching and learning and it enables students to make progress in language acquisition and development (Goh, 2007). Genesee (2006) further stated that speaking can be beneficial to learners' academic

achievement as well as professional success. Therefore, good speaking competence is essential to English learners, especially for those English majors at normal universities (universities training students to become teachers), since English teaching is likely to be their lifelong career. According to PRI (Primary Rate Interface) Chinese people spend more time and money learning English than people in any other country in the world. More than 300 million people are learning English in China. Put into perspective, that's roughly the population of the United States (Porzucki, 2015). The number of people learning EFL online also grows rapidly. EF (Education First) estimates the number of English online learners in China will grow from 67.2 million in 2013 to 120 million by 2017 (Adkins, 2015). Nevertheless, the results of EFL teaching in China still remain feeble as claimed by Li (2009) and Liu (2009). According to Li and Liu, the predominant teaching methods adopted by EFL teachers in China are always in traditional teacher-centered and test-oriented model. A number of studies reported that the large proportion amount of teacher talking time has caused negative effects in language teaching (Walsh, 2002; Walsh, 2006; Bentley, 2007; Meyer, 2015; Maslova, 2016). They claimed that teachers who talked too much in the classroom would not be able to improve students listening comprehension and communication skills. So, we can conclude that only if a teacher of language works hard wisely in the classroom, can his students work hard too. Otherwise, even the teacher works very hard, his students will hardly work, because if the teacher speaks all the time, how can student have the opportunities to say anything

then? Especially, for a speaking instruction class which aims to improve students' speaking skills. Teacher's speaking all the time equals to students' keeping quiet all the time. No speaking, no speaking skills. Speaking skills come from speaking itself.

Students' demotivation and reticence have become Chinese EFL learners' most notable problems. Liu (2009) conducted a project to study mainland Chinese EFL learners' reticence level in English class and reported that 83.3% of Chinese students kept silent in English class and over 70% of the surveyed teachers considered students' unwillingness to participate in class discussion as their biggest challenge. Liu's study further revealed that besides the textbook-centered teaching approach, low speaking proficiency was another key factor that led to inactive class participation. Approximately 63.3% of Chinese students surveyed indicated that they had difficulty in expressing their ideas in oral English. To meet the needs of the rapid economic growth and social development in China, the latest revised *College English Curriculum Teaching Requirement* (MOE, 2007) for college students requires developing students' ability to use English in an all-round way, especially in listening and speaking, enabling them to communicate effectively in both spoken and written English in their future careers. It states the basic requirement for speaking ability as follows.

> *Students are able to communicate in English and discuss a certain topic during the process of learning; to communicate with native-speakers in daily-life situations; to make a brief speech over a familiar topic with preparation in advance, expressing himself/herself clearly with fairly correct*

pronunciation and intonation; and to use basic communication strategies in conversations.

Although the latest versions of English textbooks used at colleges in China are based on communicative principles and a greater emphasis is put on communicative activities, in practice, the teacher remains the centre of the classroom and provides all the input like a transmitter, while the students are the passive recipients. This is proven in the study of successful and unsuccessful EFL students in Chinese universities conducted by Gan et al. (2004). Some teachers tend to teach students about English through grammar-translation rather than for communication. In addition, students' English competence is assessed through written exam papers where speaking skills are rarely tested. As Luchini (2004) argues, this testing and evaluation system has caused the consequence that teachers teach English to a test rather than to develop students' communicative competence. The large class size could be another contributing factor which makes it difficult to carry out communicative activities. Finally, the limited classroom time also restricts communicative activities.

Research on how to achieve a higher level of language proficiency has always been on the forefront. Nunan (1991) claims that learning to speak in a second or foreign language will be facilitated when learners are actively engaged in attempting to communicate. Gwyn-Paquette and Tochon (2002) suggest that EFL learners need to get involved in oral communication and problem solving. Many language teachers both in

China and abroad have been searching for methods to improve students' English proficiency while making the learning process an enjoyable experience. Lawrence (1999) stressed the importance of developing language learners' communicative competence in the foreign language learning process. Lawrence (1999) defined the standards for foreign language learning in the 21st century as the five Cs: Communication, Cultures, Connections, Comparisons, and Communities. In Liu's (2009) research, she found that students were more apt to make contributions in interactive activities when they became more proficient in English. Abbas (2010) claimed that greater importance should be attached to the training of spoken English rather than focusing on grammar or linguistic knowledge. Also, Li (2004) the founder and chief teacher of the well-known English language training program Crazy English in China, considers English speaking skills as the key factor in helping students achieve overall success in English. Only when language teachers have recognized the significant role that speaking has played in supporting students' progress in language learning can they find the first step of remedying the current situation of students' low English speaking proficiency.

On one hand the teachers talk too much, but on the other hand students talk too little. Reticence in foreign language classes has long been a challenge for both teachers and students. Studies (Tsui, 1996; Miller & Aldred, 2000; Jackson, 2003; Johnson,2008; Borich, 2016) have shown that in spite of the strong willingness and positive attitude, few students in each level group were observed to respond actively to the teacher in

class, especially when the questions were difficult and/or challenging. It is necessary for teachers to enhance students' interest in and motivation to speak the language so as to promote students' active participation in English-language lessons. When students have more exposure and access to spoken English, they should become more active in speaking the target language in classroom activities.

Many other studies have been conducted on Chinese university student EFL speaking proficiency. As Gao and Yu (2008) state, notwithstanding at present intensive reading and listening courses offered in many universities, students in both are given few opportunities to open their mouths to speak. They claim that on the whole students have few opportunities to engage in using the language for communication, and thus there is a lack of communicative output. Consequently, although many of students have passed College English Test Band 4 (CET-4), they are not competent to perform orally in daily communication. An investigation about factors affecting the efficiency of EFL teaching in Chinese universities, 82% of the teachers and 67% of the students thought that the low efficiency of EFL teaching was due to the current examination system as reported by Li (2009). Ellis (1994) points out that the motivation in language learning directly determines the learner's attitude toward it. Since speaking was not assessed in the final term exam, it was difficult for some students to change their study focus on the written exam. Lin (2011) found that the experimental students appeared to do somewhat better in interactional strategy use than the controlled students in an

experiment conducted to explore the impact of cooperative learning (CL) on Chinese students' English speaking proficiency.

Task repetition or story retelling was considered an effective method in developing students' speaking fluency and accuracy, because in a task of repetition learners have to incorporate what they have already obtained to what they need to perform (Bygate & Samuda, 2005). In addition, repeating may help learners' avoid making fewer errors in speaking and reducing pressure in creating communication (Bygate, 2005) and meanwhile it can help increase learners' speaking fluency (Ellis, 2002). Task repetition is thus strongly recommended to be applied to Chinese EFL speaking classrooms, because it enables to develop learners' speaking fluency with additional emphasis on accuracy (Lynch & Maclean, 2000; Bygate, 2001).

On the basis of the abovementioned reviewed literature, there are various ways to solve the problems of students' EFL speaking. First and foremost important thing is to draw both teachers' and students' attention to improve students' English speaking skills; secondly it's to stimulate students' motivation and learning interests; and last but not least it's to make students feel the need to talk and make their voice heard (Liu, 2009; Frazel, 2010; Green, 2013; Abdel-Hack & Helwa, 2014). Further more, EFL students should learn to be independent in language learning. In other words, they need to develop learner autonomy so as to learn English anytime anywhere and anyhow.

2.2 Theory and practice of learner autonomy

2.2.1 Definitions of learner autonomy

There exists some disagreement on the definition of learner autonomy, especially on its details. However, there exists a general agreement on a definition first introduced in a project report to the council of Europe: *autonomy is the ability to take charge of one's own learning* (Holec, 1981). Dryden (2010) defines autonomy as an individual's capacity for self-determination or self-governance. The key principle of learner autonomy is the emphasis on the role of the learner rather than the role of the teacher. Researchers (Jacobs & Farrell, 2001; Nguyen, 2014; Aksit et al., 2016) claimed that in an autonomous language classroom teachers do not act as transmitters of information but manage the activities in the classroom and maintain learning environment that encourage learners to view learning as a lifelong process. Nevertheless, it does not mean the disappearance of the teacher but a role for the teacher as advisor and resource person and as a counselor for developing the necessary autonomy (Lian, 2014). So, the purpose of research on learner autonomy is to help not to indulge students to take control over their learning (Pemberson et al., 1996; Jang et al., 2010; Benson, 2013; Schmidt, et al., 2018).

What are the main components of learner autonomy then? Sinclair (2000) suggests 13 aspects of learner autonomy as seen in Table 2.2.

Table 2.2 Defining learning autonomy

1	Autonomy is a construct of capacity
2	Autonomy involves a willingness on the part of the learner to take responsibility for their own learning
3	The capacity and willingness of learners to take such responsibility is not necessarily innate
4	Complete autonomy is an idealistic goal
5	There are degrees of autonomy
6	The degrees of autonomy are unstable and variable
7	Autonomy is not simply a matter of placing learners in situations where they have to be independent
8	Developing autonomy requires conscious awareness of the learning process–i.e. conscious reflection and decision-making
9	Promoting autonomy is not simply a matter of teaching strategies
10	Autonomy can take place both inside and outside the classroom
11	Autonomy has a social as well as an individual dimension
12	The promotion of autonomy has a political as well as psychological dimension
13	Autonomy is interpreted differently by different cultures

Previous studies on learner autonomy usually focus on various aspects such as definitions, theoretical background, course curriculum and strategies etc. Nevertheless, researchers have not been able to reach a general picture of learner autonomy. Instead, some concepts of learner autonomy may conflict with those listed above. For instance, the concepts held by Little (1991) is that autonomy is synonymous with self-instruction and that any intervention on the part of the teacher is detrimental to autonomy. But this was noted as a misconception by Benson (2009). Different perspectives seem to be

supported by different theoretical assumptions. The technical perspective focuses on the physical setting of learning. The psychological perspective cares more about the mental attributes that permit autonomy. The political or critical perspective concentrates on issues of power and control, while the socio-cultural perspective has a main interest in the roles of interaction and social participation in the development of learner autonomy. It is important to understand the different perspectives of learner autonomy mentioned above. Nevertheless, Palfreyman (2003) claims that such perspectives are not black-and-white alternatives in the real educational settings. In short, what learner autonomy means to teachers and students remains largely unstudied, especially in the context of the Chinese university.

For this study, learner autonomy refers to students' learning EFL through self-access facilities for autonomous learning. Serra (2000) reported that although the use of self-access facilities may be encouraged, it is usually seen as part of the learner's extra work, the result being that these resources are only used by a few, highly motivated students.

'Self-access' is a way of describing learning materials that are designed and organized in such a way that students can select and work on tasks on their own (although this does not preclude the possibility of various kinds of support), and obtain feedback on their performance, for example by comparing their answers to a key which accompanies the material.

(Sheerin, 1991:143)

Self-access refers to materials that are made available for learners to work on their own (Sheerin, 1991). However, self-access does not mean learner autonomy exactly. That's to say, learners with a teacher are no less autonomous than others who learn a language using self-access materials. Some researchers (Murase, 2015; Darvin & Norton, 2016; Kruk, 2017) claim that being autonomous in language learning is not synonymous with learning a language in a specific way, but means taking active responsibility for one's own learning. Moreover, self-access resources do not automatically make learners autonomous. The intervention of a self-access approach itself matters as well. The aim of this present study is to explore how such an intervention may be effectively carried out. Just as Little (2003) mentioned that the development of learner autonomy depends on a complementary teacher autonomy, in this case, good lesson plans, modern teaching techniques and approaches help language learners to be autonomous learners (Yagcioglu, 2015). Educational researcher Dr. Sugata Mitra's "Hole in the Wall" experiments have shown that, in the absence of supervision or formal teaching, children can teach themselves and each other, if they're motivated by curiosity and peer interest (Mitra, 2013). Thus it can be said that the fostering of learner independence beginning in a class room environment can very well extended beyond it (Najeeb, 2013).

2.2.2 Development of EFL learner autonomy through PBL

Traditionally, the teacher has always been the center of the language teaching class. However, nowadays, the classroom-teaching style has changed from being lecture-

based to being project-based (Thomas, 2000), in which students become the center of learning. Güven (2014) states that PBL could be used as a means to guide learners to advance towards autonomous learning through experiencing and solving real world problems. Shih et al. (2010) further reveals that PBL could be a student-centered learning model to promote the learning achievement of students because students learned by doing it themselves. Moreover, Pedersen and Liu (2002) point out that technology can play an important role in facilitating PBL by enhancing students' interest and supporting information-gathering and presentation.

The essential elements of PBL were classified as: significant content, a need to know, a driving question, student voice and choice, as well as 21st century skills including collaboration, communication, critical thinking, the use of technology, inquiry and innovation, feedback and revision, and a publicly presented report (Larner and Mergendoller, 2010). The principle behind this notion comes from a traditional pedagogy that originated from Piaget (1952), who asserted that humans learn through the construction of complex logical structures progressively, rather than the transmission of knowledge from teacher to student, which means, if you tell or teach the students the knowledge only, they might remember what it is, but if you get them involved, they will learn. Dewey (1938) also believed learning begins with the curiosity of the learner in a spiral path of inquiry, each step of which leads to the next: inspiring new questions, investigations, and opportunities for authentic "learning by doing".

In addition, during project-based learning, teachers should know how to allow for choice and autonomy while providing adequate support for the less knowledgeable or less capable learners (Blumenfeld, 1992), because autonomous learning does not mean the absence of a teacher. On the contrary, the teacher needs to know his students well and provide help when necessary. Phanitphim (2009) also points out that teachers should be provided with training on the PBL approach before doing the actual teaching so that they can learn and practice how to put it into practice effectively and successfully. Specifically, teachers can support students in choosing tasks, in guiding how tasks are to be accomplished, and in providing diagnostic feedback. Such a learning environment can have a positive impact on students' motivation toward learning because their motivation including measures of challenge, curiosity, mastery, judgment and criteria of learning is encouraged.

As a particular activity of PBL, DST has been proven to be effective in enhancing students' learning motivation, problem-solving competence, and learning achievement (Hung et al., 2012). Rattanathavorn (2014) also showed that PBL helped motivate learner autonomy successfully. Moreover, from the interviews, it was found that the students in the experimental group enjoyed the PBL activity and thought it helpful because of the DST aspect (Hung et al., 2012). It is therefore reasonable to attribute the success of the project-based learning approach implemented here to the digital storytelling activity since it provides not only an interesting way for the students

to present their findings, but also an opportunity for them to conduct active learning and organize their knowledge.

2.2.3 Use of ICT in learner autonomy

According to United Nations Educational, Scientific and Cultural Organization (UNESCO) (2002), the understanding of Information and Communication Technology (ICT) has become one of the basic skills in the core of education and have become one of the basic building blocks of modern society, especially in the 21st century since undoubtedly, the world has become more information-rich and communication-rich today than at any time in its history. Information and thoughts on every conceivable subject can be obtained through technological and communication means at a moment's notice: we are constantly bombarded with a multitude of signals about anything and everything, often in multimedia format and with multi-sensory input (Lian, 2011). Digital computers have been used to enhance teaching and learning since as early as about 1960, their technical specifications and role in learning gradually changing through the years. The digital age has not simply changed the nature of resources and information. It has transformed basic social and economic enterprises as well. Contemporary society—the settings where we live, work, and learn—has likewise changed dramatically (Robin, 2008). Figure 2.2 in the following can illustrate the development process of ICT based on the data provided by Gillespie (1997).

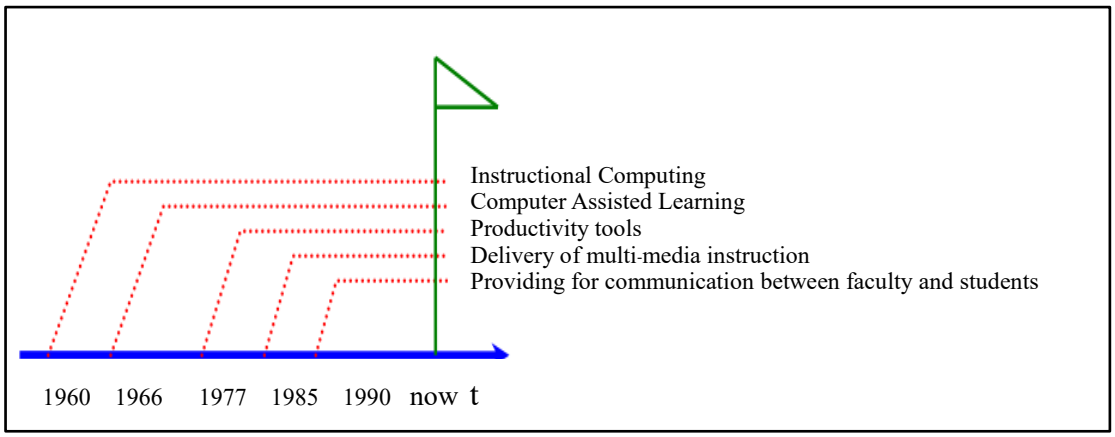

Figure 2.2 Development of ICT

Shotlekov (2010) stated that each new role in the above figure does not repudiate its predecessor, but builds on its advantages and eradicates some of its shortcomings. Undoubtedly, ICT is a consequential enhancing tool in learning process. With the use of ICT in EFL learning, learners can do their work autonomously thereby leading to self-reliance. Gumbo and Mawire (2013) claimed that with the use of ICT learners can also get better means to obtain knowledge to improve their language acquisition including their understanding, speaking, listening, reading and writing skills.

Technology-enhanced learning has assumed a key role in making possible omnipresent access to personalized learning throughout life, i.e. learning for anyone, any time, any place, anyhow (Murray, 2010). However, as Gillespie (1997) claims, the computer itself can not help in learner autonomy because there have been very few examples where computers have really changed how we teach or what is actually taught. Notwithstanding, progress has been made in the development of new digital tools to support learning.

There is a certain process for learners to experience in applying ICT in language learning. Nunan (1997) claims that a mature ICT practitioner usually goes through the five-level model (as seen in Table 2.3) in order to apply learner autonomy to the use of learning materials.

Table 2.3 Five-level model of learner autonomy

Level	Learner Action	Content	Process
1	Awareness	Learners are made aware of the pedagogical goals and content of the materials they are using.	Learners identify strategy implications of pedagogical tasks and identify their own preferred learning styles /strategies.
2	Involvement	Learners are involved in selecting their own goals from a range of alternatives on offer.	Learners make a choice among a range of options.
3	Intervention	Learners are involved in modifying and adapting their goals and contents of the learning program.	Learners modify/adapts tasks.
4	Creation	Learners make their goals and objectives.	Learners create their own tasks.
5	Transcendence	Learners go beyond the classroom and make links between the content of classroom learning and the outside world.	Learners becomes teachers and researchers.

As is seen in the above table, five levels developing learner autonomy are outlined. Learners' awareness came as the first step towards learner autonomy to help learners understand the learning goal and context. Learners are expected to become aware of the pedagogical goals and identify their own preferred learning strategies or

styles. Without this first step of awareness, no active involvement in the learning process can take place, where learners make choices among a range of options. Next, learners are encouraged to intervene in the learning process by modifying learning goals or choosing learning content, moving on to creation that embraces learners setting their own goals, updating learning content and creating learning tasks. Transcendence is the heart of learner autonomy, requiring the learner to connect the content of the classroom and the world beyond the classroom. At this level, learners take control of their own learning, and learn to become effective language users.

The decision to promote autonomous learning with the help of ICT was inspired and influenced by modern pedagogies (Marco & Pueyo, 2006). Findings have come to prove that ICT can assist learners to become more autonomous in learning (Marco & Pueyo, 2006; Tian, 2012). With regard to its accessibility in terms of cost, cheaper hardware, software, and telecommunications, it is readily and widely available. However, technology alone does not work miracles. Its use presupposes changes and leads to more time and effort on the part of the moderators, not always widely recognized. It was not until the late 1990's that China witnessed a rapid economic growth and the growth of ICT. The Chinese government recognized the importance of information technologies to the future development of the country and started to form an active agenda to promote ICT in education. Information technology education became one of the major national educational priorities. In 2000, the MOE issued a

policy document entitled "Information Technology Curriculum Guide in Primary and Secondary Schools" (Leung & Ruan, 2012; p.184). This ground breaking document stipulates that primary and secondary schools should offer information technology courses to students. The guide also calls for the integration of ICT into the teaching of other school subjects. Most recently, the Chinese government published a strategic document entitled "The Outline for National Mid- and Long-term Education Reform and Development Plan" (Reform, 2010). This critical document set the direction for education for the decade 2010-2020, and ICT in education was one of the key elements of the document.

2.2.4 Use of messenger system in learner autonomy

The use of messanger systems enabled ICT to become more popular and successful. Grodecka, Wild, and Kieslinger (2009) claimed that social software technology support learners to conduct collaboration, negotiation, reflection, criticism, selection and information analysis. In China, technology integration in education is a rather recent phenomenon (Liu & Zhang, 2006). Even in the late decades of last century, technologies were rarely used, and could only be observed in highly selective university settings. However, since the new century, China has witnessed rapid economic growth and the growth of ICT. Some popular and emerging social network tools such as QQ and WeChat have quickly found their ways into Chinese literacy education. A few of those are introduced as alternative sources for students to use in this study. But, in this

study the students are not conformed to use any of these messenger systems because learning is such a complexity that we can't predict.

QQ developed by Tacent Corporation, which combines many common communication tools into a single system, consists of a communication space, an instant message function, a bulletin board system (BBS) for information sharing and group discussion, chat rooms for one-on-one or group chatting, an emailing function, albums for sharing pictures, and a dropbox for uploading, downloading, storing files and sharing files. With its popularity and user-friendly features, QQ has quickly gained the attention of many educators. Some educators have attempted to take advantages of the various features of QQ to support Chinese literacy education, for instance, to carry out discussion on a given topic, brainstorm ideas for a composition, or conduct a collaborative writing task (Ge et al., 2012). Few urban Chinese do not have a QQ account. 800 million QQ accounts have been opened and, at times of peak usage, over 176 million people can be found online (Wang et al., 2014). Tencent QQ is the most famous instant messaging platform in China. With the development of Internet technology, chatting online by QQ medium is a particular phenomenon among Chinese college students, and it has grown into a fashion (Xiao, 2009).

Researchers both in China and abroad have found the usefulness of QQ as learner autonomy in EFL learning. Palloff and Pratt (1999) hold that when teachers and learners are working in collaboration with each other and constructing new knowledge,

they are knitting a net of interactive learning and mutual progress. Ruan (2013) finds that QQ can serve for building a learning environment that encourages deep content-based discussions in critical literacy activities. A recent research by Qing (2016) demonstrates that college students are keen on using smartphones, the post-90s college students are accustomed to digital life and develop into their digital mentality. Their interests are not only confined to classroom input and book learning, students are playing with their mobile phones by using communication tools like QQ, WeChat, games and so on together with many learning applications.

Figure 2.3 QQ logo

Figure 2.4 WeChat logo

At present, QQ has grown to be the most frequently used tool in China to realize online communication, online interaction, and online learning. It plays an important role in the life of college students. Kitade (2000) claimed that online chatting could promote self-correction while chatting. Abrams (2003) confirmed a previously reported increase in quantity of language produced by students in the synchronous Computer-Mediated Communication (CMC) group. Furthermore, the students could participate equally in the conversations in chat rooms. Yuan (2003) investigated the error types produced by participants. The participants could correct their own errors from chat conversations and they could improve their grammatical knowledge. Compton (2004) showed that the

students could transfer their own output and their partners' output from chat rooms to their own speaking skills. Lai and Zhao (2006) examined whether online chatting could promote learners to notice the problematic language productions and interactional feedback from their interlocutors better than face-to-face conversations would, especially in terms of noticing the linguistic mistakes. Wang et al (2014) revealed that revising peers' writing through QQ facilitates students' comprehension of the writing skills, such as structure design, rhetorical devices, correct form of sentences and words. This happens because they're required to review peers' writing while considering all aspects of writing. In short, Liu (2014) claimed that QQ groupware plays an active role in raising students' learning autonomy and improving students' language skills in English learning. Seferoglu (2007) proved that online chatting could encourage students to practice the spoken language in real-time by using written-like-spoken language in the same manner as in face-to-face interactions.

In addition to QQ, Wechat is another messenger system used in China which has similar functions to QQ. Known in Chinese as Weixin (微信) meaning "micro letter", WeChat is first and foremost a messaging app for sending text, voice, and photos to friends and family (Chan, 2015). It is reported that WeChat has 300 million users (WeChat, 2013). The user data on WeChat is protected via on-demand contact list backup and retrieval from a cloud-based service. Students may participate in surveys, express their viewpoints, make suggestions on public forums, utilize "friend circles" as a private

zone for individual students where they can control viewers and reviews, upload homework, express reflections on learning, post photos or videos. Li (2013) claims that some of the features of WeChat are helpful to teachers in student assessment. Because the text and voice messages are stored in the message history, the teacher can check and evaluate the performance of students. Also, there is a late response time display indicating if a student lagged in responding. QQ and WeChat are thus the most recommended messenger systems for learners to use in language learning particularly in speaking and writing.

However, as mentioned earlier, students are not conformed to use any of these messenger systems because we can not expect anything for them to use in a PBL activity since learning is a complex activity. Students may use other messenger systems instead of QQ and WeChat, or they might not use any of these ICT approaches, chossing to exchange ideas through traditional face-to-face discussion. In short, they do not have to comply with any tools in their autonomous learning activities.

2.2.5 Self-, peer-, and teacher-assessments in learner autonomy

Assessment plays an important role in education because it indicates whether or not the goals of education have been met. Assessment can be defined from different perspectives. Palomba and Banta (1999) defined assessment as the systematic collection, review, and use of information about educational programs undertaken for the purpose of improving learning and development. Overton (2011) states that an assessment may

include a test, but also it can embrace methods such as observations, interviews, behavior monitoring, etc. Sluijsmans, et al. (1998) emphasized the flexibile using of assessment as a learning device can help switch a classroom from teacher-centered to learner-centered, where teachers can not only monitor learning but also help to improve learning. Orsmond and Merry (1996) also claimed that we need to change the current tests in order to encourage students to be more self-dependent in their own learning. To this end, we need to empower students, two instances of which are self- and peer-assessments that are contrary to the traditional teacher-centered assessment.

Traditionally standardized tests have been enjoying a social, political, and organizational status leading to the so-called test driven curricula where educational materials are directed toward the content of the test rather than toward learning what the learners should be learning. Farhady (2006) stated that traditional standardized tests are known as negative wash-back, have diminished the learning value of language instruction across the world. Fortunately, there are studies indicating that student learning is positively influenced by assessment (Black & William, 1998; Kennedy et al., 2008). One important condition for assessment to support student learning is the active involvement in the assessment process on the part of students themselves (Black & William, 1998). Alternative assessment methods, while associated with students' learning approaches, include self-assessment and peer-assessment, and are designed to develop active, autonomous, responsible, and reflective learners (Falchikov, 2013).

According to Smith et al. (2002) and Williams (1992), peer-assessment indicates that a large proportion of students endorsed peer-assessment activities which provide an opportunity for comparison of student work, however, few students appreciated criticism from peers. Sullivan et al. (1999) stated that students lack self-confidence when rating their peers. In addition, Orsmond and Merry (1996) claimed that students need pre-existing guidelines or rules for the assessment activities. A study by Ho and Duong (2014) demonstrates that the peer feedback activities can be effective and helpful so that students can get a general picture of what and how they are doing.

Assessment is particularly relevant to learner autonomy. Studies (Clifford, 1999; Orsmond et al., 2000; Hanrahan & Isaacs, 2001; Liu & Carless, 2006) constructed learner-controlled learning environments and applied both peer-assessment and self-assessment techniques to help students develop autonomy. Researchers (Boud, 1995; Kuh, 2001; Ramsden, 2003; Wiliam, 2011) further claimed that self-assessment and peer-assessment influenced the decisions students made about how and what they learned.

One purpose of the present research is to investigate the effect of three types of assessments, namely, self-, peer-, and teacher- assessments, on Chinese university EFL students' speaking proficiency. According to the studies (McNamara, 2000; Farhady, 2006; Alavian, 2013; Lee & Hannafin, 2016), student-centred approaches in language teaching has shifted language testing from traditional teacher-centered testing

to student-centered assessment. The implementation of student-directed assessment arises out of the belief in student autonomy as an educational goal (Boud, 1995). In fact, one of the essential features of self-directed language learning is to provide the opportunity for learners to assess their own progress and thus help them to focus on their own learning. Assessment does not simply provide information on the students' progress in the form of a grade, rank, and/or feedback; but also may be used to improve students' approaches to learning by shaping the students' perceptions of the curriculum (Boud, 1995; Ramsden, 2003). Assessment for, or as, learning, focuses on the process as well as the outcome of learning, and can therefore enhance the student learning experience and foster the development of autonomy. Lindblom-ylänne et al. (2006) note that both self- and peer-assessments can be viewed as learning tools that enable students to develop skills required for professional responsibility, judgment, and autonomy through the process of getting involved in giving and receiving feedback. Shams & Tavakoli (2014) claim that self-, peer-, and teacher- assessments in an autonomous learning system will raise learners' Awareness, Autonomy and Achievement which are developed in learners partly as a result of their interactions with materials but also, and importantly, as a result of their interaction with teachers who act to ensure that appropriate skills and attitudes are acquired by learners. It's worth noting that the teachers' role, though it may no longer correspond with the traditional teacher remains very important (Lian, 2000).

Self- and peer-assessments conducted through chatting online messenger systems or offline face-to-face, can develop learner autonomy in EFL learning. The researcher of this study proposes that applying a project-based learning digital storytelling intervention with the supplemental aid of either online or offline interaction through self-, peer-, and teacher assessments could be a potential alternative approach to develop learner autonomy in language learning. As far as the author is aware, there is no such a study in the instruction of EFL for improving English speaking skills anywhere, let alone, at a Chinese university context, which makes this study timely and relevant.

2.3 Current practice of DST in education

In the 21st century, more and more educators are applying a variety of teaching approaches with technological tools to encourage students to construct and demonstrate their own learning more effectively (McLellan, 2007). Techological tools now available include digital cameras, editing software, authoring tools and electronic media outlets. One of the most powerful tools in multimedia is DST (Robin, 2007). Alismail (2015) states that DST is a multimedia tool that can support teaching and learning as well as motivate students. So, what is digital storytelling?

Snelson and Sheffield (2009) concluded that a precise and globally accepted definition of DST is "elusive" at best. However, some definitions and descriptions of DST

are brief and clear: a short narrative in movie format (Lambert, 2007), an educational tool for achieving language arts and technology standards (Ohler, 2013) and a means of assessing deep learning (Barrett, 2006). According to Robin (2008), the term 'digital story' was coined by Dana Atchley in the 1980's. Rance-Roney (2008) defined a digital story as a 2- to 5-minute movie-like digital production that learners create using one of several readily available software programs. Meadows (2003) described digital stories as short, individual, multimedia stories. DST is further defined as the process of creating short, emotional, and compelling stories through the combination of different technological modes, such as images, music, sounds, video clips, text, and/or narration. Depending on the purpose and objective of the task, students may create digital stories to recount and examine historical events, inform an audience on a particular topic or subject area, or depict personal experiences (Lambert et al., 2003; Robin, 2008; Castañeda, 2013).

As a practical ICT activity of PBL in learner autonomy, DST has been regarded as one of the most accessible pedagogical strategies, widely used in language instruction (Clarke & Adam, 2012). To prepare a digital story, digital devices like Microsoft PhotoStory 3 or Windows Movie Maker are integrated into the traditional storytelling methods, which constitute a set of slides with corresponding narration or music. In the education context, DST has not only commonly been used as an instructional tool by educators (Robin, 2006; Sadik, 2008), but it has also been implemented in student group projects (Hafner & Miller, 2011; Normann, 2011; Azizah,

2010). DST has been implemented as an instructional strategy in second and foreign language classrooms (Vinogradova, 2014) because it is highly adaptable to content and promotes student engagement.

Research on the use of DST in EFL teaching and learning has been conducted throughout the world, especially in the U.S. and in west European countries. Since the start of the new century, Asian educators are beginning to accept DST as one of the pedagogical tools to utilize in teaching and learning. In an English-medium university in Hong Kong, a study by Hafner and Miller (2011) found that the process of developing digital stories can foster independent learning among students. Students showed positive attitude towards the projects. They found learning this way would be novel, fun, and challenging and they derived satisfaction from creating their own digital stories. Somdee and Suppasetsere（2013）in Thailand claimed that the effects of implementing DST in the classroom helped develop the students' English speaking skills. Moreover, it can help teachers to design their curricula with DST in the instructions so that students can be active and self-directed learners. In Japan, Nakagawa (2004) found that a web site with the storytelling animation of Urashima Taro helps Japanese learners reinforce their language skills and makes the learning process more enjoyable. In the Malaysia educational context, the use of DST has been explored in some research studies. Azizah (2010) found that interactive DST is capable of capturing the attention of preschool children in daily reading activities due to its engaging nature. Shirley (2011) revealed

that students were better able to define moral values after a digital stories prototype was played in the classroom. Lim (2011) claims that DST is an effective teaching-learning method that can help to increase students' language learning ability. Najihah (2014) further supported Lim's idea that the creation of digital stories through group assessment could help not only to improve students' English language learning skills but also their workplace skills such as problem solving skills and collaborative skills.

DST teaching-learning methods, in general, are considered a teaching and learning strategy, that has brought out positive and effective learning results. Yang and Wu (2012), for instance, claimed that DST can promote critical thinking skills. Malita and Martin (2010) state that DST helps students connect newly-presented content with prior knowledge. Schank (1990) noted that DST can promote memory enhancement and Grisham (2006) further found that DST can encourage a higher level of confidence and motivation for learning. Green (2013) states that DST has the potential to motivate and engage language learners to concentrate on the contextual use of language rather than monotonous vocabulary acquisition. Students gain linguistic benefits in a more natural way. The implementation of storytelling in EFL classes displays the potential for improved story comprehension, reading fluency, linguistic accuracy and aid in building students' socio-cultural identities. Also, Gonsoulin (2009) claims that using DST in language learning can assist students gain self-confidence and self-esteem by drawing upon their cultural background and past personal experience. Smeda et al. (2014) claim

that DST is an innovative pedagogical approach that can engage students in deep and meaningful learning. Moreover, DST has proven to be an attractive teaching activity that can engage learners' attention in language learning. Miller (2010) claims that DST is an important way to attract and hold audience attention through the effective use of voice, inflection, and rhythm. As described by Smith (2005), she still can recall a story told by a storyteller in a performance many years ago because "the way he used words and gestures was marvelous. Most important was the way he used his voice, the inflections, the modulation" (p.126). Although storytellers use computers to present narrative instead of physically standing in front of the audience in DST projects, the power of voice and tone remains the same. Digital storytellers are still expected to use dynamic voice to ignite imagination, arouse curiosity and bring the listeners into the story. Storytellers assume the roles in the story by altering speed, intonation and tone of voice. By doing so, listeners are able to distinguish different characters and go beyond the surface meaning of words by observing shifts in the storyteller's pace and tone of voice. In addition, studies also showed that DST can help learners improve their memory. While telling a story, students are naturally assimilating the vocabulary, language patterns and the structure of a story (Kim, 2014). Lewis (2010) and Dirksen (2012) claimed that students usually find it difficult to memorize a large number of words, but DST enables faster recall and longer storage of information. Dirksen (2012) further explained that DST can help students place new information they encounter in

a relatively familiar framework enabling them to master and remember materials. Each story contains a common framework, namely the beginning, middle, and an end. Stories help to tie elements together into one package; hence a broad array of information enters the brain. We may find it hard to remember a number of new words at a time, but once these words are embedded into a story and presented in context, it is no longer decontextualized and easy-to-forget.

In a more specific perspective, DST has been demnonstrated to be effective in all four macro skills of language communication as shown in the following. A study by Razmi et al. (2014) showed that by the using digital storytelling techniques, students develop better oral skills, and that this technique can be considered an essential tool in foreign language learning and teaching. Wulandari et al. (2016) also demonstrate that the use of DST is strongly effective in developing student's abilities in speaking. It is thus, anticipated that Chinese university EFL learners would improve their English speaking skills through the use of digital storytelling. Findings of a study (Attarzadeh, 2011) showed that the internet-based instruction of digital stories had the most effect on young EFL learners' reading comprehension. Moreover, it was found out that using pre and post work activities can also help to improve learners' reading comprehension (Salkhord et al., 2013). In a study conducted by Xu et al. (2011), the findings of their study suggest that the technique of DST can be used effectively in classroom settings to teach writing. Abdel-Hack, et al. (2014) also confirmed that using DST and Weblogs instruction is

effective in enhancing the EFL narrative writing and critical thinking skills among EFL majors at Faculty of Education. Abidin, et al. (2011) found that participants in the experimental group improved their listening comprehension skills and outperformed those in the control group. These positive results could be because of several reasons. It could be argued that the pedagogical practice of digital stories promoted concentration and focused children's attention on the oral input received.

Most of studies on DST in education claim that it can help learners improve their oral proficiency. DST is a method that could greatly help students to improve their speaking and listening skills (Abdel-Hack & Helwa, 2014; Thang, et al., 2015). Digital stories possess unique narrative qualities that often center on identity negotiation and the ways culturally and linguistically diverse students make meaning out of their lives. It can also have an impact on improving learners' speaking in the narration process (Nelson, 2006), linguistic structure, vocabulary, sound patterns, and prosody of the foreign language (Verdugo & Belmonte, 2007). Chao & Hung (2014) also have found that the students' oral proficiency improved slightly in most aspects, including content, fluency, and pronunciation. Much literature has asserted that the implementation of DST in EFL speaking classes could effectively boost students' vocabularies, develop sentence complexity, and improve pronunciation (Abdel-Hack & Helwa, 2014; Kim, 2014). Kim's (2014) research on using DST to improve EFL learners' oral proficiency revealed that participants were excited to practice pronunciation in digital storytelling

project "because they could check and assess their speaking after listening to their own recordings" (p. 26). As reported by one participant in Kim's (2014) DST class, the recording program "was very flexible and convenient since she could record her speaking many times as well as monitor it, thus helping to improve her speaking" (p. 26). Digital storytelling, as a specific form of storytelling, can thus motivate and create new opportunities for learners to succeed in speaking. To create a digital storytelling episode, learners have to depend on themselves and the community they live in. There are more and more autodidacts as a result of technological development in today's Do-It-Yourself (DIY) society where people clearly prefer solving many of their problems by themselves (Lian, 2017).

In contrast to western countries, DST is still a new approach that has not gained popularity in EFL teaching in China. However, digital technology offers unprecedented potential in facilitating EFL learning, stimulating learning interest, and reducing learning anxiety. While there is evidence of DST in China, there is no ready access through the Internet for posting or access (Dong, 2015). Furthermore, ideas for applications of Internet-based stories tend to focus on cultural promotion (McGee, 2014). In this present study, the participants uesd self-study Photostory3 software provided by the researcher and pursued their own goal of doing DST to improve their speaking skills. Microsoft PhotoStory3 was chosen as the software for creating the DST due to the fact that it requires only a low threshold level of ICT skills and can be accessed offline.

An engaging, multimedia-rich digital story can serve as an anticipatory set or hook to capture the attention of students and increasing their interest in exploring new ideas. Although many classrooms in China are equipped with computers and other digital devices, EFL teachers still fail to take full advantage of digital technology for educational use. Thus making this study timely and relevant.

2.4 Theoretical framework of the study

As this thesis is conducted under the theory of learner autonomy for language learning, its theoretical framework can't set out without talking about the three major learning paradigms: behaviorism, cognitivism and constructivism, because these learning paradigms have all played important roles in framing and developing the field of instructional design over the lifetime of learner autonomy for language learning. Nowadays, nevertheless, most practitioners and theorists would likely agree that the field of instructional design is most heavily influenced by constructivism. As an educational approach, constructivism has become more influential in recent years. It overlaps the theory of cognitivism in many ways; however, it is characterized by focusing on learning through the use of authentic contexts, and the importance of the social dimension of learning. Wilson (1996) defines constructivism as a place where learners may collaborate and support each other as they utilize a variety of tools and information resources in their guided pursuit of learning goals and problem-solving

activities. In addition, according to Anderson (2008), constructivists have more than a single perspective on learning, recognizing that people explain the learnt information and the world around them on the basis of their personal vision. Jonassen et al. (2003) argue that learning environments should offer constructive, active, intentional, collaborative, complex, conversational, contextualized and reflective learning. The important learning characteristics of constructivism are that learners can build on their own interpretation of the world, depending on experience and interaction, and that will generating a new understanding through the collection of knowledge from various sources (Welsh, 2012). Moreover, constructivism claims that learners construct knowledge most naturally and completely while they are constructing some artifacts (Chan, 2002). Perkins (1992) argues that people who learn most from instructional materials are the designers, not the learners for whom they are designed. Students should therefore become designers rather than learners and knowledge constructors rather than knowledge users. DST is a powerful design tool for learners to construct knowledge and places students in the designer's seat so that they may construct their own understandings, rather than interpreting the teacher's understanding of the world. Researching the information, organizing and designing the presentation and managing the construction project require critical, creative as well as complex thinking skills.

Little's (1994) principle that "all genuinely successful learning is in the end autonomous" reflects the key idea that autonomy in language learning has borrowed

from constructivism. According to Slavin (1994), the basis of constructivism learning lies in the idea that learners should disclose and reconstruct complex information on their own if they are to adopt it as their own knowledge and integrate it into their internal schemes. Constructivist theories of learning emphasize the importance of the learner rather than the teacher by encouraging learners to construct their own conceptualizations and to find solutions to problems in the process of learning (Qi, 2012).

Egenrieder (2010) states that project-based learning is based on the constructivist principles of collaboration, personal autonomy, mentoring from older generations, reflection, active engagement in community needs, and personal or professional relevance. Loyens (2014) further explained that project-based learning is an approach that encourages active learning through the creation of environments and tasks informed by social-constructivist learning theory. It is an alternative to traditional instructional approaches. Roessingh (2014) claimed that creatively exploiting the combined potential of information communication technology and project-based learning makes significant demands on teachers if their students are to realize the benefits of both. Technology-enriched classrooms have been claimed to produce enhanced learning opportunities for foreign language students (Naqvi & Al Mahrooqi, 2016). Furthermore, many scholars consider project-based learning as an excellent form of instruction to encourage the self-learning of students (Gerber, Cavallo, & Marek,

2001; Moursund, 2003; Chang & Lee, 2010). David (2008) claimed that project-based learning could provide students with more learning chances and interpersonal interactions, as it conforms to the requirements of technological instruction. For instance, digital cameras, personal computers, scanners, and easy-to-use software have become available to educators to harness the digital world and thus ensure in projects more effectively. Project-based learning as an instructional method helps learners to be independent, so that they are able to continue their learning and to solve their problems in their entire life.

Integrating alternative assessment either through online or offline discussion in project-based learning can encourage students to be more engaged in learning. Kirkwood (2000) claimed that integrating technology with project-based learning in teaching curriculum motivates the students and helps them to achieve lifelong skills. Indeed various types of ICT-based tools are available to help students to think, to learn, to collaborate and to communicate (Chan, 2002). Autonomy empowers people, not to wait for education to happen, but rather make it happen for them. Freedom for the autonomous learner also entails assuming responsibilities for their own learning and creatively making the most of their contexts and capacities. As revealed in the aforementioned theoretical review, ICT and PBL have effects on language learning and learner autonomy. However, technology alone does not work miracles as its use presupposes changes and leads to more time and effort on the part of the moderators,

which is not always widely recognized. Different from those previous studies investigating the effects of either project-base learning, information and communication technology, alternative assessment, or digital storytelling alone on language learning and learner autonomy, the present study incorporated all factors mentioned above into one project with a clear and manageable plan. He et al. (2015) noted that implementation of autonomy could be simple and achievable rather than complex and unattainable. Major characteristics of the framework used here have been established following an intellectual journey back to the basic principles not only of (language) learning, but of action in the world. Guiding the development of this process was the desire to arrive at a set of high-level coherent solutions for (language) teaching and learning, not merely a set of techniques (Lian, 2004). As an interactive approach to learning, storytelling meets the guiding principles of constructivism in terms of context, construction, collaboration, and conversation (Alterio and McDrury, 2003). Classic constructivist Bruner (2009) characterized this educational approach as one that emphasizes the learner and how they construct a representation of reality through their interactions with the world and their discussions with others. Many educators find storytelling, whether oral, written, or digital, to be an effective vehicle for instruction and a useful tool for reflection on professional practice.

In a nutshell, the above ideas are all coherent with constructivism. Constructivism is thus an umbrella word acting like a roof of a house guiding all that

happened under the roof in the house. Learner autonomy is like a crossbeam. PBL and ICT are like the pillars. DTS is the center of the activities carried out through self-assessment, peer-assessment and teacher assessment. Students' speaking skills and development of learner autonomy are the stairs to walk out of the house acting like the results and products of the activities. That's to say, leaner autonomy, project-based learning, information and communication technology, digital storytelling, self-, peer-, and teacher assessments are all elements that constitute the conceptual framework of the present study as seen in Figure 2.5.

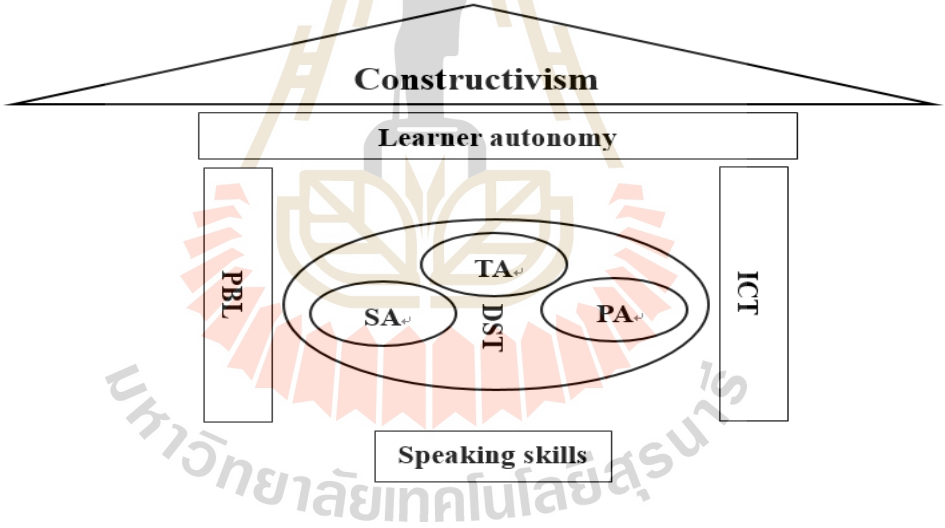

Figure 2.5 Theoretical framework of the study

2.5 Summary

This chapter examined the theories that inform the present study. It includes studies on Chinese university students' EFL English speaking skills, general information about learner autonomy, and the development of EFL learners' autonomy

through PBL. The review of relevant theories highlighted the advantage of developing learner autonomy in the current practice of DST in education utilizing self-, peer-, and teacher-assessments. The review built up a theoretical framework for the study while drawing the conclusion that developing learner autonomy using DST is timely and relevant for the Chinese university context.

CHAPTER 3

METHODOLOGY

This chapter describes different aspects of methodology applied in the study including research methods and materials. It begins with the design of the study introducing participants and variables. Research instruments, pedagogical procedures are elaborated afterward. Data collection procedures and analysis techniques are introduced as a consequence.

3.1 Research design

Elements consisted in a research design include what, where, when, how much, and by what ways the study is going to be conducted. Indeed, a research design is the applied structure inside which constitutes the plan for the collection, estimation and examination of data. Specifically, a research design includes an outline of the study to be conducted with a hypothesis and its operational implications to the final analysis of data (Kothari, 2004). The research design of the study is determined by the research objectives and research questions. As for this study, a mixed method research (MMR) is employed because a mix of these two research methodologies provides a more comprehensive understanding of the object of study (Riazi & Candlin, 2014).

The overall research design of this study is quasi-experimental and descriptive since there is no random assignment of subjects (McMillan & Schumacher, 1984). Further, taking account of the features of a language learning experimental design, a quasi-experimental design is to be adopted since quasi-experimental studies are commonly conducted under conditions where variables are difficult to control (Seliger & Shohamy, 1989). Notwithstanding a quasi-experimental design by definition lacks random assignment, however, assignment to conditions (treatment versus no treatment or comparison) is by means of self-selection (by which participants choose treatment for themselves) or administrator selection (e.g., by officials, teachers, policymakers and so on) or both of these routes (William R., et al., 2002). Researchers (Wiersma & Jurs, 1985; Thomas, 2003; Mertler, 2015) agreed that a quasi-experimental research is a part of experimental research whose most important characteristic is to deal with the phenomenon of cause and effect. This is why a quasi-experimental design was employed as a main approach in the present study. Of the mixed methods used in this study, the first part is a quantitative experimental intervention, students' perceptions of DST intervention, alternative assessment and learner autonomy. The second part was based on qualitative students' and teacher's interviews and students' diaries.

When doing the quantitative research, the study examined statistical causals of the intervention on students' speaking proficiency as well as descriptive statistics of the results from the written questionnaire. In this context, comparisons are possible between

the experimental group and the control group because they are fairly clear-cut and the researcher can have some control over when to measure outcome variables (Punch, 2013). As for the qualitative part, the research was directed towards students' perceptions of the intervention. Before students began their respective tasks and also at the end of the experiment, a learner autonomy questionnaire was administered. Semi-structured interviews were conducted to investigate students' and teacher's perceptions after the experiment. The survey phase of the study aimed to generate results to corroborate results from the experimental phase. The data from students' diaries and oral interviews were analyzed qualitatively seeking in-depth information about their perceptions of DST intervention, alternative assessment and learner autonomy.

Both data and methods triangulations were utilized to crosscheck the outcomes for consistency and to counterbalance any inclination, in order to lessen the odds of achieving false conclusions (Hammersley, 2008) and to reduce the uncertainty of data interpretation (Webb et al., 1999), and moreover, to improve certainty and exactness in the general conclusions drawn from the investigation (Morse, 1991; Spicer, 2004). Thus, the four research questions were subjected to both quantitative and qualitative analysis so as to yield a maximum amount of information. The data sources included students' scores on the speaking proficiency tests, assessments, written questionnaires, semi-structured oral interviews and students' diaries. To be specific, when identifying problems, qualitative thematic analysis was used to obtain students' perceptions of DST

intervention, alternative assessment and learner autonomy. Students' speaking proficiency scores in the pretest and posttest, alternative assessment scores as well as data from questionnaires administered both before and after the experiment were analyzed quantitatively using SPSS 16.0 (IBM, 2008).

3.1.1 Participants

Polit et al. (2004) refer to the population as an aggregate or totality of all the objects, subjects or members that conform to a set of specifications. However, it is not usually practical for a researcher to study the entire population in a piece of research since the population is normally too large to handle (Cohen et al., 2013). Therefore, a sample is normally selected to represent the population.The population for this study is English major EFL students with intermediate level of English proficiency in China. One huandred English major undergraduates of two nature groups in the second year in School of Foreign Languages in QNUN participated in this study. During the time this study was conducted, the participants were in their third semester having the course of English Speaking 3, a course which starts from semester 1 till semester 4. They were homogeneous in terms of their levels of speaking skills according to their performances of the Matriculation English Test (MET) when they entered the university. Their speaking test in the previous semester also showed that both groups were at the similar level. Moreover, a pretest was given to both groups before the experiment. The results of the pretest turned out to be homogeneous as well. We thus could draw a conclusion

that the two groups were at the same level statistically before the experiment. Each group consisted of 50 students. The two intact groups were assigned into an experimental group and a control group based on lots drawn randomly. Students from Class 201501 constituted the control group, and students from Class 201502 constituted the experimental group.

The reason that the researcher chose the second-year students to be participants in this study was that they had been in university for one year and had got used to the teacher's teaching method and had learned to be independent somehow in study and might have looked for some autonomous learning methods to improve their English speaking skills, which was suitable for the present study (Wei et al., 2018). Students in both groups were not very active in speaking English as reflected by their teachers. The teacher of the Speaking Course thus has been trying to apply a teaching and learning method that could stimulate the students to become more engaged in using the language. A digital storytelling intervention was then introduced by the researcher at a propitious time. In addtion, since the research took place in a natural setting, it may have wide applicability to other similar settings (Thyer, 2012).

Control Group

The control group took the class in a traditional way as usual. They were free to practice their speaking in the method normally guided by the teacher. Basically, students repeated and practiced what the teacher presented. After class, they spent as much time

as they like practicing either in groups or on their own. However, no DST project was applied in the control group.

Experimental Group

The experiment could be described as appropriate encouragement for self-managed learning on the basis of a DST project. The starting point of the experimental design was based in part on Kim's work (2014) entitled *Developing autonomous learning for oral proficiency using digital storytelling* in which an experimental study was designed to provide opportunities for recording stories on weekly topics outside the classroom for five ESL learners so as to assess participants' autonomy for oral proficiency improvement. The result of the study indicated that learning through storytelling can be learner-centered to increase autonomy in oral proficiency. Inspired by above experimental study, the researcher of this study designed an intervention in which digital storytelling via alternative assessment was employed. The intervention was elaborated more in detail in later part. The experimental group made their digital stories based on either the materials in their textbook or anything else they were interested in. The teacher's role was no longer central, and the students were encouraged and helped to learn in their preferred ways. Hence, it was hoped that these activities would result in accelerated, more effective learning and it was expected that students' learner autonomy would be developed accordingly.

Ethics of the experiment

The study takes ethics of the experiment into consideration. As the wise aphorism of Confucius goes *Do unto others as you would have them do unto you* (Brooks, 1998). This is the most common way of defining "ethics": norms for conduct that distinguish between acceptable and unacceptable behavior. An experimenter should always be sensitive to the ethical problems that may arise in experiments, and while following the guidelines that must be adhered to, balance the potential harm with the potential gain. In order to comply with ethical requirements, a written informed consent form (Appendix S) was filled out by each participant to ensure that they all understood the purpose of the experiment and they participated in the experiment voluntarily and were aware of all possible challenges and risks. In addition, prior to the start of the project, ethical concerns were cleared by the academic committee of the school.

3.1.2 Variables

Variable is defined as a characteristic, number, or quantity that increases or decreases over time, or takes different values in different situations. As for this study, notions of learning theory together with the relevant intervention, students' perceptions of learner autonomy, and the technologies students used in learning were factors which might influence EFL speaking proficiency. Thus, according to the objectives and research questions of the present study, the independent variables were (a), the students' learning technologies and methods such as use of PhotoStory3, and (b) alternative assessment. The dependent variables were (a), students' speaking proficiency and (b), the

students' and the teacher's perceptions of the DST intervention and (c), students' perceptions of alternative assessment and (d) the students' perceptions of learner autonomy built into the intervention process.

3.2 Research instruments

Data collection is an essential component to conducting research and it is a complicated and hard task. By and large, it is very difficult to say which method of data collection is the best. O'Leary (2004, p.150) remarks "Collecting credible data is a tough task, and it is worth remembering that one method of data collection is not inherently better than another." Therefore, which data collection method to use would depend upon the research goals and the advantages and disadvantages of each method. As for this study, collection of data entailed the use of different research instruments, including speaking proficiency pretest and posttest, semi-structured interviews, written questionnaires, diaries etc.

3.2.1 Learning materials

This project was undertaken within the organizational structures of the Chinese Ministry of Education (CMOE). Consequently, the learning materials used needed to comply with the requirements set by the CMOE and consist of two parts. The first part consisted of textbooks prescribed in the approved syllabus. Both the control and experimental groups used the approved textbook *Challenge to Speak* (see Figure 3.1)

which was edited by Professor Yao Baohui (Yao, 2009). The second part consisted of any materials chosen by students themselves to achieve their purpose because student-produced materials are a powerful tool for promoting learner autonomy (Moiseenko, 2015).

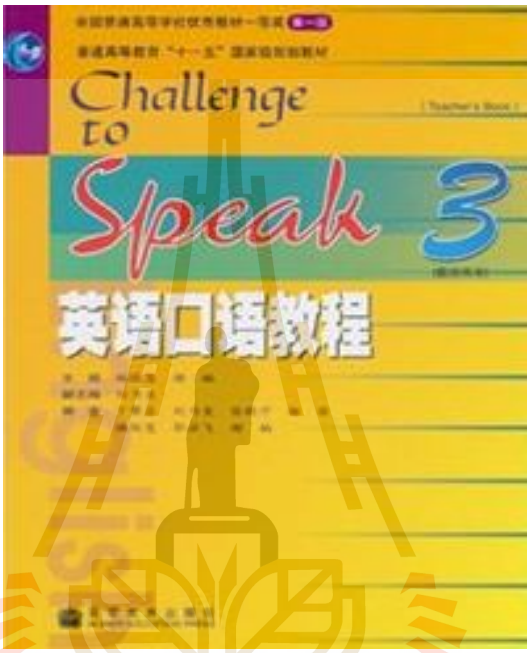

Figure 3.1 Textbook used for control and experimental groups

All students in both groups could use any resources available for themselves. They were free to practice their speaking using an approach where they were normally guided by the teacher. Student activities included student-to-student interactions as well as teacher-to-student interactions. Students worked independently, in pairs, and in groups. Students asked and answered questions and they created conversations with the target language. The control group took the class in a traditional way as usual. They used the approved textbook for speaking. Basically, students repeated and practiced what the teacher presented. They also participated in classroom activities like drill work or role-

play. However, no DST was applied in the control group. The experimental group made their digital stories based on either the materials in their textbook or anything else they were interested in. They might make their stories based on what they read, experienced, or even what they imagined. The teacher's role was no longer central, and the students were encouraged and helped to learn in their preferred ways. Participants in both groups could spend as long as they liked practicing either in groups or on their own (as could the control group). Materials and activities involved in both groups are compared in Table 3.1.

Table 3.1 Materials and activities involved in control and experimental groups

	Control group	**Experimental group**
Instructor	Native speaker 1 (not the researcher)	The same instructor (not the researcher)
Textbook	*Challenge to Speak* (Yao, 2009).	The same textbook
Teaching hours	2 hours a week	The same teaching hours
Activities	Teacher-centered activities --teacher explaining --studetns telling stories in traditional ways --students roleplaying --students taking notes --teacher assessing --students mainly using blackboard and chalk ...	Student-centered activities --students discussion --students telling stories through DST --students roleplaying --students taking notes --self-, peer- and teacher assessing --students mainly using DST ...

3.2.2 Student questionnaires

Three questionnaires were used for this study. All questionnaires employed the method of Likert scale to measure participants' attitudes. Questionnaire 1 as seen Appendix A was used for Research Question 2, meanwhile it was utilized as a triangulation method to get in-depth data for research question 1, asking for students' perceptions on experiencing the intervention to check whether they liked or disliked the DST intervention, in other words, whether they felt that DST intervention was effective for developing their speaking skills. The researcher prepared the tools being based on the ideas of the researchers like Kuforiji et al. (2011) and Price et al. (2015). The students were asked to circle a response on a 5-point Likert scale from 'Strongly Agree' (5) to 'Strongly Disagree' (1) as an exploratory investigation designed to obtain descriptive information about the effectiveness of the DST intervention. The researcher was also interested in the level of critical reflection the participants demonstrated after the DST intervention experiences. Opportunities for open-ended responses were provided in each area of focus as well.

Questionnaire 2 as seen in Appendix D was used for collecting data for Research Question 3 which was about learners' perceptions of alternative assessments (self- and peer- assessments) adopted from Salehi and Daryabar (2014) in order to delve into the students' attitudes towards alternative assessments on a five-point Likert scale from 'Strongly Agree' (5) to 'Strongly Disagree' (1) surveys after the DST experiment.

Questionnaire 3 as seen in Appendix G employed to investigate students' perceptions of learner autonomy was used to collect data for Research Question 4. Since DST intervention in the present study was supposed to happen in a self-regulated learning environment, an evaluation of the students' competencies for autonomy provided an interesting opportunity to look at autonomy development. According to Benson (2013), autonomy can be defined as the capacity to take charge of one's own learning and the ability of learners to control their own learning. Littlewood (1996) emphasized that students' willingness to act independently depends on the level of their motivation and confidence; students' ability to act independently depends on the level of their knowledge and skills. It was these latter focus points that were at the center of the discussion. In order to examine the population's perceptions of learner autonomy to check whether there were any differences found between successful and less successful learners and whether there were any differences found before and after the experiment, a questionnaire was adapted from Joshi (2011) who prepared the tools being based on the ideas of the researchers like Zhang and Li (2004), Lamb and Reinders (2008). Before the experiment, the population was given a questionnaire about learner autonomy with responses on a 5-point Likert scale ranging from 'Strongly Agree' (5) to 'Strongly Disagree' (1) for each of 31 statements. Based on students' speaking scores from a speaking pretest, they were divided into two groups labelled as "successful" and "less successful" in order to get two different types of learner samples. After the experiment,

the participants were then again divided into two "successful" and "less successful" groups on the basis of their scores in a posttest in order to check whether there were any changes after the digital storytelling intervention.

To avoid misunderstanding and confusion, all questionnaires were written both in English and Chinese. Two native English teachers and two Chinese English teachers were invited to validate the language and content in the questionnaires in order to check the validity of all items. The questionnaires were revised and improved on the basis of the teachers' comments and suggestions. Furthermore, in order to determine the reliability of the questionnaires, Cronbach's Alpha Coeffient (α) were used to check the internal consistency of the questionnaire items by analyzing the data from the trial versions.

3.2.3 Semi-structured interviews

Two follow-up oral interviews were conducted to acquire in-depth information of students' and teacher's perceptions towards using DST in English speaking learning (see Appendix J & Appendix M). It took place after the students were given the post-test. 10 students from the experimental group and the teacher of both groups were interviewed. Each interview lasted between 10 to 15 minutes and was recorded with a tape-recorder. The data was then classified into positive and negative reactions.

Why was semi-structured interview technique used in this study then?

Interviews are known as a useful tool for generating information in research dealing with personal experience and perspectives (Silverman, 2004). As a qualitative research instrument, an interview enables an understanding of "the meaning that the participants hold about the problem, not the meaning that the researchers bring to the research or writers express in the literature" (Creswell, 2013, p. 175). There are three types of interviews: unstructured, semi-structured, and structured. A semi-structured interview involves asking a list of structured questions and then, depending on the responses of the interviewees, probing more deeply with open questions to obtain additional information. The flexibility of the semi-structured interview enables the researcher to gather large amounts of standardized participants' data (Gall et al., 1999). The interview is conducted face-to-face since it is a "shortcut" for the researcher to find answers to research questions by interacting with the respondents directly (Robson, 2002). Therefore, for the purpose of collecting not only standardized but also in-depth data, the semi-structured interview techniques were selected for both students' interview and teacher's interview.

3.2.4 Student diary

In order to get in-depth data about students' learning time and other aspects while they were constructing knowledge for improving speaking skills, both control group and experimental group were asked to keep a diary to record their activities every time, including the length of time, place, materials (content), effectiveness, feeling, and

resources etc. To be more specific, they wrote about their needs and how they would fix them, whether it was autonomous or collaborative. How they worked alone or how they worked together. Besides the required information to be recorded, students were free to provide any comments on anything they felt that was related to their speaking study. It was made clear to the students that their diaries were used only for the present study, in which the researcher read and categorized the content as a way of getting qualitative data.

3.2.5 Pretest and posttest

The data were taken from the scores of pre- and post- speaking tests of both EG and CG for question 1 of the project. The speaking pretest and posttest were conducted to determine whether there were any differences in speaking proficiency between the EG and the CG after 12 weeks of DST intervention. Both pretest and posttest papers were chosen randomly from Test for English Majors-Band 4 Oral Test (shortened as TEM4-Oral) (see Appendix Q and R) which was introduced in detail in the next part. Four experienced teachers of English among whom two were Chinese and two were native speakers were invited to be raters to listen and score each performance. The final score for each participant was the mean of those given by the four raters.

The pretest were administered to all the participants before the treatment. It was regarded as a measurement of the students' speaking proficiency and as a criterion against which to measure their future progress. At the end of the experiment, all the

participants took the posttest, which aimed to measure whether the intervention of DST would have had any positive effects on their speaking performance after 12-week English speaking study.

Description of the TEM4-Oral Test

TEM4-Oral is one of the four tests of the TEM test battery which correspondingly consists of TEM4 and TEM4-Oral, assessing students' English proficiency at the end of the foundation stage, and TEM8 and TEM8-Oral, assessing students' English proficiency at the end of the advanced stage. The purpose of the TEM is to measure the English proficiency of Chinese university undergraduates majoring in English Language and Literature and to examine whether these students meet the required levels of English language abilities as specified in the National College English Teaching Syllabus for English Majors (NACFLT, 2000). The Syllabus divides the four-year English major undergraduate program into the foundation stage (the first and second year) and the advanced stage (the third and fourth year). The TEM is administered by the National Advisory Committee for Foreign Language Teaching (NACFLT，2000) on behalf of the Higher Education Department, Ministry of Education, People's Republic of China. The four tests in the battery are all administered once a year with TEM4 in April, TEM8 in March, TEM4 Oral in May and TEM8 Oral in December. The total test time is 135 minutes for TEM4 and 195 minutes for TEM8. Each oral test takes approximately 25 minutes to complete. TEM test scores are reported to the

Academic Affairs Office of the participating universities. In the case of TEM4 and TEM8, individual test takers scoring 60 or above receive a certificate from the NACFLT on which their level of performance is reported, including 'excellent' (score 80 or above), 'good' (score between 70 and 79) and 'pass' (score between 60 and 69). Neither composite scores nor section scores are reported to test takers. They can, however, check their composite scores through the Academic Affairs Office of their university. For the two oral tests, test takers who pass the tests are awarded a separate certificate from the NACFLT on which the same three levels are reported: 'excellent', 'good' and 'pass'. The levels are converted from the average of the total raw scores awarded by two TEM authorized oral examiners.

Based on notions of communicative competence and communicative language use (Bachman & Palmer, 1996), three tasks are designed in TEM4-Oral in order to best elicit the examinee's true oral English proficiency. These tasks include story retelling, monologue and role-play. Unlike other speaking tests such as the International English Language Testing System (IELTS), First Certificate in English (FCE), Business English Certificate (BEC) etc., tape-recordings rather than oral interviews are employed in TEM4-Oral. Correspondingly, the examinee's performance is not rated by on-the-spot interviewers. Instead, raters gather after the exam and score tape-recordings without a real involvement in the communicative context.

The speaking test employed in this study for the pretest and posttest to measure

the students' speaking proficiency was randomly chosen from those TAM4-Oral Tests which had been used in the past years.

Choosing of the speaking test

The speaking tests as mentioned above (Appendix Q and R) were randomly chosen from those Oral Tests which had been used in the past years. Two experienced interlocutors and assessors in the School of Foreign Languages in QNUN consulted about its task difficulty and familiarity. Tasks suggested were close to the students' real life, which gave them the opportunity to produce communicative exchanges and encourage the promotion of their individual expression. As the tasks were familiar to the students, even the low achiever could have something to say while the average and high achievers would have the opportunity to display a wide range of language.

Pilot study of the speaking test

(1) The aim of the pilot study

Since the students of the third semester in university had never experienced the TEM4-Oral tests, little was known about their speaking skills. The aim of the pilot study was thus to examine the suitability of the speaking test by testing the students' speaking skills. The pilot study was conducted in a similar class which were not chosen either for EG or CG.

(2) The participants of the pilot test

In order to assess the speaking ability of these students and to make sure a range

of abilities represented, the researcher examined their English Speaking scores of the previous semester and information about their speaking skills from their English teachers. On this basis, 8 students in each class was chosen from the classes mentioned earlier in the above paragraph and were divided into different achievers: 2 high achievers, 4 average achievers and 2 low achievers. Research objectives and the aim of the pilot study were explained to the students.

(3) The administration of the pilot speaking test

The speaking test were conducted with the students in a quiet classroom according to the procedure of TEM4-Oral. The students were examined in pair and their speech were recorded on an MP3 recorder.

(4) The assessment of the pilot speaking test

The four experienced assessors as aforementioned reviewed the recording and assessed the students' speaking skills using TEM4-Oral rating criteria (Qin, 2004) (see Appendix P). Each student was scored respectively on the categories of the assessment scale. The average of the scores given by the four assessors was each student's final score.

The administration of the speaking pretest and posttest

Weir (1988:78) notes that 'candidates should be free to choose their partners so that they are interacting with somebody they know and feel happy communicating with'. Since the students had been to the university for one year they had got to know each

other well, the researcher asked them to pair themselves on their own. In order to compare the pretest and posttest speech of EG and CG and on the assumption that if they talked with the same partners in both tests, it was easier to see whether they would have made some progress in speaking proficiency, all the students were required to have the same partners in these two speaking tests. The oral pretest and posttest were conducted in the language lab in the university at the beginning and at the end of the treatment. The researcher and his PhD alumnus were the organizers of the speaking tests. The processes of the pretest and posttest were just same as those used in the pilot study.

The assessment of the oral pretest and posttest

The four assessors of the pilot study were again invited to review the recording and assess the students' speaking skills in the main study using TEM4-Oral rating criteria (Qin, 2004) (see Appendix P). The assessors were not told about the subjects of experimental or control conditions so as to avoid their bias in assessing the students' performance. All recordings were numbered and randomly ordered. Assessors guided by the rubrics, assessed each piece of the recordings. They were not able to identify whom the recording belonged to, as the whole assessing procedure was blind. Each student was scored respectively on the categories of the assessment scale in order to get a clearer analysis of their performance. The average of the scores given by the four assessors was the final mark. To ensure reliable results, estimates of inter-rater reliability was calculated in the speaking tests by using Pearson's correlation coefficient.

3.2.6 Validity and reliability of instruments

Norland (1990) stated that validity is the amount of systematic or inherent error in measurement. Validity is built-up using a board of specialists and a field test. There are different types of validity (content, construct, criterion, and face etc.). The type of validity choosen depends on the objectives of the study (Radhakrishna2007). As for the present study, content validity was used. In order to avoid misunderstandings and confusion, the questionnaires were written in both English and Chinese. The index of item-objective congruence (IOC) developed by Rovinelli and Hambleton (1977) was utilized to check the validity of all questionnaires as well. IOC is a procedure used in test development for evaluating content validity at the item development stage. The validity and reliability of all instruments employed in the study including the tests, questionnaires and semi-structured interview were thus checked. Five experts in English teaching were invited to validate the language and content in all instruments in order to check the validity of all items. First, 5 experts were invited to rate each item of both the pretest and posttest paper. The experts rated the relevance of each item for the purpose of the test and the appropriateness of the content areas, and checked the evaluation form by using IOC as a validation method for the relevance of the content and the objective of the questionnaire. The questionnaires were revised and improved on the basis of these experts' comments and suggestions. Furthermore, in order to determine the reliability of each questionnaire, Cronbach's Alpha Coeffient (α) was used to check the internal

consistency of the questionnaire items by analyzing the data from the trial version in the pilot study which were conducted with 20 participants from a similar class that were not supposed to participate in the main study. The Cronbach's alphas of the three questionnaires were 0.882, 0.855 and 0.838 respectively.

The validity and reliability of the questionnaires, the semi-structured interviews, the holistic rubric and analytic rubric of the tests were checked also. The evaluation form used a 3-point scale (1 = relevant, 0 = uncertain, -1 = irrelevant). The items of tests, questionnaires and semi-structured interviews were refined and improved until the results of the IOC analysis showed that they were valid to be adopted.

3.3 Pedagogical procedures

In and out of class activities

In this section, pedagogic procedures were discussed in order to bring out the theory behind the PBL instruction and to provide an overall picture of activities during the experiment. The study conducted an experiment through a DST intervention based on PBL in which all activities were conducted on the basis of a theoretical and practical linear of Constructivism Learner Autonomy PBL ICT DST. The terms were briefly reviewed in Figure 3.2.

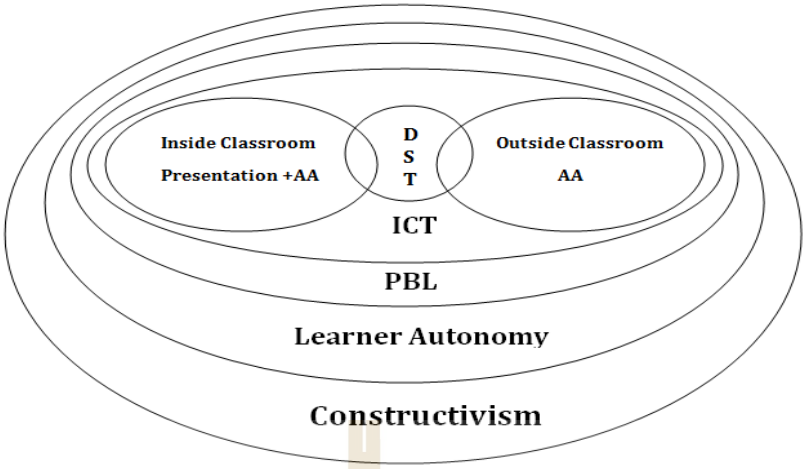

Figure 3.2 Intervention of DST based on PBL

The pedagogic procedures of the study were conducted on the basis of constuctivist learning theory through which students constructed their own understanding by reflecting on their personal experiences, and by relating the new knowledge with what they already knew. PBL could be used as a means to guide learners advance towards learner autonomy, where students develop knowledge and skills by confronting realistic, challenging problems. ICT has all the necessary technical potential to act as a tool for the development of relevant processes that provide the conditions in which the mastering of the competences involved in autonomous learning can develop. The intervention was carried out through activities both inside classroom and outside classroom. Inside the classroom, the participants presented their digital stories. Outside the classroom, they wrote about the stories and uploaded the story scripts online through messenger chatting systems or just printed them out for their peers to read to get assessments face-to-face. In both settings, the participants experienced the self-, peer-, and teacher-assessments. They could interact through

messenger chatting systems or face-to-face chatting via writing or talking or even through speaking by calling voice as a phone. They were not conformed to use any tools specifically because to create a digital story is to do something complex and consequence of complexity is full of unpredictability that cannot be pre-organized. Participants must find solutions in any ways including asking for help from their teachers and friends or on internet etc., because they had unpredictable problems to solve. This was a form of individualized learning and it needed independence of action. Whether the assessments was done online or offline, the correction and improvement of their story writing through the abovementioned activities were supposed to enhance their speaking pragmatically and grammatically in their DST presentation. The strength of the system lay not only in each of its parts but particularly in the high level of connectivity between its parts: essentially a rhizomatic approach (Lian, 2004).

DST training

The use of DST was introduced before the beginning of the experiment. The notion of DST was explained to students and the way of performing DST was demonstrated. The students needed to know about this so as to be aware of what and how they were going to do in telling stories and of the potential benefits of using these materials. The researcher trained both the teacher and the students to learn how to use Microsoft PhotoStory 3. During the self-regulated learning time, students were free to choose their learning environment and the materials that they prefered. Study time and

place were decided by themselves. However, a set of learning objectives (syllabus) acting as a guide for students to achieve were provided. They were expected to produce 3 digital stories during the treatment (including the 2 hours of formal class time as were the students in the control group). Specifically, the training was presented as follows.

A historical perspective of DST was introduced as a beginning. Storytelling is the original form of teaching (Pedersen, 1995). It is a simple but powerful method to help students to make sense of the complex and unordered world of experience by crafting story lines (Bruner, 1990; Gils, 2005). Although storytelling is not new, the idea of DST is new (Meadows, 2003). Robin and Pierson (2005) believe that DST has captured the imagination of both students and teachers and the act of crafting meaningful stories has elevated the experience for students and teachers. Compared to conventional storytelling, DST audiences are viewed not only as listeners but also as learners who can interact and shape the story (Dorner et al., 2002).

A variety of different software applications are available that can be used in the creation of digital stories. Robin and Pierson (2005) emphasized on using video to create digital stories, compared different programs and concluded that Macromedia Flash and Adobe Premiere were the two software programs of choice. Certainly, these two high-end, not to mention, expensive software programs are suitable for developing digital stories for classroom use, there are many other less expensive, and more user-friendly applications that educators and their students can use to create high-quality digital

stories. Many such software options may be obtained for free or for a relatively inexpensive cost, while several excellent tools come integrated into popular computer operating systems and may already be available to those with access to a current model Windows PC or Apple Macintosh. The table (Table 3.2) below highlights some of the software programs were recommended for getting started with DST.

Table 3.2 Overview of popular software applications useful for DST

Software Program	Use	Platform	Cost
Microsoft PhotoStory 3	Create digital stories from still images and audio	Windows Only	Free (but requires Windows XP)
Windows Movie Maker	Create digital stories from still images and video clips plus audio	Windows Only	Free (with Windows Operating System)
Apple iMovie	Create digital stories from still images and video clips plus audio	OS X for Apple Macintosh and Windows	Free (with Apple OS X Operating System)
Adobe Photo Shop Elements	Modify images used in digital stories	Apple Macintosh and Windows	Between $30 and $59 per copy for educators
Gold Ware	Audio recording and editing	Windows Only	Free Version Available; $45 for full version

Microsoft PhotoStory 3 (Fig. 3.3) was chosen for the present project due to the fact that it required only a low threshold level of ICT skills and can be accessed offline. PhotoStory 3 can help make digital stories on the computer using photos (or other images), text and sound. Students can write their own text and record their voice. They can also have special effects and music. Specific procedures of creating a digital story was demonstrated as seen in Appendix U.

Figure 3.3 MS PhotoStory 3

PhotoStory 3 can be downloaded from: http://www.microsoft.com/windowsxp/using/digitalphotography/photostory/default.mspx .

PhotoStory 3 needs Windows Media Player 10 or Windows Media Player 11 to be able to see the story created. Windows Media Player is also a free download from the internet. It can be found on: http://www.microsoft.com/windows/windowsmedia/players.aspx

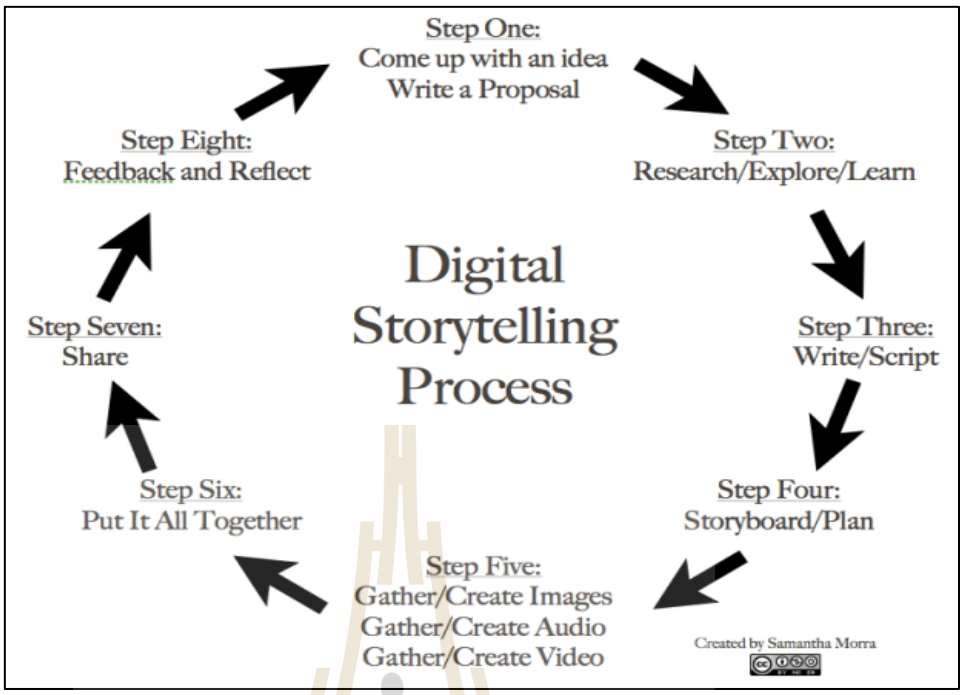

Figure 3.4 Digital storytelling process

Usually, digital storytelling was created through 8 steps (Morra, 2013) as seen in Figure 3.4

Specific stages of DST intervention

In this section, specific pedagogic procedures of DST intervention were discussed to provide an overall picture of the students' activities during the experiment. Pedagogic sequences consisted of two related parts: inside the classroom and outside the classroom. The software PhotoStory 3 might not be anything new, but the way it was applied in this study might be brand new for participants and readers as well.

Figure 3.5 below showed what and how the participants in the experimental group did during the 12 weeks to learn and work on their digital stories. **Stage 1** was undertaken over two weeks (week one to week two). In the first week of the first stage,

a pretest was given to both experimental group and control groups. In the second week, the researcher introduced the experiment demonstrating his digital stories to the participants, training both the teacher and the students. **Stage 2** took four weeks (week 3 to 6) in which each participant had to finish writing three stories. While in the classroom, they presented their stories orally gaining peer and teacher assessments to improve both the contents and speaking skills of the stories. **Stage 3** which took four weeks (weeks 7, 8, 9 and 10), involved participants recording and presenting their digital stories using Microsoft PhotoStory 3, gaining reflections from peer and teacher assessments both in class and out of class. **Stage 4** was undertaken in week 11 and 12, which was the final stage. In week 11, one by one, the participants chose one of the three digital stories to present for grading according to three forms of assessments, i.e., self-, peer, and teacher assessments. During the assessment task, other students as well as the teacher utilized the grading chart to record the score. For the purpose of self-assessment, the voice of each presenter was recorded and the presenter was supposed to listen his/her presentation and do the same as others did previously. In the last week, a post test was given to both experimental group and control group.

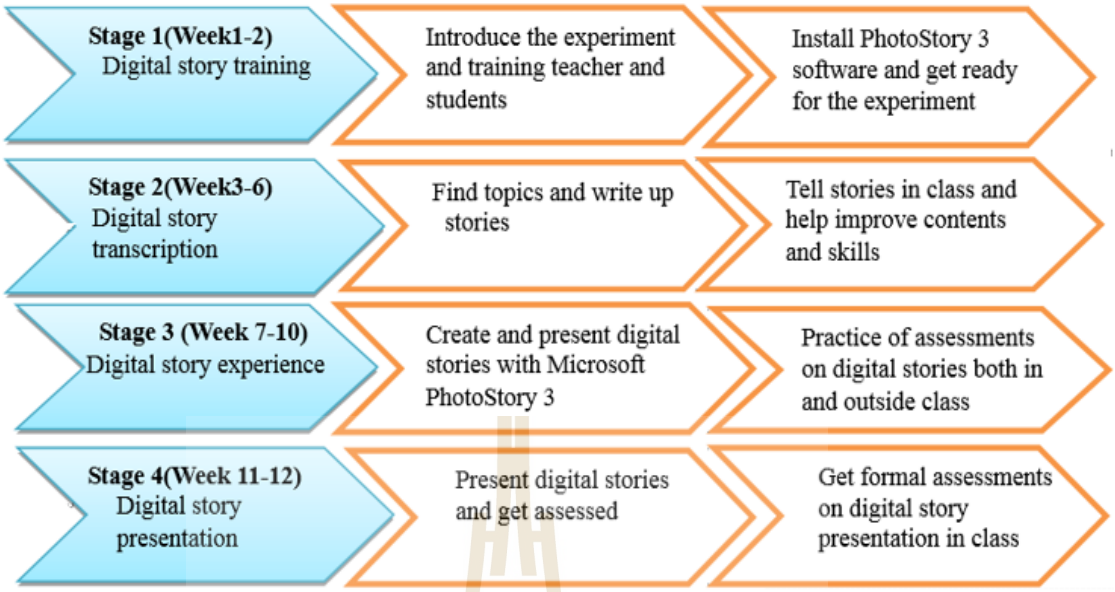

Figure 3.5 Description of the tasks and assessments involved in the project

The teacher

The researcher was not involved in the teaching. Both control group and experimental group were taught by an English native speaker teacher assigned by the School of Foreign Languages. Several variables could be avoided as much as possible (such as teaching methodology, teacher's personality and popularity etc.) from confounding the results. However, it was necessary for the teacher to understand the experiment design and the theory behind it to conduct the teaching task well. Therefore, the researcher talked to the teacher face to face about the experiment and provided all materials needed in teaching. The researcher trained both the teacher and the participants together with on how to conduct the DST intervention. The teacher had been teaching in QNUN for two years. He was a MA holder in language studies had some years of language teaching experiences before he was employed to work in

QNUN. He was a qualified teacher of English Speaking as proved by the Committee of Teaching Affairs in the School of Foreign Languages of QNUN.

The researcher

As mentioned above, the researcher was not involved in the teaching of either group. The two groups were both taught by an English native speaker teacher assigned by the School of Foreign Languages. However, in order to make sure that the experiment went on smoothly, the researcher trained both the students in the experimental group and the teacher on how to use Photostory3 to create digital stories following the specific procedures as seen in Appendix U. The researcher also explained how to conduct the the three assessments (self-, peer- and teacher assessments) and the specific procedures of the whole experiment. When the experiment began, the researcher did not interfere any activities that were conducted in the experiment. In other words, the researcher's role was theoretically non-existence in the quantitative study (Simon, 2011).

3.4 Data collection procedures

3.4.1 General procedures

This research was conducted in a normal English learning setting for a Chinese university, where two intact groups of students enrolled in the course of English Speaking were selected to participate in the study for a 12-week period. The focus of the study was to determine the effectiveness of the intervention of DST approach embedded

in a PBL environment, an autonomy learning and teaching approach based on constructivism theory of EFL learning. An intact group of students enrolled in the course of English Speaking participated in a quasi-experiment during regular class time in the 12-week period. The study was conducted from Oct. 17th, 2016 to Jan. 17th, 2017 which was in the first semester of the participants' course of study in their second year.

The textbook used for the course of English Speaking semester 3 was *Challenge to Speak 3* as aforementioned. The contents of the textbook was closely linked to the social reality concerning both Chinese and Western cultures, covering the contemporary world and China's economic, cultural, technological and other hot topics with rich and varied themes and the language were lively and authentic. The course was used to train and improve students' comprehensive ability to express coherent topic through discussions and various forms of training to foster students' ability to accurately and freely express thoughts and feelings. The learning and teaching of the course was to broaden the students' knowledge level and improve their ideological and cultural development, deepened their understanding of the Chinese and Western cultures and the real and profound grasp of social reality, especially to have a smooth introduction to Chinese long history and brilliant culture with correct and fluent English expressing ability so as to adapt the requirements and challenges of society after graduation when facing the new century on the international stage.

3.4.2 Specific procedures

The specific procedures employed in this research were as follows. First of all, the two intact groups of students were randomly assigned as the control group and the experimental group. To collect quantitative data, firstly, in order to determine whether there were significant differences between the groups before the experiment, the two groups of participants were pretested with the oral test randomly selected from previous TEM4-Oral. The two oral tests were of about the same difficulty level. The researcher randomly chose one as a pretest and the other as a posttest. Secondly, in order to investigate whether there were any differences between successful and less successful learners as regards their perceptions of learner autonomy, a questionnaire of students' perceptions of learner autonomy was administered among the 100 students of both CG and EG before and after the experiment. Thirdly, after the experiment of DST intervention, a second questionnaire was administered so as to examine the participants' reflections of the use of DST intervention. Fourthly, another questionnaire was used to check the learners' attitudes towards alternative assessments i.e., self-assessment and peer-assessment besides teacher-assessment. Fifthly, in the last second week of the intervention, each student was assessed by their peers and teacher and themselves as well. The average assessment of the three groups was their final score of being assessed in DST. Doing so to find out whether there was any relationship between self-assessment, peer-assessment, and teacher-assessment in digital storytelling presentations. Sixthly, at

the end of 12-week period, the two groups of students were retested using the remaining oral test. The test scores was reported in detail. The overall scores and scores of individual parts like retelling stories, talking about given topic and role-playing were recorded separately so as to get as much information as possible for further identification of student problems and also, to identify speaking improvements after the DST intervention. The purpose of using different oral tests for pretest and posttest was to compare the subjects' scores on the two tests and to observe their development after the intervention. Different oral tests were used in the pretest and posttest to avoid the danger of the subjects' posttest scores being influenced by their pretest scores. The data obtained from the pretest and posttest were then submitted for quantitative analysis to determine whether there were any differences in speaking proficiency between the EG and the CG after 12 weeks of DST intervention.

The qualitative data were collected through semi-structured interviews and students diaries. The interview was to aim at finding the students' and the teacher's reactions and comments to their learning and teaching English speaking through the DST intervention. It took place after the students were given the posttest. 10 students and the teacher for both CG and EG were interviewed. Each interview last between 10 to 15 minutes and was recorded for qualitative data use. Diaries of students from CG and EG were analyzed thematically. Figure 3.5 in the following is the specific procedure of the study.

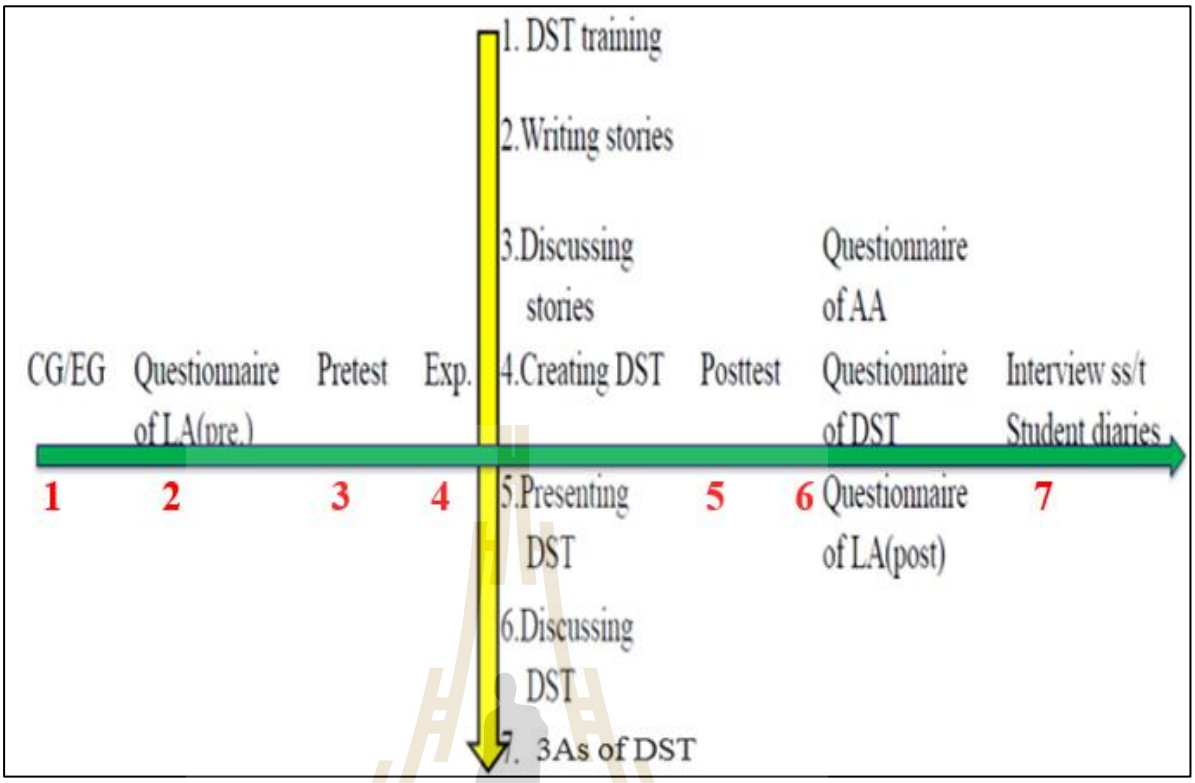

Figure 3.6 Specific procedure of the study

3.5 Data analysis

This section presented the methods of data analysis employed in the present study. Data obtained from the 12-week experiment on DST intervention pretest and posttest together with data from the written questionnaires were presented in terms of quantitative analysis, while data obtained from semi-structured oral interviews, and students' diaries were analyzed qualitatively.

3.5.1 Quantitative data analysis

Data of both pilot study and the main study were analyzed. In order to enable the main study go smoothly, a pilot study was conducted. Although a pilot study could

not remove all systematic errors or unpredictable problems, it reduced the possibility of making a Type I or Type II error. In doing so, all instruments were conducted a trial to a similar group students that were not the participants of the study.

After the quantitative data had been collected from the pilot study, basic descriptive statistics were performed using SPSS (Version 16) (IBM, 2008) to obtain a general overview of the data. Cronbach's alpha (α) was calculated to test the internal consistency reliability of each questionnaire.

As for the main study, in order to analyze the data for question 1, which was taken from the scores of pre- and post- speaking tests of both EG and CG, an independent sample t-test was utilized. Meanwhile, paired samples t-test was utilized to compare the participants' mean scores on the pretest and posttest. The purpose was to see whether there were statistically significant differences in the mean scores between students' pretest and posttest scores, thus, to decide on the effects of speaking skills improvement in the DST intervention. To get the answer for question 2 and in-depth data to support the answer for question 1 which was to examine the participants' and the teacher's reflections of DST intervention and for question 3 which was to investigate the participants' opinions of alternative assessments, the data collected from each questionnaire was analyzed using frequency statistics through SPSS. Frequency analysis is a descriptive statistical method that shows the number of occurrences of each response chosen by the respondents. When using frequency analysis, SPSS Statistics

can also calculate the mean, median and mode to help users analyze the results and draw conclusions. Pearson product moment correlation coefficient formula was also utilized according to the nature of the data as for the data of question 3 to measure the difference and correlation among self-, peer-, and teacher assesments. To analyze the data for question 4, whether there were any differences between successful and less successful learners as regards their perceptions on learner autonomy, two groups of learners (successful, less successful) were identified based on their speaking test scores in the pretest and the posttest scores respectively before and after the experiment in order to get two different types of learner samples. Descriptive statistics were used for summarizing data frequency. A Chi-square test was utilized to identify the tendency of the distribution of the questionnaire responses.

3.5.2 Qualitative data analysis

The qualitative data analysis was conducted using the data obtained from the semi-structured interviews and students diaries. The data were classified into positive and negative reactions. It was hoped that data from the oral interviews and student diaries would provide the researcher with an overview and in-depth information about the students' and the teacher's opinions and reflections on the present study. Content analysis was used when qualitative data had been collected through the abovementioned methods of semi-structured interviews and student diaries. Content analysis is a procedure for the categorization of verbal or behavioral data, for purposes of

classification, summarization and tabulation (Taylor et al., 2015). Content analysis involves coding and classifying data, also referred to as categorizing and indexing and the aim of context analysis is to make sense of the data collected and to highlight the important messages, features or findings. The qualitative data is analyzed thematically and describes a "live" picture of the situation since anthropological and ethnographic methods are used to study the participants rather than designing an experiment which artificially controls variables (Lowhorn, 2007).

Specifically, the qualitative data collected are analyzed through following ten steps:

1) Copy and read through the transcript - make brief notes in the margin when interesting or relevant information is found;

2) Go through the notes made in the margins and list the different types of information found;

3) Read through the list and categorize each item in a way that offers a description of what it is about;

4) Identify whether or not the categories can be linked any way and list them as major categories (or themes) and / or minor categories (or themes);

5) Compare and contrast the various major and minor categories;

6) If there is more than one transcript, repeat the first five stages again for each transcript;

7) When the above with all of the transcripts have been done, collect all of the categories or themes and examine each in detail and consider if it fits and its relevance;

8) Once all the transcript data are categorized into minor and major categories/themes, review in order to ensure that the information is categorized as it should be;

9) Review all of the categories and ascertain whether some categories can be merged or if some need to be sub-categorized;

10) Return to the original transcripts and ensure that all the information that needs to be categorized has been so.

As Burnard et al. (2008) concluded that quantitative and qualitative research differ somewhat in their approach to data analysis. In quantitative research, data analysis often only occurs after all or much of data have been collected. However, in qualitative research, data analysis often begins during, or immediately after, the first data are collected, although this process continues and is modified throughout the study. Thus data triangulation is of great necessity. Data triangulation and method triangulation were employed to crosscheck results for consistency and to offset any bias, so as to reduce the chances of reaching false conclusions (Hammersley, 2008), to reduce the uncertainty of data interpretation (Webb et al., 1999), and to enhance confidence and accuracy in the overall conclusions drawn from the study (Brewer & Hunter, 1989; Morse, 1991; Spicer, 2004).

The following was a table of data collection and analysis methods in accordance with the present research questions (Table 3.3).

Table 3.3 Data collection and analysis methods

Research Questions	Data Collection Methods	Data Analysis Methods
1. Are there any significant differences in speaking performance between the experimental and the control groups? If so, what are the causes of those differences?	Pretest and posttest Rating criteria for TEM4-Oral	Paired samples t-test Independent samples t-test Descriptive statistics
2. What are the students' and the teacher's perceptions of the DST intervention?	Questionnaire on reflections of DST intervention Semi-structured interview Student diary	Descriptive statistics Content analysis
3. What are the learners' perceptions of alternative assessment? Is there any relationship between self-assessment, peer-assessment, and teacher assessment in speaking presentations?	Questionnaire on alternative-assessment Holistic rubric Analytic rubric Student diary	Descriptive statistics Correlation analysis Graph Content analysis
4. What are the autonomous activities of the students in learning English? Are there any differences between successful and less successful learners, as regards their perceptions of learner autonomy?	Questionnaire on Learner autonomy Student diary	Descriptive statistics A Chi-square test Content analysis

3.6 Summary

This chapter presented the research design utilized in this study. The research methodology provided includes a description of the selected research methods, instruments used for data collection, the experimental group and the control group, DST intervention phases, and strategies for data analysis. In an attempt to produce an effective methodology chapter, this research had attempted to follow the guidelines created by Creswell (2013) and McMillan (2011). In the next chapter, the research findings and relevant discussions were presented.

CHAPTER 4

RESULTS AND DISCUSSION

The purpose of this chapter is to present the research findings in response to the four research questions posed in Chapter 1. In order to communicate the findings and discuss them in a way that readers will understand with some ease, the results and the discussion are clubbed together into one chapter. The chapter is organized in three aspects. Firstly, it presents and discusses the quantitative analysis of the participants' performance on the pretest and posttest using statistical methods. Secondly, it reports and explores the data elicited through the questionnaires, the semi-structured interviews and the students' diaries from both quantitative and qualitative perspectives. Finally, a reflection of DST intervention on improving Chinese university EFL students' English speaking skills is discussed.

4.1 Assessment of speaking

The four research questions (See 1.5) were made possible to find answers based on the quasi-experimental design. This section describes the students' performances on the pretest and posttest as assessed by the randomly chosen TEM4-Oral tests used in the past few years. In order to find the differences within group and between groups

before and after the experiment, the scores got from pretest and posttest of the experimental group and the control group were compared within group and between groups so as to distinguish whether there was any progress or retrogress through the DST intervention as shown in the following figure:

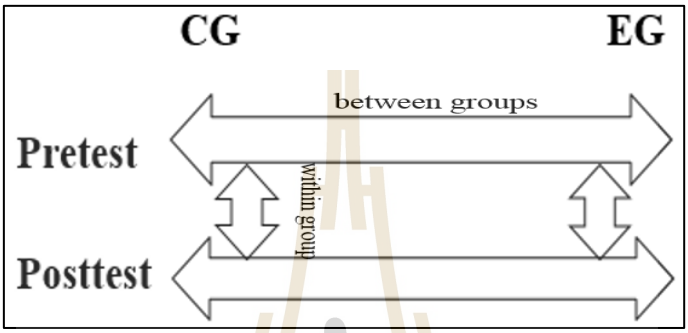

Figure 4.1 Data analysis within group and between groups

Figure 4.1 shows that the data collected within group and between groups were analyzed and compared. To compare the means of between groups, an independent-samples *t-test* was employed. With regard to the improvement within group, a paired-samples t-test was used to perform the comparison of the pretest and posttest, thus to verify the potential effects of the pedagogical intervention on the university EFL students.

Four experienced assessors reviewed the recording and assessed the students' speaking skills using TEM4-Oral rating criteria (Liu, 2004). The assessors were not told about the subjects of experimental or control conditions so as to avoid their bias in assessing the students' performance. All recordings were numbered and randomly ordered. Assessors guided by the rubrics (see Appendix P), assessed each piece of the

recordings. They were not able to identify whom the recording belonged to, as the whole assessing procedure was blind. Each student was scored respectively on the categories of the assessment scale in order to get a clear analysis of their performance. The average of the scores given by the four assessors was the final mark. To ensure reliable results, estimates of inter-rater reliability was calculated in the speaking tests by using Pearson's correlation coefficient. Data in Table 4.1 and Table 4.2 indicate that there was a significant correlation between the score given by each rater for the participants in the pretest and posttest. In the pretest, the correlation between the scores of Rater 1 and Rater 2 was reported as .858, between Rater 1 and Rater 3 as .957, between Rater 1 and Rater 4 as .970, between Rater 2 and Rater 3 as .976, between Rater 2 and Rater 4 as .976, and between Rater 3 and Rater 4 as .993. In the posttest, the correlation between the scores of Rater 1 and Rater 2 was reported as .988, between Rater 1 and Rater 3 as .979, between Rater 1 and Rater 4 as .983, between Rater 2 and Rater 3 as .977, between Rater 2 and Rater 4 as .983, and between Rater 3 and Rater 4 as .984.

Table 4.1 Correlations between inter-rater's scores in the pretest

	Correlations					
	R1&R2	R1 & R3	R1 & R4	R2 & R3	R2 & R4	R3 & R4
Pearson Correlation	.905**	.957**	.970**	.976**	.976**	.993**
Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
N	100	100	100	100	100	100

**. Correlation is significant at the 0.01 level (2-tailed). R = Rater

Table 4.2 Correlations between inter-rater's scores in the posttest

	Correlations					
	R1&R2	R1 & R3	R1 & R4	R2 & R3	R2 & R4	R3 & R4
Pearson Correlation	.988**	.979**	.983**	.977**	.983**	.984**
Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
N	100	100	100	100	100	100

**. Correlation is significant at the 0.01 level (2-tailed). R = Rater

4.1.1 Pretest results

The pretest was administered at the beginning of the experiment to estimate the students' speaking ability in both experimental and control groups. All of the tests were recorded and renumbered for rating purposes and especially, to maintain anonymity.

Four experts among whom two were Chinese and two were English native speakers were invited to rate the pretests conducted with both experimental and control groups. The findings of the pretest were used to set a baseline for comparison and to help interpret the findings, particularly if any improvements or differences were discerned at the end of the experiment.

Both the pretest and the posttest consisted of three parts: retelling a story, talking on a given topic and role-playing. Findings would be presented in a sequence of total scores, scores for story retelling, talking on a given topic and role-playing.

Total scores of pretest

A descriptive analysis based on total scores was employed to provide an

overview of the participants' speaking performances. The significance level of all tests was set at 0.05. Table 4.3 below shows the mean of the total scores on the pretest together with the standard deviation and p-value.

Table 4.3 Descriptive statistics of pretest

CG and EG	N	Mean	Std. D	p-value
Control Group	50	86.30	3.991	.084
Experimental Group	50	84.96	3.675	

To compare the means of the two groups, an independent samples two-tailed *t-test* was employed. The mean score of the experimental group was not significantly different from that of the control group ($p = .084$, see Table 4.3). Specifically, the control group and the experimental group were at a similar level statistically. This result indicates that two groups were at a similar level before the intervention in terms of English speaking performance. This finding was not surprising as the control and experimental groups came from two intact classes assigned randomly according to their scores of university entrance exam. This finding was also consistent with their speaking test in the previous semester.

A descriptive analysis of the individual parts of the test was then employed to see where the differences were situated. In other words, score of each of task of the test, retelling a story, talking on a given topic and role-playing was analyzed as follows:

Task I: Retelling a story

In the first task, the students were required to listen to a story twice and then

they were asked to retell the story within 3 minutes. The sub-total score of this task takes one third of the total score of the test. Table 4.4 below shows the mean of the total scores on the first task of pretest together with the standard deviation and p-value.

Table 4.4 Descriptive statistics of pretest of retelling

Group	Number	Mean	Std. D	p-value
Control Group	50	86.28	3.969	.082
Experimental Group	50	84.94	3.661	

The results of the independent samples two-tailed *t-test* of retelling in the pretest indicated that the differences between the experimental group and the control group were not significant ($p = 0.082$, see Table 4.4). This result indicates that two groups were at a similar level statistically before the intervention in terms of students' ability to retell a story in English.

Task II: Talking on a given topic

In the second part of the test, the students were allowed to prepare 4 minutes for a given topic then they were asked to talk about it within 3 minutes. Same as the first part, the sub-score of the second part took one third amount of total scores of the test. Table 4.5 below shows the mean of the total scores on the second task of pretest together with the standard deviation and p-value.

Table 4.5 Descriptive statistics of pretest of talking

Group	Number	Mean	Std. D	p-value
Control Group	50	86.92	3.974	.309
Experimental Group	50	86.14	3.648	

The results of the independent samples two-tailed *t-test* in the pretest was found that the differences between the experimental group and the control group were not significant (p = 0.309, see Table 4.5) in talking about a given topic. This result indicates that two groups were at a similar level statistically before the intervention in terms of students' ability to talk about a given topic. In other words, in the case of talking on a given topic, students of both groups performed at a similar level.

Task III: Role-playing

In this part, the students were asked to work in pair. Each was allowed to prepare individually 3 minutes and then they were required to ask and answer as the given direction to start a conversation. The conversation should last as long as 4 minutes. Same as previous two parts, the sub-score of the third task took also one third of the total score of the test. Table 4.6 below shows the mean of the total scores on the third task of pretest together with the standard deviation and p-value.

Table 4.6 Descriptive statistics of pretest of roleplaying

Group	Number	Mean	Std. D	P-value
Control Group	50	85.54	4.001	.065
Experimental Group	50	84.08	3.827	

The results of the independent samples two-tailed *t-test* of role-playing in the pretest was found that the differences between the experimental group and the control group were not significant (p = 0.065, see Table 4.6) in the role-playing in a conversation. This indicates that two groups were at a similar level statistically before the intervention

in terms of ability to make a role-playing conversation.

4.1.2 Posttest results

The posttest served to measure the effects of the pedagogical intervention of DTS on the students' speaking performance. It was administered when the pedagogical intervention had been completed. The assessment procedures were the same as those employed for the pretest. Descriptive analysis based on total scores was employed to provide an overview of the participants' speaking performances in the pretest and the posttest as seen in Table 4.7. It was obvious that the experimental group improved much more than the control group. In the experimental group, the mean changed from 84.96 to 89.60, an increase of 4.6 (5.5%). In the control group, the mean changed from 86.30 to 86.70, an increase of 0.4 (0.5%). There was a significant difference between the posttest means of the experimental group and the control group, and the effect size was more than medium ($p = 0.001$, $d = .658$) as seen in Table 4.7. Specifically, the experimental group performed significantly better than the control group after the DST intervention. This result indicated that the two groups were at different level after the intervention in terms of English speaking performance.

Table 4.7 Effect size between control and experimental groups in the posttest

CG and EG	N	Mean	Std. D	p-value	Cohen's D
Control Group	50	86.70	4.205	.001	.658
Experimental Group	50	89.60	4.160		

Moreover, as found in pretest there was not a significant difference between the

means of the control group and the experimental group (p = 0.084) as seen in Table 4.3, but there was a significant difference between the means of the experimental group and the control group (p = 0.001) as seen in Table 4.7 in the posttest. Initially, the control group was a bit ahead of the experimental group with means of 86.30 and 84.96 respectively. After the treatment, the experimental group had made up the difference with the control group and had overtaken it by a certain amount of margin.

Specifically, the experimental group performed significantly better than the control group after the DST intervention. This result indicates that two groups were at different levels after the intervention in terms of English speaking performance. In other words, in the case of speaking performance, students in the experimental group performed better than those in the control group in the posttest.

With regard to the improvement of each group, paired-samples t-tests were used to perform the comparison of the pretest and posttest, in order to verify the potential effects of the DST intervention on the EFL learners. This statistical analysis was appropriate because it compared the means of two variables – the pretest and the posttest – for the same group. Statistical analysis showed that there was a significant difference between the pretest and the posttest means in the experimental group (p = 0.000) with a large effect size (d = 1.58), but there was no significant difference between the pretest and the posttest in the control group (p = 0.056) as seen in Table 4.8.

Table 4.8 Descriptive statistics of pre-post tests

Group	Tests	Mean	N	Std. D	p-value	Cohen's D
Experimental Group	Pretest	84.96	50	3.675	.000	1.58
	Posttest	89.60	50	4.160		
Control Group	Pretest	86.30	50	3.991	.056	
	Posttest	86.70	50	4.205		

The mean score of the control group changed from 86.30 to 86.70, with an increase of 0.4 (0.5%). The mean score of the experimental group increased from 84.96 to 89.60, with an increase of overall score 4.6 (5.5%), which is approximately 11.5 times larger than that of the control group. The standard outcomes of the experimental group were more consistent since the standard deviation was smaller than that of the control group (4.16<4.205) which indicates that the outcomes of the control group were more scattered and less reliable than those of the experimental group. This means that, as a result of treatment with the DST intervention, students were able to perform in a more homogeneous manner, indicating that their learning was also more homogeneous and stable in its content and quality. This enabled students to enjoy a more stable, predictable, and successful learning experience. It is worth noting that every student in the experimental group improved their performances in the posttest while students in the control group were not stable. Some students in the control group went backward in the posttest or, to put it another way, following the traditional regime did not always result in improved performance.

To clarify, the control group was ahead of the experimental group to begin with. However, after the treatment, the experimental group had not only made up the

difference with the control group but had also overtaken it by a large margin. These findings indicate that the DST intervention is both successful as a speaking learning approach and offers a better alternative to the learning of speaking than the traditional approach used so far in Chinese university EFL learners. No wonder, Robin (2007) indicated that one of the most powerful tools in multimedia is DST. The findings in this study also proved what was stated by Alismail (2015) that DST is one of the multimedia tools that can support teaching and learning as well as students' motivation. Moreover, what claimed by Somdee & Suppasetsere（2013）in Thailand was now generalized in China that the effects of implementing DST in the classroom have developed and helped the students' English speaking skills.

A comparison of individual task of the test between pretest and posttest was analyzed in the following.

Task I. Retelling a story

The first part of both pretest and posttest is retelling a story in which the students were required to listen to a story twice and then they were asked to retell the story within 3 minutes. The sub-total score of this task takes one third of the total score of the test. The purpose of this task is to test whether the students are able to retell the detailed contents of the listening material with good organization. In this task, there was a significant difference between the pretest and the posttest scores in the experimental group ($p = 0.000$), and in the control group ($p = 0.000$) as seen in Table 4.9. It is worth

noting that the control group did better in their pretest in retelling a story. However, after three months of class without the DST intervention, the control group decreased in the posttest of retelling significantly (84.86 − 86.28= -1.42). On the contrary, the experimental group improved significantly after the DST intervention. What's more, the experimental group outperformed (90.06 − 84.86 = 5.2) the control group despite starting at a lower level of 1.34 (86.28 − 84.94 = 1.34) as seen in Table 4.9. Moreover, the effect size of the experimental group was 1.92 which was large.

Table 4.9 Descriptive statistics of retelling in pretest and posttest

Group	Tests	Mean	N	Std.D	P-value	Chen's D
Experimental group	Pretest	84.94	50	3.669	.000	1.92
	Posttest	90.06	50	3.661		
Control group	Pretest	86.28	50	3.969	.000	0.85
	Posttest	84.86	50	4.267		

The findings in this study proved what was cited in Chapter Two that *Storytelling,* in general, is a powerful pedagogical approach that can be used to enhance learning outcomes in general, scientific and technical education (Sharda, 2007). These findings demonstrate that the holistic approach to speaking learning proposed by the DST intervention was effective especially in the ability of retelling a story. No wonder, Harriot and Martin (2004) claimed that speaking practice through storytelling increases speech and spoken communication skills related to enunciation and articulation. And Isbell et al. (2004) proposed that storytelling is an effective tool in improving the speaking competencies of students. It is worth noting that the students' ability to retell a

story in the control group decreased without DST intervention while the students in the experimental group improved in storytelling significantly. The finding strongly supports what was found by Razmi et al. (2014) who claimed that by the use of Digital Storytelling techniques students develop better oral skills and this technique can be considered as an essential tool in foreign language learning and teaching. The finding also was consistent with Abdolmanafi-Rokni et al. (2014) who proved the efficiency of the digital storytelling as compared with the traditional way of storytellingon in improvement of students' EFL speaking performance. An explanation for students' outstanding improvement in their ability to retell a story might be that the students in the epxrimental group had also improved in English listening ability. They could retell the story well because they understood what they listended to and remembered what they heard. This finding could be supported a recent research by Torku et al. (2017). They claimed that students aided by digital storytelling technique can improve dramatically over their listening and speaking skills, narrative skills and pronunciation skills for foreign language.

Task II. Talking on a given topic

The second task of the pretest and posttest involved talking about a given topic, which was to test students' ability to organize speech according to the given topic, with abundant contents, fluent expression and no unnecessary pauses. As reported in 4.1.1, it was found in the pretest that the differences between the experimental group and the

control group were not significant (p = 0.309) in talking about a given topic though the experimental group's ability was a bit poorer than that of the control group by 0.780. After the DST intervention, statistical results show that both the experimental and control groups improved significantly in terms of talking on a given topic after the experiment. Specifically, there was a significant difference between the pretest and the posttest in both the control group (p = 0.011), and in the experimental group (p =0.000). Though the p-value of each group was not much different, the effect size illustrated an abovious singifincance between the two groups as seen in Table 4.10. The effect size between pretest and posttest of experimental group was .97 which was quite large while the effect size between pretest and posttest of control group was .38 which was much smaller than that of experimental group. That is, comparing the pretest and the posttest, both experimental and control groups improved significantly in terms of talking on a given topic. However, the experimental improved more significantly than the control group, specifically, the experimental group outperformed (89.74 — 87.72 = 2.02) the control group although the experimental group started at a lower level of 0.78 (86.92 — 86.14 = 0.78) in talking on a given topic as seen in Table 4.10.

Table 4.10 Descriptive statistics of talking in pretest and posttest

Group	Tests	Mean	N	Std. D	P-value	Cohen's D
Experimental group	Pretest	86.14	50	3.648	.000	0.97
	Posttest	89.74	50	4.685		
Control group	Pretest	86.92	50	3.974	.011	0.38
	Posttest	87.72	50	4.233		

This promising result indicates that students in the experimental group improved their ability of talking about a given topic though they did not spend as much time as the control group did as mentioned in their diaries. Again, it is worth mentioning that the control group (mean = 86.92) was ahead of the experimental group (mean = 86.14) in the pretest. However, once again, in the posttest, the experimental group (mean=89.74) caught up the initial difference with the control group (87.72) and overtook it. This demonstrates the power of the DST approach. The great improvement in the experimental group in this part indicates the students' progress in talking about a given topic from a traditional point of view. This reinforces the research of Pop's finding which proved that in digital storytelling with speaking tools the teacher's strategy was to have students do things in English so that they do not think about the language and, therefore, be more fluent and confident in their oral communication on a topic related to their daily professional vocabulary (Pop, 2012).

Task III. Role-playing

The third task of the pretest and posttest was roleplaying in which each pair of participants tried to hold two-way dialogues flexibly according to the given role and situation. Statistics show that there was a significant difference between the pretest and posttest in the experimental group (p = 0.000), and there was also a significance difference between the pretest and posttest in the control group too (p = 0.000) as seen in Table 4.11. Though the p-value of each group was the same, the effect size showed the

differences. The effect size between pretest and posttest of experimental group was 1.48 while the effect size between pretest and posttest of control group was .89 as seen in Table 4.11. That is, comparing the pretest and the posttest, both experimental group and control group improved significantly in terms of roleplaying. However, the experimental group outperformed the control group significantly though they started at a lower level (85.54 − 84.08 = 1.46) and it overtook the control group in the posttest in roleplaying (89.02 − 87.22 = 1.8). In other words, the experimental group performed significantly better than the control group thus indicated that the intervention of DST was highly effective in terms of roleplaying. As cited in literature review, Ladousse (2004) claims that roleplay is one of a whole series of communicative techniques which can not only develop fluency in language students but also promote their interaction and motivation in the classroom learning.

Table 4.11 Descriptive statistics of roleplaying in pretest and posttest

Group	Tests	Mean	N	St.D	P-value	Cohen's D
Experimental group	Pretest	84.08	50	3.827	.000	1.48
	Posttest	89.02	50	4.653		
Control group	Pretest	85.54	50	4.001	.000	0.89
	Posttest	87.22	50	4.193		

To draw a summary to the comparison of pretest and posttest, Table 4.12 and Table 4.13 below, would help to illustrate a better understanding of the differences or significances between groups and within group. From Table 12, we can see that the p-value of each part of the pretest including the total score and the individual task score

is more than .05, indicating that the experimental group and the control group were at the similar level before the DST intervention experiment. However, the p-value of each part of the posttest including the total score and the individual task score is less than .05, which indicated that the experimental group and the control group were significantly different from each other after the DST intervention experiment. Specifically, the experimental group outperformed the control group significantly after the experiment, especially, in retelling skills with p-value of .000. The marginally significant difference (p = .045) in roleplaying might be due to the reason that both traditional and technical learning approaches focused on the prime goal to boost students' interaction in classroom, which needs lots of roleplaying practice. However, the latter might be a bit more interesting and motivating. This is consistent with Harmer (2012) who indicates that roleplaying is an excellent way to put the language into action.

Table 4. 12 P-value and mean scores between groups in pretest and posttest

Pretest		**Differ. (E-C)**	**Pretest p-value**	**Posttest**		**Differ. (E-C)**	**Posttest p-value**
EG	**CG**			**EG**	**CG**		
Total score	Total score	-1.34	.084	Total score	Total score	2.90	.001
84.96	86.30			89.60	86.70		
retelling	retelling	-1.34	.082	retelling	retelling	5.20	.000
84.94	86.28			90.06	84.86		
talking	talking	-0.78	.309	talking	talking	2.02	.026
86.14	86.92			89.74	87.72		
roleplaying	roleplaying	-1.46	.065	roleplaying	roleplaying	1.80	.045
84.08	85.54			89.02	87.22		

Table 4.13 P-value and mean scores within group in pretest and posttest

Pretest	**Posttest**	**Differ.**	**P-value**	**Pretest**	**Posttest**	**Differ.**	**P-value**
EG	**EG**			**CG**	**CG**		
Total score	Total score	4.64	.000	Total score	Total score	0.40	.056
84.96	89.60			86.30	86.70		
retelling	retelling	5.12	.000	retelling	retelling	-1.42	.000
84.94	90.06			86.28	84.86		
talking	talking	3.60	.000	talking	talking	0.80	.011
86.14	89.74			86.92	87.72		
roleplaying	roleplaying	4.94	.000	roleplaying	roleplaying	1.68	.000
84.08	89.02			85.54	87.22		

As shown in Table 13, the p-value of each group prior to and after the experiment, i.e., within group, indicated that the experimental group improved significantly their speaking skills in all aspects after the DST intervention (p = .000), while the control group did not (p = .056). Although the control group did make significant change in the other two individual tasks as well. It's noteworthy that the control group decreased significantly in the task of retelling in the posttest, on the contrary, the experimental group increased significantly in this task. There may be many contibutions to this result. One speculation might be that DST intervention as a whole can improve students' speaking skills in overall aspects of retelling, talking and roleplaying, because DST teaching and learning approach can help increase student talking time (STT) in class. In other words, teacher talking time (TTT) can be reduced if DST intervention is applied into language class. Only when STT increased can students be centred in class and learn

to use the language, which is consistent with Cárdenas (2013) who claims that if teachers are to diminish the amount of time they spend speaking inside the classroom, it would be absolutely detrimental for a class group to do it only by stopping any communication attempt. DTS application might not be the best speaking teaching and learning approach, but it helps to create the language class a learner-centred environment in which the students enjoy the DIY activities. If the ideas about a learner-centered classroom (Van Lier, 2001), learning by doing (Scrivenger, 2002), and being active learners rather than passive learners are considered, one main conclusion can be obtained so far: Teacher Talking Time needs to be lessened as long as student talking time is fostered. Other important factors contributed to the students' improvement in English speaking might be the motivation of students to do the assessment and assignment in and out of class all through the digital storytelling process.

4.2 Students' reflections of the DST intervention

This section which deals with the students' opinions of the DST intervention seeks to find out data to answer question 2 and the in-depth data to strengthen the answer of research question 1. Data obtained from the written questionnaire, and the semi-structured interview, were submitted for either quantitative or qualitative analysis.

4.2.1 Data from the written questionnaire

The written questionnaire was administered to the 50 students in the

experimental group after completion of the posttest. All 50 questionnaires distributed were returned. Whenever each respondent submitted their questionnaire, the researcher checked carefully that no blank or incomplete sheet had been submitted. All questionnaires were then analysed quantitatively.

In the written questionnaire of students' perceptions of DST intervention, the 5-point Likert-scale questions ranging from "strongly disagree" to "strongly agree" were utilized in order to make clear distinctions between students who agreed with the statement and those who did not. The students' responses to the questionnaire were coded and keyed into the SPSS programme 16.0 for statistical analysis. The five-point items were coded as follows:

Strongly disagree = 1

Disagree = 2

Neutral = 3

Agree = 4

Strongly agree = 5

In scoring the students' responses, one point was allocated to Strongly Disagree, two for Disagree, three for Neutral, four for Agree, and five for Strongly Agree. That is, each number represented a statement of their opinion on each item in the questionnaire. It is noteworthy that the students' scores on the questionnaire did not represent their speaking performance but only their reflections of the DST intervention.

Developed in 1932 by Rensis Likert (Liker, 1932) to measure attitudes, the typical Likert scale is a 5- or 7-point ordinal scale used by respondents to rate the degree to which they agree or disagree with a statement. In an ordinal scale, responses can be rated or ranked, but the distance between responses is not measurable. In other words, one cannot assume that the difference between responses is equidistant even though the numbers assigned to those responses are. For such data, calculating the median of each item is suggested. The median (the number found exactly in the middle of the distribution) is a measure of central tendency which shows what the 'average' respondent might think, or the 'likeliest' response. According to Sullivan and Artino, (2013), researchers should use frequencies (percentages of responses in each category) to analysze Likert scale data, because descriptive statistics, such as means and standard deviations, have vague when applied to Likert scale responses and descriptive staticistics usually can not provide readers with information and understanding of the data. Furthermore, if responses are congregated at either the high or low extremes, the mean may turn out to be the neutral or middle response, but this may not fairly characterize the data. The researcher thus analyzed and interpreted the results of students' perceptions on statements in all questionnaires of the study based on the above mentioned principle.

The quantitative data elicited through the questionnaire revealed the students' reflections of the DST intervention (see Table 4.14 and Table 4.15). The high median of

most of items indicated that students had positive opinions on DST intervention. Specifically, eighty-two percent (82%, N=41) of the respondents indicated that digital storytelling allowed them to improve their technical skills, while sixty-two percent (62%, N=31) indicated that digital storytelling improved their ability to apply knowledge to practice. Fifty-eight (58%, N=29) believed that digital storytelling improved their writing skills, and fifty-six percent (56%, N=28) agreed that digital storytelling provided them with new insights. Fifty percent (50%, N=25) pointed out that digital storytelling allowed them to improve their presentation skills. Only twenty-four percent (24%, N=22) stated that digital storytelling allowed them to develop their critical thinking and twenty-two percent (22%, N=11) agreed that digital storytelling could help to improve their deep learning.

Among the open-ended responses, three of respondents indicated that:

S1. "...Using DST was much fun."

S2. "We were so excited to use to PhotoStory program. We love working on the computer. While working, we collaborated with one another and learned how to compromise with others' opinions."

S3. "...Using DST to improve speaking skills is a wonderful idea because it exposes both teachers and students to new methods of making learning enjoyable."

However, one respondent complained and felt overwhelmed that DST was a time-consuming process.

Data collected above indicate that most of students in general agreed that DST intervention helped them to improve technical skills, new insights, ability to apply knowledge to practice, writing skills and presentation skills. The findings were consistent with Robin (2006) as mentioned earlier in literature review. Specifically, Pardo (2014) found that students were extremely motivated to improve their overall language abilities as well as their creativity and technical skills as digital storytelling adds new dimensions to the traditional writing process, including an authentic audience and audiovisual materials. Similar findings were reported by Christiansen & Koelzer (2016). They found that when teachers engaged students in traditional and digital writing within the same digital storytelling task, students would increase their metalinguistic awareness and develop positive attitudes toward writing, as new dimensions are added to the traditional writing process. Pardo (2014) further added that digital storytelling activity could increase students' motivation and engagement toward writing and writing process approach, encouraging students to improve and develop an awareness of their L2 composition skills. The small number of students' agreement on the DST intervention could help improve critical thinking and deep learning might be due to their lack of understanding what the two statements really mean. As for critical thinking, the researcher meant to ask about the ability of students to analyze carefully and logically information and ideas from multiple perspectives. Deep learning is the fastest-growing field in machine learning. Both terms might have been abstract for the students to understand, and that caused the

small number of agreement on the two iterms.

Table 4.14 Medians of students' perceptions of DST intervention

Perceptions	N	Median
5. Technical skills	50	4
7. Ability to apply knowledge to practice	50	4
4. Writing skills	50	4
3. New insights	50	4
6. Presentation skills	50	4
2. Critical thinking	50	2
1. Deep learning	50	2
Valid N (listwise)	50	

Table 4.15 Percentage of students' perceptions of DST intervention

Perceptions	Disagreement		Agreement	
	N	%	N	%
5. Technical skills	7	14	41	82
7. Ability to apply knowledge to practice	16	32	31	62
4. Writing skills	18	36	29	58
3. New insights	18	36	28	56
6. Presentation skills	19	38	25	50
2. Critical thinking	35	70	22	24
1. Deep learning	36	72	11	22

Legend: N=Number of responses, %=Responses in percentage

The results of data analyzed from the questionnaire on students' reflections on the DST intervention indicated that the DST intervention enabled them to improve their technical skills, provided new insights, developed the ability to apply knowledge

to practice, as well as their presentation and writing skills. The results also indicated that using DST was fun and students enjoyed collaborating with one another and learning how to compromise with others' opinions. Some students emphasized that DST exposed both teachers and students to new methods of making learning enjoyable.

4.2.2 Data from the semi-structured interview

A semi-structured interview was conducted to investigate the students' opinions of the DST intervention in learning to speak. The researcher purposively selected 10 students from the experimental group to be the interviewees. The criteria for selecting the interviewees were based on who appeared to have relevant information to provide. The 10 students were thus selected on the basis of their English speaking levels (high, medium and low).

The predesigned and validated interview questionnaire consisted of 8 questions (see Appendix J) concerning the effectiveness, the interests, and the popularity of using PhotoStory 3. Also, students were required to describe their opinions of and feelings towards the DST intervention, specifically whether the intervention could help to develop learner autonomy. Moreover, interviewees were free to express their ideas of any aspect of speaking learning as enunciated below:

S1: While creating DTS, I enjoyed arguing with my partners especially on techniques. We had a lot of fun time.

S2: I foud it was more interesting than power-point presentation.

S3: I preferred using DST approach rather than traditional approach, because it can help me concentrate on learning.

S4: It's quite interesting and helpful. We have lots of things to do and to say in and out of classroom. We enjoying speaking English through using it.

S2: I think I am more careful than before in choosing words while writing.

S6: I learn to think before I speak. I have more new insights to describe the pictures and more words to talk about while doing the presentations.

S9: Through peer-assessment and teacher-assessment, I know what mistakes I have done especially in grammar. I often make mistakes in grammar.

S10: I learned how to bargin with my peer fellows to agree with me when we learn in group.

S7: We got more opportunities to communicate with friends about a certain topics. We chat more than ever before in English.

S8: Yes, I did prefer DST intervention more than traditional approach. I learn more in this way. I have to read more in order to create the stories.

Findings from the interviews resonated with the findings from the questionnaire which indicated that the project encouraged them to apply English into real-life practice. It is worth noting that the students became more confident in speaking through the DST intervention. This finding is in accordance with Fauzan (2016) who found in his study that the students would not talk if they did not have any self-

confidence because confidence was a pivotal aspect in learning speaking. In addition, it was reported that students became more co-operative in accomplishing their DST projects. The finding also is consistent with that of Kleanthous and Cardoso (2016) which reveals that cooperative learning and peer support can encourage students not only to clarify themselves but also to contribute more to the discussion. These findings supported earlier studies which showed that DST can guide students towards meaningful learning (Gillies, 2004; Barrett, 2006; Robin, 2007). The findings also revealed that even quiet students seemed to be more active and confident to speak English. This supported the findings of Bull and Kadjer (2005) and Sylvester and Greenidge (2009) which showed that DST can create a fun and enjoyable learning environment that is both motivating and non-threatening. It was possible to conclude that the DST intervention contributed to students' development of language skills especially in speaking and gave them opportunities to practice English in authentic situations. However, it is worth noting that it was also reported that some students disliked DST, because it was a time-consuming process. This supported the findings of Christiansen and Koelzer (2016) which claimed that DST had many benefits for the students' language learning progress, but it also had its limitations.

4.3 Teacher's perceptions of the DST intervention

A pre-designed semi-structured interview questionnaire was administered to the

teacher who took care of the experiment to investigate his perceptions of English speaking teaching using the DST intervention. As an English native speaker, the teacher had been assigned to teach the course of English speaking for some years. He was trained also for how to apply DST intervention into the teaching of English speaking because he would teach both the experimental group and the control group to reduce the teacher's impact in teaching.

In his opinion, the DST intervention was very creative, helpful and interesting to his speaking teaching in several ways. First, it was the computer, not the teacher that the students depended on most of the time. In other words, the students talking and speaking time increased. This freed him from the exhaustion of speaking in class. Second, the students were interested in recording and presenting their videos in class and getting assessments from both of their classmates and teacher. They had a lot of fun when they heard their own voices heard through videos. Third, the atmosphere was active in class, and this would encourage not only the students' but also the teacher's participation to a great extent. Both students and teacher became more enthusiastic in the speaking class. Fourth, the teacher found it easy to make students speak about what they had done through DST.

He believed that the DST intervention would improve students' speaking skills. However, he was still very surprised by the extent of the improvement of the students in the experimental group. As he said, "*I couldn't believe the students in the experimental*

group could improve so much. I thought they were weaker than the control group in speaking at the beginning. And I found them less cooperative in class in the past. However, they became stimulated and were more active during the DST intervention." The teacher did warn that the students in the experimental group were less popular among teachers of other courses as well.

Generally, he liked the DST intervention and he would like to apply this approach in teaching speaking. Compared with the traditional approach, he preferred to use the DST intervention because of its flexibility and autonomy. The teacher would like to give students freedom to learn in groups or on their own both in class and outside class. He said that he seemed to be less "powerful" in the class, even lose "control" of the class but it was great to do so since the students' learner autonomy was developed. It is worth mentioning that students learned and practiced how to assess their own speaking and their peers' as well. The teacher was like a conductor in a performance. In a DST intervention class, students would learn and practice speaking in their own ways and at their own pace ideally. Particularly, the students were better-prepared before class because they didn't want to lose face in class to show their poor videos. So, they had to work hard and repeatedly improve their choice of words, correct grammar, proper sentence structures and moreover, their natural and fluent speaking recording.

The teacher also described his opinions of the DST approach as "innovative, enjoyable, helpful, and doable". His liking of this approach encouraged the research

from the teacher's perspective. The teacher emphasized that the students enjoy and relax in the learning process and the DST approach has become an integral part of English speaking classes and provided many advantages to the students, including: 1) The DST ensured that all students get many opportunities to practice the target language. 2) The alternative assessments of DST provided variety in classroom activities and so kept students engaged. 3) The DST intervention allowed students of different levels to learn from one another. The above mentioned finding is consistent with Putri & Ardi, (2013). They found that the students enjoy and relax in the learning process so they do not realize that they have spoken in English.

Findings from the interviews of students and teacher resonated the findings from the questionnaire which indicated that the project encouraged students to apply English into real-life practices. Reflections from the teacher is parrellell with Kuforiji et al., (2011). They found that being a self reflective practitioner may constitute a major shift for some teachers and their classroom practices. The classroom activities become less of a routine and the teacher's role is redefined to one of a facilitator. In fulfilling this role, the teacher helps guide the students towards more self independence. This pedagogical shift is characterized by "a move from teacher-directed lessons to a more participatory learning, from teacher solicitation of specific students' response to interactive dialogue, and from the teacher questioning students to students' generating their own questions." (Cooper and Larrivee, 2006; p.2). Most noteworthy, though, the

teacher became less "powerful" and less "central" in the class, the fact that he changed his mind is critically important.

4.4 Self-, peer- and teacher-assessments

Data of alternative assessment and teacher assessment were collected from students' digital storytelling writing and presentations in the experiment. There were two forms of assessment through the project. Both forms included self-, peer- and teacher assessment. One form of assessment was conducted by giving suggestions and reflections on students' presentations. The other form of assessment was conducted by giving scores to students' presentations. Specifically, during the first period when the students were writing their stories and presenting their stories, they were assessed analytically. Each participant had to finish writing three stories involving the individual participant finding their digital story topics with story descriptions and self-, peer-, and teacher assessments of each story description at critical points. While in the classroom, they presented their stories orally gaining peer and teacher assessments to improve both the contents and speaking skills of their stories. The participants then recorded and presented their digital stories using Microsoft PhotoStory3, gaining reflections or feedbacks from peer and teacher assessments both in class and out of class. The assessment of story writing emphasized on helping students use proper grammar and concise choice of vocabulary. The assessment of story presentations focused on helping

students use proper discourse, pronunciation and presenting skills. The assessment during this period were conducted orally without giving any scores. Students thus had plenty of opportunities practicing their speaking skills while assessing each other's stories. The second form of assessment took place in the final week of the digital storytelling experiment. One by one, the participants chose one of the three digital stories to present for grading according to three forms of assessments, i.e., self-, peer-, and teacher assessments. During the assessment task, other students as well as the teacher utilized the grading chart to record the score. For the purpose of self-assessment, the voice of each presenter was recorded and the presenter was supposed to listen to his/her presentation and do the same as others did previously. Contrary to the first form of assessment, the form of assessment was conducted in a silent way. Instead of giving any ideas orally, each student was assessed by giving a definite score for their presentations. Their presentations were assessed holistically by self-, peer- and teacher-assessments. The holistic rubric was adapted from Brown's (2001) oral proficiency scoring categories, divided into five stages: (1) beginning speaking (below 60), (2) developing speaking (61-70), (3) competent speaking (71-80), (4) accomplished speaking (81-90), and (5) advanced speaking (91-100). Their digital storytelling presentations were analyzed and graded in five categories adapted from a scoring key created by Choi (2005), based on the communicative language ability (CLA) model offered in Bachman and Palmer (1996). The five categories were: pronunciation, discourse, vocabulary,

grammar, and sentence complexity. Each category had scores from 1 to 5.

A questionnaire was then utilized after the experiment for the purpose of contrasting the participants' perceptions of alternative assessment. The questionnaire was adopted from Salehi and Daryabar (2014) on a five-point Likert scale from 'Strongly Agree' (5) to 'Strongly Disagree' (1) survey. The validity of the questionnaire had been obtained before distribution to the participants by asking five experts in the field to review it.

4.4.1 Relationship between self-, peer-, and teacher-assessments

In order to calculate the correlations between self- and peer assessments, teacher- and peer assessments, self- and teacher assessments, Pearson conduct moment correlation coefficient formula has been utilized through SPSS statistics 16.0. The descriptive statistics for the scores of the 50 students in the experimental group was indicated in Table 4.16. The table provides the number of students, the minimum, maximum, mean and standard deviation of the scores in the experimental group.

Table 4.16 Descriptive statistics of self-, peer-, and teacher assessments

	N	Minimum	Maximum	Mean	Std. Deviation
Self-assessment	50	79	91	85.16	2.944
Peer-assessment	50	79	91	84.94	2.993
Teacher-assessment	50	71	88	80.82	3.299
Total-assessment	50	77	90	83.61	2.819
Valid N (listwise)	50				

Table 4.17 shows correlations between self-, peer- and teacher assessments which indicated that there was a very strong, positive correlation between self-, peer- and teacher assessments. The correlation between self- and peer assessments was reported as:.858, between self- and teacher assessments as: .654, and between teacher- and peer assessments as: .737.

Table 4.17 Correlations between self-, peer- and teacher assessments

	Self- and Peer-assessment	**Self- and teach-assessment**	**Peer- and teacher-assessment**
Pearson Correlation	.858**	.654**	.737**
Sig. (2-tailed)	.000	.000	.000

**. *Correlation is significant at the 0.01 level (2-tailed)*

4.4.2 Students' perceptions of alternative assessment

A five-point Likert scale survey was employed to investigate the 50 students' perceptions toward self- and peer assessment after completion of the posttest. All 50 questionnaires distributed were returned. Whenever each respondent submitted their questionnaire, the researcher checked carefully that no blank or incomplete sheet had been submitted. All questionnaires were then analysed quantitatively.

In the written questionnaire, 5-point Likert-scale questions ranging from "strongly disagree" to "strongly agree" were utilized in order to make clear distinctions between students who agreed with the statement and those who did not. The students' responses to the questionnaire were coded and keyed into the SPSS programme 16.0 for statistical analysis. The five-point items were coded as follows:

Strongly disagree = 1

Disagree = 2

Neutral = 3

Agree = 4

Strongly agree = 5

In scoring the students' responses, one point was allocated to Strongly Disagree, two for Disagree, three for Neutral, four for Agree, and five for Strongly Agree. That is, each number represented a statement of their opinion on each item in the questionnaire. It is noteworthy that the students' scores on the questionnaire did not represent their speaking performance but only their reflections of alternative assessments.

The quantitative data elicited through the questionnaire revealed the students' perceptions of alternative assessments (see Table 4.18 and 4.19). The median of every item of the questionnaire is 4, which indicated that respondents mostly agreed on the items asked. Specifically, almost all students (N = 48, 96%) agreed that alternative assessment was helpful to their learning. A very high number of the students (N = 46, 92%) thought that alternative assessment activities motivated them to learn. A large majority of the students (N = 45, 90%) agreed that alternative assessment activities increased the interaction between the teacher and the students, moreover, the activities made them understand more about teacher's requirement. 44 students (88%) thought that

students should be eligible to assess their own and their peers. 43 students (86%) agreed that they appreciated being graded by alternative assessments. 42 students (84%) agreed that alternative assessment helped them develop a sense of participation. As for item 8 and item 9, both items have 82% of students (N = 41) agreed that being graded by alternative assessments motivated them to participate more in the class and they thought that alternative assessment could improve their speaking presentation skills. The high percentage of students' agreement on the items in the questionnaire indicated that most of students had positive opionions on alternative assessment. The students were also active in responding the open-ended questions about alternative assessment.

Table 4.18 Medians of students' perceptions of alternative assessment

Item	N	Median
1. Alternative assessment is helpful to my learning.	50	4
7. Alternative assessment activities motivate me to learn.	50	4
3. Alternative assessment activities increase the interaction between the teacher and students.	50	4
2. Alternative assessment makes me understand more about teacher's requirement.	50	4
5. I think students are eligible to assess their own and their peers.	50	4
6. I appreciate to be graded by alternative assessment.	50	4
4. Alternative assessments help me develop a sense of participation.	50	4
8. Being graded by alternative assessment motivates me to participate more in the class.	50	4
9. Alternative assessment improves my speaking presentation skills.	50	4
Valid N (listwise)	50	

Table 4.19 Percentage of students' perceptions of alternative assessment

Perceptions	D		A	
	N	%	N	%
1. Alternative assessment is helpful to my learning.	1	2	48	96
7. Alternative assessment activities motivate me to learn.	1	2	46	92
3. Alternative assessment activities increase the interaction between the teacher and students.	1	2	45	90
2. Alternative assessment makes me understand more about teacher's requirement.	2	4	45	90
5. I think students are eligible to assess their own and their peers. .	2	4	44	88
6. I appreciate being graded by alternative assessment.	3	6	43	86
4. Alternative assessment helps me develop a sense of participation.	2	4	42	84
8. Being graded by alternative assessment motivates me to participate more in the class.	3	6	41	82
9. Alternative assessment improves my speaking presentation skills.	4	8	41	82

Legend: N = Number of responses, % = Responses in percentage, D = Disagreement, A = Agreement

Among the open-ended responses, five of respondents indicated that:

S1. "Alternative assessment makes me more attentive when listening to others speaking."

S2. "Alternative assessment motivates me to learn carefully especially when making a judgment on others."

S3. "Alternative assessment activities help me understand teachers better on how to be fair to students."

S4. "It's a challenge for me to understand the criteria and assess accurately."

S5. "Alternative assessment can help to promote our learner autonomy. We have to find out evidence by ourselves in order to prove that our assessment to our classmate's work is right or wrong."

As mentioned above after the data were collected from self-, peer- and teacher-assessments, Pearson correlation coefficient was employed to test the correlation between them quantitatively. The data collected from the questionnaire was analyzed both qualitatively and quantitatively. Generally speaking, correlation between self-, peer-, and teacher-assessment was positively related and the students had positive attitudes on alternative assessments. The findings were parallel with Brown (2004). He found that alternative assessments are considered to support students' intrinsic motivation. Researchers like Brown (2004), Hamm & Adam (2009) and Shermis & Di Vesta (2011) have also identified some forms of alternative assessments that are useful in language learning.

As shown in Table 4.17, there was a significant difference in correlations among self-, peer- and teacher assessments, which was reported as: .858, between SA and TA as: .654, and between TA and PA as: .737 respectively. Though the three assessments tend to be consistent in assessing each presenter's DST presentation, there were some differences distinguished from the mean scores. The mean scores of self-, peer- and teacher-assessments were 85.16, 84.94, and 80.82 respectively as seen in Table 4.16. Students tended to assess themselves more strictly than to assess their peers. And the

teacher's assessment to each student seemed to be lower than both student' self assessment and peer assessment. It has been observed that weak students tended to over-estimate and strong students tended to under-estimate their own speaking abilities. These findings were in consistency with AlFallay (2004). Graph 4.1 illustrates that the range of scores which were extracted from peer assessments mostly located in the middle of the graph. This signifies that no matter how high or low the teacher assessment was, the students assessed their peers in a moderate fashion. Even when the teacher scored some student very low, the students were not so demanding. In the self-assessment, the students usually estimated themselves higher than their peers. The finding is consistent with Hung et al. (2016) who found that some students might have over-marked themselves because they subjectively took into account their effort. We can conclude that when alternative assessments are used, students are required to expose their abilities through the performance of tasks in the real-world contexts or simulations.

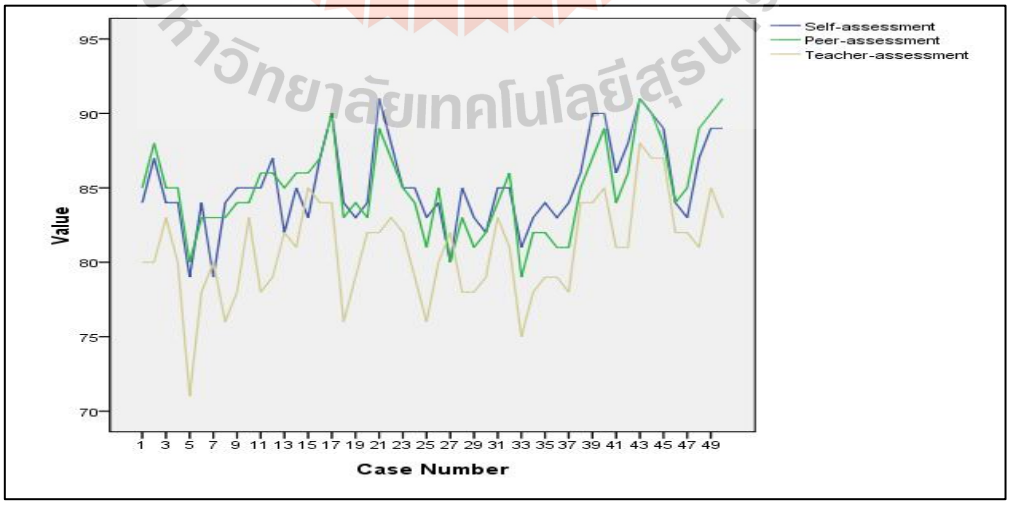

Figure 4.2 The graph of self-, peer- and teacher assessments

The findings from students' reflections of alternative assessmnets show that the participants had positive attitude towards alternative assessments. The quantitative data elicited through the questionnaire revealed the students' perceptions of alternative assessments (see Table 4.18 and Table 4.19). Among the open-ended responses, the students added that alternative assessments made them more attentive when listening to others speaking. Alternative assessmnets enabled them to be more careful when making a judgement on others. They also thought alternative assessment activities helped them understand teachers better on how to be fair to students. The involvement of the learners in the assessment process increased their reflective capacity and their level of the critical thinking, which is parallel with what Brookfield (2017) states. He believes that where several learners are involved in a test task at the same time they can be asked to assess each other as well as themselves. This group assessment makes the judgment more authentic as in real life, using the same scale, will help the learners to make their own self-judgments more critical and accurate.

In the open-ended questionnaire, some students responded that alternative assessment is a challenge to assess each other fairly and accurately. This finding is parallel with Joo (2017) who states that given that speaking assessment requires a profound understanding of assessment criteria, the learners' ability to accurately assess self or peers' oral performances has often been challenged. Some students mentioned in their diaries that through assessments from their classmates and teacher in and out of

the classroom when preparing or presenting digital stories, they learned a lot from this experience which is consistent with the finding by Hung et al.(2016) who propose that that the process to compare, contrast, and cross-check the perceptions of an outsider, an insider, and other outsiders crystalized the standard of each evaluation criteria for the students, who therefore benefited from the experience and developed the abilities to be assessors in both peer assessment and self assessment. It is worth noting that as the research findings prove the significance of self-and peer assessment techniques on promoting learners' autonomy, it seems beneficial to incorporate these assessment techniques into EFL classes in general, and speaking classes in particular.

In a word, learning English speaking through DST via alternative assessments, students have not only improved in English speaking skills but also they enjoyed learning this way. This finding is line with the finding by Fauzan (2016) whose study concluded that alternative assessments are improving the students' speaking score and increasing the quality of classroom atmosphere of teaching speaking.

4.5 Successful and less successful learners' perceptions of LA

In order to examine the population's perceptions of learner autonomy to check whether there were any differences found between successful and less successful learners and whether there were any differences found before and after the experiment, the questionnaire was adopted with a slight change from Joshi (2011) who prepared the

tools being based on the ideas of the researchers like Zhang and Li (2004), Lamb and Reinders (2008). Before the experiment, the population was given a questionnaire about learner autonomy with responses on a 5-point Likert scale ranging from 'Strongly Agree' (5) to 'Strongly Disagree' (1) for each of 31 statements. Based on students' speaking scores from a speaking pretest, they were divided into two groups labelled as "successful" and "less successful" in order to get two different types of learner samples. After the experiment, the participants were then again divided into two "successful" and "less successful" groups on the basis of their scores in a posttest in order to check whether there were any changes after the digital storytelling intervention.

Based on the pretest scores and posttest scores, two groups of learners (successful and less successful) were identified in order to get two different types of learner samples. The mean scores of pretest and posttest were 85.63 and 88.12 respectively as seen in Table.4.20.

Table 4.20 Mean scores of pretest and posttest

	N	Mean	Std. D
Pretest scores	100	85.63	3.876
Posttest scores	100	88.12	4.372

As for the pretest, students getting a score above the mean score 85.63 were grouped as successful level (N=48) and students getting a score below the mean score 85.63 were grouped as less successful level (N=52). And for the posttest, students getting a score above the mean score 88.12 were grouped as successful level (N=53) and students

getting a score below the mean score 88.12 were grouped as less successful level (N=47) as seen in Table 4.21.

Table 4.21 Distribution of successful and less successful learners

Group	Successful		Less successful	
	pretest	posttest	pretest	posttest
Control group	27	19	23	31
Experimental group	21	34	29	16
Total	48	53	52	47

Before the experiment, the number of successful students and less successful students in control group was 27 and 23, in the experimental group 21 and 29. After the experiment, the number of successful students and less successful students in control group was 19 and 31, in the experimental group 34 and 16 (Table 4.21). There were no significant differences in distributions of students' level between control group and experimental group (p = .230, as seen in Table 4.22) before the experiment. This indicates that the number of successful learners and less successful learners was not very much different since they were from intact classes and had been under the same instruction in the course for English speaking.

Table 4.22 Differences in speaking level before experiment

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.442[a]	1	.230
Continuity Correction[b]	1.002	1	.317
Likelihood Ratio	1.446	1	.229
Linear-by-Linear Association	1.428	1	.232
N of Valid Cases[b]	100		

However, after the experiment, there were significant differences in distributions

of students' level between control group and experimental group (p = .003, Table 4.23). The total number of successful students in the posttest are 53 among which 34 were from the experimental group only 19 were from the control group. This indicates that after the DST intervention experiment, there were more successful learners than less successful learners, especially in the experimental group, which again proved the effectiveness of application of DST intervention in the instruction of English speaking.

Table 4.23 Differences in speaking level after experiment

	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	9.033[a]	1	.003
Continuity Correction[b]	7.868	1	.005
Likelihood Ratio	9.176	1	.002
Linear-by-Linear Association	8.942	1	.003
N of Valid Cases[b]	100		

Table 4.24 below shows the different level learners' perceptions of learner autonomy before the experiment. 9 out of 31 items were found to be significantly different in the perceptions between successful and less successful learners.

Table 4.24 Different level learners' perceptions of LA before experiment

Learner autonomy perceptions	L	D		A	
		N	%	N	%
1. I think I have the ability to learn English well.	SL	30	62.6	15	31.3
	LSL	30	57.7	16	30.7
2. I make decisions and set goals of my learning.	SL	25	52.1	21	34.4
	LSL	26	50	17	32.7
7. I make notes and summaries of my lessons.	SL	7	14.6	37	77.1
	LSL	18	34.6	22	42.3
9. I practice English outside the class also such as: record my own voice; speak to other people in English.	SL	7	14.6	27	77.1
	LSL	9	17.3	38	53.9
14. I note my strengths and weaknesses in learning English and improve them.	SL	7	14.6	41	85.5
	LSL	8	15.3	34	65.4
15. I revise lessons and seek the reference books.	SL	11	23	33	68.8
	LSL	12	23.1	21	30.4
21. Students have to evaluate themselves to learn better.	SL	22	45.8	23	47.9
	LSL	28	53.9	16	30.8
22. Students should mostly study what has been mentioned under the course.	SL	30	62.6	15	31.3
	LSL	30	57.7	16	30.7
23. Students should build clear vision of their learning before learning English.	SL	25	52.1	21	43.7
	LSL	27	51.9	17	32.7

Legend: L = Level, SL = Successful learners, LSL = Less successful learners, N = Number of responses, % = Responses in percentage, D = Disagreement, A= Agreement

Specifically, Table 25 below shows the results of Chi-square test for different level learners' perceptions of learner autonomy before experiment. There was a significant difference between successful learners and less successful learners in terms of their opinions for 9 items among which 7 items (1, 2, 7, 15, 21, 22, and 23) show that there were more successful learners than less successful learners in their agreements of applying learner autonomy in learning English. Successful learners tended to believe that they had the ability to learn English well. They also tended to make decisions and set goals of their learning. They made notes and summaries of my lessons. They noted

their strengths and weaknesses in learning English and improve them. They revised lessons and sought the reference books. Successful learners also tended to agree that they should build clear vision of their learning before learning English and they should mostly study what has been mentioned under the course because studying English in undergraduate course is actually for exam purpose. It is worth noting that there were 2 items among the 9 items which show significance in their perceptions of learner autonomy in an opposite way. In other words, there were fewer successful learners than less successful learners in their agreements of item 9 and item 14. Fewer successful learners agreed that they practiced English outside the class also such as: record their own voice; speak to other people in English. There were also fewer successful learners agreeing that they noted their strengths and weaknesses in learning English and improved them.

Table 4.25 Results of X^2 test for participants' perceptions of LA before experiment

Learner autonomy perceptions	X^2
1. I think I have the ability to learn English well.	10.929*
2. I make decisions and set goals of my learning.	13.709**
7. I make notes and summaries of my lessons.	17.031**
9. I practice English outside the class also such as: record my own voice; speak to other people in English.	8.773+
14. I note my strengths and weaknesses in learning English and improve them.	12.607*
15. I revise lessons and seek the reference books.	13.699**
21. Students have to evaluate themselves to learn better.	8.214+
22. Students should mostly study what has been mentioned under the course.	10.929*
23. Students should build clear vision of their learning before learning English.	14.935**

P+ <.1, P *<.05, P**<.01

After the 12-week-intervention, the questionnaire was administered again to discover the extent of learner autonomy development. After collecting the answers from the questionnaire, a Chi-square test was used to analyze in order to identify the tendency of the distribution of the questionnaire responses as seen in Table 4.26. To compare with the statistics of those before the experiment, the percentage of agreements in learner autonomy development was higher. More items showed significant differences between successful learners and less successful learners. Furthermore, the successful learners tended to agree that they applied more learner autonomy activities in English learning. Totally, there were 17 items that indicated a significant difference between successful learners and less successful learners in their perceptions of learner autonomy. The 17 items are as follows: 1, 2, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 18, 19, 20, and 31 as seen Table 4.26 and Table 4.27. Comparing two significantly different learner groups' behavior and perception is the researcher's original point. As found in the survey prior to the experiment, there were only 7 items of learner autonomy that were applied significantly different between successful learners and less successful learners, while after the experiment, however, there were more than twice as many items that show significant difference between successful learners and less successful learners. It is worth noting that the percentage of agreement of applying learner autonomy has raised to a higher number than that of prior to experiment, which indicated that students become monre autonomous in language learning after experiencing DST intervention.

Table 4.26 Different level learners' perceptions of LA after experiment

Learner autonomy perceptions	L	D		A	
		N	%	N	%
1. I think I have the ability to learn English well.	SL	11	23	31	65
	LSL	25	48	19	37
2. I make decisions and set goals of my learning.	SL	6	10	37	77
	LSL	16	30	27	53
4. I preview before the class.	SL	9	19	36	75
	LSL	24	46	24	46
5. In the class, I try to use every opportunity to take part in the activities where and when I can speak in English.	SL	11	23	32	67
	LSL	26	50	20	39
6. I speak confidently in front of the people.	SL	7	15	39	81
	LSL	20	39	28	53
7. I make notes and summaries of my lessons.	SL	10	21	32	66
	LSL	22	42	20	39
8. I talk to the teachers and friends outside the class in English.	SL	6	15	37	77
	LSL	23	44	23	44
9. I practice English outside the class also such as: record my own voice; speak to other people in English.	SL	4	8	64	88
	LSL	12	23	32	61
10. I use library to improve my English.	SL	4	8	41	85
	LSL	18	35	30	56
12. I attend different seminars, training courses, conferences, to improve my English.	SL	28	15	39	81
	LSL	7	54	19	36
13. I take risk in learning the English language.	SL	10	21	34	69
	LSL	20	39	21	40
14. I note my strengths and weaknesses in learning English and improve them.	SL	5	10	41	86
	LSL	14	27	30	58
15. I revise lessons and seek the reference books.	SL	8	17	33	68
	LSL	15	29	21	41
18. I use internet and computers to study and improve English.	SL	3	6	39	81
	LSL	14	26	35	64
19. Students have to be responsible for finding their own ways of practicing English.	SL	6	13	36	74
	LSL	24	46	17	33
20. Students should use self-study materials to learn English.	SL	8	17	38	79
	LSL	19	37	28	53
31. Teachers need to use their authority in teaching/learning.	SL	11	23	33	64
	LSL	24	46	23	44

Legend: L = Level, SL = Successful learners, LSL = Less successful learners, N = Number of responses, % = Responses in percentage, D = Disagreement, A= Agreement

Table 4.27 Results of X^2 test for participants' perceptions of LA after experiment

Learner autonomy perceptions	X^2
1. I think I have the ability to learn English well.	8.869+
2. I make decisions and set goals of my learning.	8.588+
4. I preview before the class.	10.590*
5. In the class, I try to use every opportunity to take part in the activities where and when I can speak in English.	10.063*
6. I speak confidently in front of the people.	9.978*
7. I make notes and summaries of my lessons.	10.833*
8. I talk to the teachers and friends outside the class in English.	13.319*
9. I practice English outside the class also such as: record my own voice; speak to other people in English.	12.025*
10. I use library to improve my English.	11.475*
12. I attend different seminars, training courses, conferences, to improve my English.	21.744**
13. I take risk in learning the English language.	9.927*
14. I note my strengths and weaknesses in learning English and improve them.	11.243*
15. I revise lessons and seek the reference books.	10.132*
18. I use internet and computers to study and improve English.	8.241+
19. Students have to be responsible for finding their own ways of practicing English.	19.755**
20. Students should use self-study materials to learn English.	7.931+
31. Teachers need to use their authority in teaching/learning.	8.119+

P+<.1, P*<.05, P**<.01

Findings from participants' perceptions of learner autonomy indicate that students have developed learner autonomy to some extent. Successful learners have proved to apply more learner autonomy activities in learning, especially those in the experimental group. The findings were consistent with Kim (2014). He found that learning through digital storytelling can be learner-centered to increase autonomy in oral proficiency. Kumaravadivelu (2006) also found that digital storytelling as an

authentic means of expression promotes learner autonomy, as students reflect on their developing identities and their sense of who they are and how they relate to the world. Miller and Kim (2015) further explored that digital storytelling as a student-centered approach that validates learner autonomy can develop within learners the ability and desire to take initiative both in the classroom and outside.

4.6 Student diaries

Students both in the experimental group and control group were required to keep study diaries. As mentioned in 3.2.4, the information in students' diaries included the time length, place, materials (content), the effectiveness and their feelings of any kinds (both formal and informal ones) of English speaking learning. Data from the student diaries were analysed thematically.

4.6.1 Student diaries in the experimental group

All 50 students in the experimental group submitted their notebooks in which they wrote their diaries after the experiment. Information from the diaries were grouped, coded, and categorized to be reported as results.

According to the students' diaries, the time they spent on practicing English speaking both in and outside class was around 8.5 hours a week. Their study time varied from early morning to late night. Most of them tended to practice speaking in the early morning which was popularly called "morning reading on the campus". More detailed

information in terms of study time revealed that English speaking learning activities were carried out much more often than before. Many students had developed the habit of going to bed late and rising early, something that they had never done before. As one student said in her dairy, *"Never before have I ever been so crazy in learning speaking like this, I talked to myself day and night even in my dreams."* Because the DST project was always lingering around in their minds, they could not stop thinking about new ideas for digital story making. One student mentioned her experience of talking to herself while waiting in line for a ride or when in the canteen. More interestingly, not a few of them said that they had dreamed of reciting their digital stories. Regarding their feelings for the DST intervention, 95% of students used the words "new", "challenging", "amazing", "different", and "happy" to describe their feelings while preparing, creating and presenting their DST for practicing English speaking. As one student wrote in the diary, *"Time flies either in class or outside class when practicing speaking. We spent time thinking about what to say what to write how to create and demonstrate our work in English."* Many students recorded that they practiced not only speaking but also writing even the skills of using technology. So they found it was interesting and beneficial for their English study. As one student says, *"I have never found a better way to learn and enjoy English speaking like this."*

As for the place they practice their speaking, it varied from the dormitory to language lab, under a tree, or anywhere that is quiet. Compared with their study place before the

intervention, they were found to study in more places than before, many in places previously unfrequented, such as a tea bar on the campus, sitting on a bench somewhere near the sports field. One participant even practiced her speaking on the top floor of the teaching building. As one participant wrote in her diary, *"I practice my English speaking almost anywhere anytime."*

With regards to their learning materials, besides the speaking textbook, a few reported to search references from the library or download some materials from the Internet. Not only the content of the story, but also pictures used for the story. Data revealed that students were able to obtain more materials of a broader variety on the basis of their preferences and availability. For example, several student diaries indicate the use of additional materials, either text or audio, from different sources such as the Internet and other courses rather than their official textbook. As one student mentioned in her diary, *"In order to present a wonderful digital story to my class and teacher, I am always thinking about the topic, the content and the pictures or photos to be chosen. Some ideas may come to me while I am taking a walk and I have to write it down immediately and soon afterwards I have to prepare for it. I feel that DST is really interesting."*

In terms of how they created their digital stories, 70% of students reported a preference for doing it in groups though a few preferred to do in their own. However, they all agreed that to avoid mistakes either in writing, recording or the technology, they had to depend on their peer fellows and teacher. And they had to use computer almost every day. *"I*

like the way that we should have self-assessment, peer-assessment and teacher-assessment. I have improved a lot through these alternative assessments. What's more, I have lots of fun while doing the presentations and being assessed." However, some students would like to practice on their own because they don't have to find and wait for somebody to help assess, which takes so much time. Another student said she wanted to practice by herself because she would feel shy and embarrassed if other students were around.

The students' diaries showed that DST intervention helped them develop a preference for learning speaking in groups since they were assigned by the teacher that they should practice speaking English in group so as to help each other identify the problems. Especially for those who usually were quiet in learning English, they could find a suitable and comfortable way to interact with their peers through DST intervention. Through assessing and being assessed by their peers and teacher, the students become more and more confident in expressing their ideas when commenting their peers' DST presentations. This finding is in accordance with Fauzan (2016) who found in his study that the students would not talk if they did not have any self-confidence because confidence was a pivotal aspect in learning speaking.

4.6.2 Student diaries in the control group

There were also 50 notebooks collected in the control group. Information was categorized, coded, and grouped to be analyzed.

The length of time spent on practicing English speaking reported both in class and outside class in the control group, was also about 8.8 hours per week, which was a bit more than the time length reported by the students in the experimental group. That is, both the experimental group and the control group spent almost the same number of hours to learn to speak English. As in the case of the students in the control group, their study time varied from early morning to late at night. However, their study places seemed to be limited to the classroom, the dormitory and the English corners on the campus while the students in the experimental group could choose to practice their speaking anywhere anytime anyhow and they depended more on the computers. Moreover, the content of the speaking exercises in the control group were limited to what they found in their speaking textbook and the training exercises prepared by their teacher. The feelings of the students in the control group could, in general, be summarized, in their own words as "boring", "cliché-ridden", "stereotyped", and "drowsy". Thus, while time on task was not an issue as both groups gave the same amount of time to their English learning, students in the DST group accessed and produced more variety in their texts.

As one student said, *"I learned what was assigned in class by the teacher and got ready to show my assignment in class."* About 70% of students reported a preference for learning speaking in groups since they were assigned by the teacher that they should practice speaking English in group so as to help each other identify the problems. For

example, one student kept her preference for speaking learning as: *"My oral English is poor. I would like to practice my speaking with my classmates because they can correct me in pronunciation and grammar when I make a mistake."* However, some students preferred to learn their speaking in their own. One student said in her diary: *"I would like to practice speaking on my own because I was afraid of making mistakes in public and being laughed by my friends."*

Almost all of them felt it was "boring" to practice speaking as required and arranged by the teacher. They claimed to have spent so much time in this course but they were still poor in speaking. A passage in a student diary goes like this: *"To practice English speaking every day as usual, I really felt bored. I spent too much time on the course but gained so little in progress."* Quite many of them use the words "bored", "nervous", "tired", and "lack of words to say" to describe their feelings while practicing English in class or outside class. Another student wrote in her diary, *"I felt embarrassed when my classmates laughed at me. Though I didn't know where my mistakes are, their laughter often makes me nervous and forget what to say."*

In a word, data from questionnaires, interviews and student diaries were used for cross-verification. It was possible to conclude that the intervention of DST contributed to students' development of language skills especially in speaking and gave them opportunities to practice English in authentic situations. The DST presentation and the alternative assessment are tried-and-true classroom techniques. These findings

supported earlier studies which showed that DST can guide students towards meaningful learning (Gillies, 2004; Barrett, 2006; Robin, 2007). The findings also revealed that even quiet students seemed to be more active and confident to speak English supported the findings that showed that DST can create a fun and enjoyable learning environment that is both motivating and non-threatening (Bull & Kadjer, 2004; Sylvester & Greenidge, 2009). However, it is worth noting that it was also reported that some students disliked DST, because it was a time-consuming process. This supported the findings of Christiansen & Koelzer (2016) which claimed that DST had many benefits for the students' language learning progress, but it also had its limitations.

4.7 Answers to research questions

4.7.1 Answer to research question 1: Are there any significant differences in speaking performance between the experimental and the control groups? If so, what are the causes of those differences?

The results of the data analysis indicated that the two groups were at a similar level before the DST intervention in terms of English speaking performance. This finding was not surprising as the control and the experimental groups came from two intact classes according to their scores on the university entrance examination. This finding was also consistent with their speaking test in the previous semester. However, the experimental group improved significantly in the posttest while the control group

did not. Furthermore, every student in the experimental group improved in the posttest while some students in the control group even went backward. A possible explanation may be that the DST approach motivated students to speak English and thus guaranteed the improvement and benefited everyone. But, not everybody could benefit from the traditional approach. The data gained from the semi-structured interview and the students' diaries revealed that students were interested in the DST intervention and motivated to practice speaking English. These findings indicated that the DST intervention was effective. This outcome was consistent with that of Robin (2007) which indicated that one of the most powerful tools in multimedia is DST. The findings in this study also supported Alismail (2015) who argued that DST is one of the multimedia tools that can support teaching and learning as well as students' motivation.

4.7.2 Answer to research question 2: What are the students' and the teacher's perceptions of the DST intervention?

Both the students and the teacher had positive perceptions towards the DST intervention. Students found the experience of creating their DST enjoyable and effective in improving their speaking skills. They also claimed that DST intervention could improve their learner autonomy. And they believed that the approach of DST was beneficial not only in speaking course but also in other courses like comprehensive English and listening. Most of students in general agreed that DST intervention helped them to improve technical skills, new insights, ability to apply content to practice, writing skills

and presentation skills. The teacher who taught both classes was a native speaker of English and was experienced at teaching speaking through the traditional approach and he believed that DST intervention was very helpful because it was structured to combine different senses (audio, visual) helping the learner solidify the content being introduced. It also included intentional time to review the English material that was being learned. He emphasized that the specific elements involved in language learning allowed the students to commit the material to memory. Additionally, compared with the traditional approach, DST was not only beneficial but enjoyable for the students. When the students could learn in an environment that was enjoyable, statistics showed that their eagerness to learn went up. Both students and teacher agreed that DST intervention is a tried-and-true experience of reducing teacher talking time and increasing students talking time and thus makes the language class learner-centered.

4.7.3 Answer to research question 3: What are the learners' perceptions of alternative assessments? Is there any relationship between self-assessment, peer-assessment, and teacher assessment in speaking presentations?

96% of students agreed that alternative assessments were helpful to their learning and help them develop a sense of participation. 88% of students agreed that alternative assessment activities increase the interaction between the teacher and students and they thought that students were eligible to alternative assessments and they appreciated to be graded by alternative assessments. The same amount of students

agreed that the activities motivate them to learn and being graded by alternative assessments motivated them to participate more in the class. What's more, they agreed that the activities bettered their oral presentation skills. 84% of students agreed that alternative assessments made them understand more about teacher's requirement. There was a significant difference between self-assessment, peer-assessment, and teacher assessment. The correlation between self-assessmnet and peer-assessment was reported as: .858, between self-assessment and teacher assessment as: .654, and between teacher assessment and peer-assessment as: .737. In short, a strong correlation between self-assessment, peer-assessment, and teacher assessment can be estimated and the participants have a positive attitudes towards the alternative assessments.

4.7.4 Answer to research question 4: What are the autonomous activities of the students in learning English? Are there any differences between successful and less successful learners, as regards their perceptions of learner autonomy?

Students in both control group and experimental group tended to apply autonomous activities in learning English. The forms of autonomous learning activities vary. They previewed their lessons before consciously. They tried to use every opportunity to take part in the activities wherever and whenever they could speak in English. They made notes and summaries of their lessons. They recorded their own voices in reading English. They used library to improve their knowledge of English. They attended different seminars, training courses, conferences, to improve their

English. They used internet and computers to study and improve English. And they tended to use self-study materials to learn English. The findings revealed that there were significant differences between successful and less successful learners, as regards their opinions of learner autonomy. Specifically, prior to the experiment, there were only 7 items of learner autonomy that were applied significantly different between successful learners and less successful learners, while after the experiment, there were more than twice as many items that show significant difference between successful learners and less successful learners. It is worth noting that the percentage of agreement of applying learner autonomy has raised to a higher number than that of prio to experiment. Students' learner autonomy was developed through the intervention of DST to some extent. Students could plan and manage their study time and places better and more freely after the intervention. Data from the students' diaries revealed that they had more freedom to choose their learning materials and they were happier to practice speaking English.

4.8 Reflections on application of DST for improving speaking skills

In this section we discuss aspects that may extend beyond the scope of the research questions as there were a number of interesting aspects emerging from the research. Thus the following reflections on application of DST in relation to its theories and principles will provide a deeper and more complete picture of the present study. Although project-based learning is a well-known and widely used instructional strategy, it remains a challenging issue to effectively apply this approach to practical settings for

improving the learning performance of students. However, in this study, a project-based digital storytelling approach has been successfully applied to improve Chinese EFL speaking skills with a quasi-experiment. Hereby, there are reflections on the application of DST for improving students' speaking skills as follows:

4.8.1 DST as a down-to-earth method of PBL

The first reflection of the study is that DST is a down-to-earth method of PBL in EFL learning. In this study, a project-based digital storytelling was employed to develop a learning activity in English speaking course for EFL learners in a Chinese university. Students of experimental group were asked to complete three digital storytelling projects via taking pictures with digital cameras or download pictures from internet, developing the stories based on the pictures taken, producing videos based on the pictures by adding subtitles and a background, and presenting the stories, during which the students were experiencing self-, peer- and teacher assessments in and out of classroom. From the experimental results, it was found that this innovative approach improved the learning motivation, attitude, problem-solving capability and learning achievements of the students. Moreover, from the interviews and students' diaries, it was found that the students in the experimental group enjoyed the project-based learning activity and thought it helpful because of the digital storytelling aspect.

4.8.2 An effective way of decreasing TTT and increasing STT

The second reflection is that the data collected from the semi-structured interview

from the teacher revealed that DST intervention is an effective way of reducing teacher talking time (TTT) and increasing student talking time (STT). In English speaking classes, teachers have been trying to do fewer teacher-directed activities in order to let students speak more. However, fewer teacher-directed activities didn't necessarily mean that the students would naturally do more talking. On the contrary, the teacher usually found himself talking almost constantly during group work and student-directed projects because he was trying to push students' thinking, provide feedback, and help them stay on task. Even when the students were involving in the activities thinking and talking to each other, the teacher still couldn't help tempting to be wordy with giving directions, repeating important information, and telling students how they did instead of asking them to reflect on their work. The lack of interaction or the use of the language will negatively affect language learners in their communications. Therefore, according to Zucker (2005) and Mackey (2007), teachers should encourage students to interact with each other in the communicative activities in the classroom so that the students can be fluently experiencing in spoken language. The experiment of DST intervention turned out be an effective way of making teachers talk less and getting students talking more. According to Darn (2007), the idea that the teacher's presence in the classroom should be reduced. If the teacher keeps talking all the time in a class, the students will certainly have no choice but listen, as a consequence, there will be too much TTT and little STT. Students' responsibility for their learning is therefore withdrawn, and the teacher thus

becomes the person who decides what, when and how students are supposed to learn. In this case, the students won't be motivated to learn. On the contrary, students' involvement in learning is dramatically reduced, hindering at the same time the whole acquisition process. As a result, learners will take no responsibility for their own learning (Cárdenas, 2013). In a word, teacher's talking time is inversely proportional to students' talking time.

4.8.3 Alternative assessment as a golden key

The third reflection of the study is that alternative assessment can be used as a golden key to "deaf and dumb" problem for Chinese university EFL learners. English as a main course was offered in all levels of education in China. In spite of its omnipresence, EFL teaching in Chinese universities has sometimes been marked as 'deaf-mute English'. The comments of Zhang, Director of the Department of Higher Education in the Chinese Ministry of Education (MOE), is straightforward that Chinese university students can neither ask nor answer in English when using the language spoken (Zhang, 2002), though the students might have got high grades in the English written exam. We can find a solution to this problem from the present study which uses alternative assessments that make students speak and listen. Alternative assessment uses activities that reveal what students can do with language, emphasizing their strengths instead of their weaknesses. Alternative assessment activities make the students use their mind, open their mouths, and speak their voice, because they have to understand what they

are doing and what their peers are doing when assessing the work of themselves and of their peers'.

4.8.4 Learner autonomy as a theoretical guidance

The fourth reflection of the study is that learner autonomy is the fundamental theory for guiding successful EFL learners. According to Benson (2007) there has been a remarkable growth of interest in the theory and practice of autonomy in language teaching and learning. Learner autonomy is one of the most important issues that determine whether individuals reach their potential or fall short of that potential. In other words, autonomous learning is more effective than non-autonomous learning. The development of autonomy implies better language learning. The finding of this study shows that successful learners tended to be more autonomous which reflects that for both practical and theoretical reasons, there is a pressing need for empirical research on the relationship between the development of autonomy and the acquisition of language proficiency. It was obvious that in the present study, students' learner autonomy was developed through the intervention of digital storytelling to some extent. Students could plan and manage their study time and places better and more freely after the intervention. Data from the students' diaries revealed that students of experimental group had more freedom to choose their learning materials and they were happier to practice speaking English than those of control group. Students in both groups made progress in English speaking to a certain extent. However, the students in the

experimental made more progress and they tended to enjoy utilizing more autonomous activities in learning English after the experiment. And there was significant differences found between successful and less successful learners, as regards their opinions of learner autonomy. It's obvious that success is related to autonomy. Autonomy therefore means success. Success is created by autonomy and vice versa. If you are more autonomous then you become more successful, and when you are more successful, you become more autonomous. What came first? Success or autonomy? It's a chicken and egg situation.

4.8.5 Misconception of learner autonomy

The fifth reflection is the misconception of learner autonomy. Learner autonomy should not be misunderstood as self-instruction. Autonomy is not an all-or-nothing concept but one that evolves gradually. Learner autonomy comes about through the interaction of many aspects, such as teachers' and students' attitudes and perceptions, the teaching and learning contexts and even the prevailing institutional conditions. There is no doubt that learners can learn through self-instruction and may successfully acquire a high degree of learner autonomy. Some even take for granted that learner autonomy in the classroom means that the transferring of teacher' control to the learners completely. In fact, when it comes to promoting autonomy, teachers can play an important role. Teachers can be good listeners to the learners and help them set up a plan, motivate them to participate their own learning, and guide them to reach their realistic

goals. Specifically, teachers should help students to set their own particular learning targets and pick their own particular learning exercises, subjecting them to discussion and assessment. Teachers ought to expect students to recognize their own learning objectives yet seek after them through collective work in groups (Çakici, 2015). Consequently, learner autonomy is often described as a new methodology. Learner autonomy as a new methodology, can enable students to become readers and writers through applying DST into practice, which is consistent with Park (2014). He found that DST has a unique characteristic in that it has an interactive narrative structure made by the writer but produces another story, by changing the conclusion through making the narrative him/herself. Additionally, the nature of the digital storytelling in a virtual world permits nearly anyone to make a new narrative in an event, thus all users can become writers and readers. In a word, only when the students enrich themselves, encourage themselves, realize themselves and adjust themselves step by step during the teaching evaluation, can they reach the high efficiency of autonomous learning (Yan, 2012). This is also parallel with what Joshi (2011) states that learning can happen only if learners are willing to contribute, and only if they do.

4.9 Summary

This chapter described the results of the present study and discussed some of the important findings in reference to the research studies and theories relevant to these

findings. The findings of the statistical analysis revealed that participants in both the experimental group and the control group improved in speaking ability over the course of the study. However, the experimental group surpassed the control group significantly through the intervention of DST especially in retelling stories, talking on given topics, and role playing. Further, the findings indicated that students have a positive attitude towards the treatment and they learned happlier. Besides, students in the experimental group developed their learner autonomy to an extent after being subjected to DST approach. The findings highlighted the need for instruction through the implementation of digital software as a vital component of language instruction that is recommended to be taken into consideration in EFL courses, particularly speaking. Chapter 5, the final chapter, will discuss the limitations of the study, establish the pedagogical implications and suggest some directions for further research.

CHAPTER 5

CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

This chapter draws a conclusion to the dissertation. It is organized into four sections. Section one summarizes the present study, including the major findings and procedures. Section two considers the implications of the study for EFL speaking learning and its possible applications to instruction. Section three describes the strengths and limitations of the study. Finally, section four proposes recommendations for further research in learning EFL speaking.

5.1 Summary of the study

The present study was conducted to investigate the effects of a DST intervention on Chinese intermediate level university EFL students' ability to speak English and to identify their perceptions of this approach. Along with a check of the effectiveness of this intervention, the following were also investigated: students' perceptions of the intervention, alternative assessment, the correlation among self-, peer-, and teacher assessments, and the development of student learner autonomy were also investigated. The study employed a mixed methods design. A quantitative framework was used to

assess the students' speaking performances both at the beginning and at the end of the pedagogical intervention. A qualitative framework was used to explore the students' and teacher's perceptions of the DST intervention through the use of a semi-structured interview and the analysis of information from student diaries. There was a significant difference in speaking improvement between the experimental and control groups. Students in the experimental group learned to speak more effectively than those in the control group. Data from the semi-structured interview and student diaries supported the findings gained from the quantitative data. Students found the experience of creating their DST fun and enjoyable. The students also claimed that the DST intervention could improve learner autonomy. The data from the teacher's interview elaborated his perceptions of the DST approach as "innovative, enjoyable, helpful, and doable". The teacher's fondness for the DST approach encouraged the study from the teacher's perspective in which the DST approach was emphasized to ensure all students got many opportunities to practice the target language. The alternative assessment of DST provided variety in classroom activities helping keep the students engaged. Moreover, the DST intervention allowed students of different levels to learn from one another. In addition, the students were motivated to speak during in autonomous activities. Speaking was a direct consequence of autonomy. Mastery of digital skills is thus crucial for both teachers and students of EFL in the 21st century which views these skills as a necessity. As an aide-mémoire for the readers, the research questions in this study are

re-stated below:

1) Are there any significant differences in speaking performance between the experimental and the control groups? If so, what are the causes of those differences?

2) What are the students' and the teacher's perceptions of the DST intervention?

3) What are the learners' perceptions of alternative assessment? Is there any relationship between self-assessment, peer-assessment, and teacher assessment in speaking presentations?

4) What are the autonomous activities that students engage in when learning English? Are there any differences between successful and less successful learners, as regards their perceptions of learner autonomy?

In order to examine these questions, a quasi-experimental design consisting of pretest-treatment-posttest was used. The duration of the treatment was 12 weeks (24 hours), together with approximately 8 hours per week of self-regulated private learning distributed through the 1st semester of 2016 academic year for English majors in Qiannan Normal University for Nationalities in China. The tasks undertaken by students involved the intervention of DST to improve English speaking skills for both in-classroom and out-of-classroom activities. The measuring instruments used in this study were a TEM4-Oral, students' written questionnaires, face-to-face interviews, and student diaries. Four experts rated the students' performances in pre and posttest. The experts included two Chinese English teachers and two English native speakers. Then *t*-tests

were performed, using SPSS 16.0, to analyze the test scores, and answers from written questionnaires were analyzed by frequencies and descriptive statistics, Pearson conduct moment correlation coefficient formula and a Chi-square test.

The major findings of the study were summarized as follows:

First, there were significant differences in speaking improvement between the experimental and control groups. Students in the experimental group learned speaking more effectively than those in the control group because of their first-hand experiences of using DST in English speaking learning. The mean score of the experimental group was not significantly different from that of the control group as seen Table 4.3 in the prestest before the intervention. In other words, the control group and the experimental group were at a similar level statistically before the intervention. However, the experimental group achieved a higher level of performance in all aspects of their learning in the posttest.

Second, data elicited from the semi-structured interview revealed that both the students and the teacher had positive perceptions on the DST intervention. Student diaries supported the findings gained from the quantitative data and the data from interviews. Students indicated that the experience of creating their DST fun and enjoyable. Moreover, the students claimed that DST intervention could improve their learner autonomy. The students and the teacher both agreed that the atmosphere became more active in class, which encouraged not only the students' but also the teacher's

participation to a great extent. The students and the teacher thus became more enthusiastic in the speaking class.

Third, most of the students agreed that the alternative assessment was helpful to their learning and help them develop a sense of participation. They agreed that the alternative assessment activities increased the interaction between the teacher and the students which helped them better understand teacher's requirements. They appreciated being graded by alternative assessment which motivated them in their learning. Also, being graded by alternative assessment motivated them to participate more in the class. What's more, they agreed that the alternative assessment activities bettered their oral presentation skills. Alternative assessment thus built reciprocity into learner autonomy. The correlations between self-assessment, peer-assessment and teacher assessment indicated that there was a significant difference between each of them. Students tended to assess themselves more strictly than their peers. And the teacher's assessment of each student seemed to be lower than both student' self-assessment and peer-assessment. It was observed that weak students tended to over-estimate and strong students tended to under-estimate their own speaking abilities. It was also found that the teacher was more meticulous in giving scores than students.

Fourth, students in both the control group and the experimental group tended to apply more autonomous activities in learning English after the experiment. However, more students in the experimental group enjoyed utilizing autonomous activities. And

there were significant differences found between successful and less successful learners, as regards their opinions of learner autonomy. Successful learners tended to apply more autonomous activities in learning English. In a word, Students' learner autonomy was developed through the intervention of DST to some extent. Students could plan and manage their study time and places better and more freely after the intervention. Data from the students' diaries revealed that students of experimental group had more freedom to choose their learning materials and they were happier to practice speaking English than those of the control group.

In summary, the DST intervention was effective and the students enjoyed the activities which led to the enhancement of Chinese EFL learners' speaking learning. It also appeared to be beneficial to their English learning in general. Furthermore, learner autonomy was developed through the intervention. These findings also suggested the well-foundedness of learner autonomy theory as well as project-based learning theory which were cultivated under the guidance of constructivism learning theory as proposed as the theoretical framework for this study in the literature review. However, as mentioned earlier, Chinese university EFL learners lack access to technology-enhanced learning and teachers, in general tend to lack awareness of such innovations and are therefore reluctant to take them up. Hopefully the findings of this study will help to create the necessary awareness in the educational sector in China and help to initiate change in educational reform, resulting in the creation of a new type of classroom, a

classroom where the students will not only acquire language skills but also other skills desirable for life in the 21st century.

5.2 Pedagogical implications

The findings of this study point to some significant implications for EFL learning and teaching for Chinese university students.

5.2.1 Necessity of DST application in EFL teaching and learning

The results and findings of this study are sufficiently compelling to suggest the possibility of re-evaluating current practices in the teaching of English speaking to Chinese EFL learners. Since the traditional teaching approaches have caused the "deaf and dumb" phenomenon in Chinese university EFL teaching, there must be some and alternative approaches to change the teaching and learning situation. The successful application of digital storytelling intervention in improving Chinese university EFL students' speaking skills has set as a model for change. Change the way we teach students and the students we teach may change. And, if the students change the way they learn English and the English they learn may change as well. Not only should the approaches of teaching and learning change but also the content of teaching and learning needs change. In other words, a change in content and approach may be desirable. In turn, this will have implications for EFL teachers and other stakeholders such as the government and other educational policy-makers. Policy-makers and

educators should consider at least three aspects. Firstly, they should encourage or require more colleges and univeristies to be innovative in using new approaches while conducting teaching and learning reforms. Take the present study as an example, a replication on a larger scale should be conducted in order to test the validity and generalizability of the present findings. A large scale may evevate the the publicity and promotion of what was found in the present study. Secondly, more freedom of teaching approaches and materials should be allowed on the basis of the results of this study since students expressed disappointment with the traditional approach, especially the coursebook for English speaking which was full of structures and grammar to be memorized and, consequently, the learners spoke English like an echo of what the book said. A more effective alternative way of teaching and learning now is available as seen in the present study. Thirdly, based on the successful intervention of the present study, DST should be applied to the development of other EFL skills like listening, reading and writing.

5.2.2 Alternative assessment to get students involved

Speaking is a vital part of EFL teaching and learning. The capacity to convey in an EFL clearly and effectively adds to the achievement of the student in school and achievement later in each period of life. Subsequently, it is of basic importance that language teachers give careful consideration to instructing speaking. Instead of leading students to pure memorization, the teacher should help create an environment where

meaningful communication is desired. With this aim, various speaking activities such as the alternative assessment used in this study can contribute a great deal to students in developing basic interactive skills necessary for life. The activities of self- and peer-assessment make EFL learning more dynamic in the learning process and in the meantime make their learning more interesting and meaningful. The traditional methods of telling or teaching the learners about the structures and grammar of the language, and then letting them practice, will only lead them to be dogmatic and stiff in their spoken language. Only when the learners are involved will they be able to learn by heart.

It is also noteworthy that the incorporation of self-assessment and peer-assessment helped the teacher to understand the students' learning and made the assessment more comprehensive than merely using teacher assessment or either one of the student assessments. The reciprocal nature of integrating self-assessment and peer-assessment in the present study sheds light on the feasibility of implementing student assessment with tertiary EFL learners. The result of the study can also be used for all stakeholders in the EFL field. The findings also suggest some implications for EFL teachers and learners of other courses like writing, grammar etc. and even materials writers, syllabus designers, and test developers. In whatever course, an EFL teacher can use alternative assessment techniques to make their learners more autonomous and responsible for their own learning experience. Self-assessment has been recognized as a key learning system for self-governing learning which empowers students to screen

their own particular learning progress. One of the most salient features of alternative assessments is getting the students involved in the evaluation process. When students become partners in the learning process, their self-image as an active decision maker improves. Alternative assessment techniques help students reflect on what and how they learn and give them the possibility to develop learning strategies. The activities of alternative assessment thus supported the old saying that two minds are better than one.

Another implication of alternative assessment is that it can reduce the burden of marking by the teacher only during the usual time of teaching and learning. The last grade of every student is a sort of a shared understanding between the teacher and the students. Furthermore, if the learners can be involved in the activities of assessment, the teacher's time could be utilized more productively on issues relevant to improving their teaching techniques.

5.2.3 Implications for future teacher training

Results and findings from the present study have implications for teacher training especially for an educational university like Qiannan Normal University for Nationalities which is training students to become future teachers in elementary and secondary schools. In terms of speaking instruction, pre-service and in service teachers should be aware that speaking can be taught with good results using DST intervention. Furthermore, when organizing the activities of alternative assessment, the teacher needs to to provide effective feedback, make the purpose and expectations clear to students,

and particularly, encourages them to practice and shows them examples in order to make more reliable and valid outcomes possible. Especially for students majoring in EFL in China's universities who are expected to become English teachers after their graduation from universities. Should the students be able to assess their peers' presentation precisely and equitably, they will be better ready to show objective attitudes in their future vocation as EFL educators. Therefore, it is necessary to apply more frequently the activities of self- and peer-assessments in the assessment and evaluation of teacher training programs and an investigation of their outcomes is expected to make important contributions to teacher education.

5.2.4 Development of students' sense of learner autonomy

The finding of the present study that successful students applied more learner autonomy in EFL learning was consistent with the report by Holec (1981). The aim of learner autonomy is to enable language learners to take on more responsibility for their own learning. In addition, students should make decisions by themselves about what and how they should learn. Learning is a search for meaning. In this way, learning must begin with issues around which students effectively endeavor to build meaning. The way to prevail with regards to learning relies upon enabling students to construct their own meaning in learning, not push them to remember and rehash someone else's meaning (Çakici, 2015). Thus, it's of great importance for students to develop a sense of leaner autonomy in EFL learning.

5.2.5 Reciprocity in construction of learner's autonomy

Last but not least, the implication from this study is that reciprocity in the construction of learners' autonomy is important. Either through the experience of creating their digital stories or the in-and-out of classroom assessments during which they had to depend on themselves for most of time, the students revealed in the interviews or in their diaries that they had benefited a lot from the interpersonal relationships and the interactions through which they exchanged ideas with others. The significance of students' cultivating learner autnomy has been at the core of adult training for a long time in North America and Europe, and all the more especially, it has been at the focal point of research on self-coordinated learning (Confessore, 2002; Tremblay, 2003; Yuksel, 2010; Pinter, 2017). However, it is not a paradox that reciprocity can accompany autonomy. It is a new way of looking at autonomy as a development of the self and of personal identity that takes place not only during the learning process but, above all, with and through others. The hypothesis of instructive reciprocity, which itself comes from French personalism, is a part of this trend (Labelle's, 1996). Eneau (2008) states that this theoretical perspective sheds light on the manner in which the learner's autonomy can be understood as the result of the relationship that the learner has with others, with this relationship being understood as a prerequisite for the education of adults. The alternative assessment activities in this present study demonstrated an example of how reciprocity was built into learner autonomy.

5.3 Theoretical implications

The findings of the study have important theoretical implications. Firstly, the DST application was shown to be an effective approach in English speaking instruction. This means that compared to traditional approaches, the DST approach encouraged not only the students' but also the teacher's enthusiasm and participation to a great extent. In other word, the findings prove that DST played an important role in improvement of English language instruction.

Secondly, alternative assessment used during the process of the DST could get students involved throughout the project, which could enable students to improve their interactive abilities in English speaking. Because in the self-assessment the students changed their way of looking at things, they learned to assess themselves from another point of view. While they were assessing their peers, they learned to be critical and responsible so that they could judge things reasonably and fairly. The teacher assessment was no longer the only assessment in learning. When the students compared their assessments with the teacher's assessment, they may understand the standard rubrics better.

Thirdly, the DST approach as an effective DIY activity could help to develop students' learner autonomy in language learning. During the DST intervention, the students had to depend on themselves especially in techniques. They had to find a topic

that they were interested in. They had to choose the images or photos that matched to the content of their stories. They had to input all their chosen pictures into the Photosstory3 software. They had to express themselves by choosing the right words and structures first in writing and then in speaking. They had to choose the right music as the background of the story. All were done by themselves without the instructor's aid. Students' learner autonomy was thus developed through the DIY activities in the DST application.

Fourthly, the findings of the study add additional support for the theory that reciprocity could be built into the construction of learner autonomy, which as a result helps to improve learners' English speaking skills. Though the students depended on themselves in the DIY activities as mentioned above, they had lots of assessments from their peers and teachers which helped them improve their digital stories. During the process of assessing and being assessed, both the students and the teacher interacted with each other to explain or defend their opinions. Reciprocity was thus built into the construction of learner autonmy. The students were competiting in order to have a successful DST presentation and meanwhile they were cooperating with each other in the assessments. In other words, the application of DST intervention in English language learning implied the cooperative and competitive instructional activities for personality traits and personal values. Dichotomy between reciprocity and autonmy should be abandoned.

Finally, the findings of the study helped strengthen the conception of Interdependency and Interdependent Learning. As defined in Wikipedia:

> *Interdependence is a dynamic of being mutually responsible to and dependent on others. Some people advocate freedom or independence as a sort of ultimate good; others do the same with devotion to one's family, community, or society. Interdependence recognizes the truth in each position and weaves them together.*

From this definition, it is clear that interdependence has both an independent aspect (i.e., individual responsibility) and a dependent one (i.e., dependent upon others). In the application DST intervention in this study, especially in the part of assessment, when two people interacted, one person inferred meaning from the other person's behaviour, independent of what the other person's intentions were. When a person interacted with her/his environment, a change would occur in both the person and the environment (or at least that person's subjective perception of it).

In a nutshell, the theoretical implications mentioned above stand to the theoretical framework proposed in Chapter Two. With constructivism as an umbrella word guiding all that took place in the activities of English speaking instruction, learner autonomy can be developed through project-based learning with information communication technology. DST as a practical approach, can be carried out through self-assessment, peer-assessment and teacher assessment, and could help improve students' interactive ability and thus help improve their English speaking skills.

5.4 Limitations of the study

This study triangulated data collected from many sources including pretest, posttest, questionnaires, oral interviews and student diaries. Triangulation of multiple measures enabled the researcher to verify the research findings. Triangulating quantitative and qualitative data as well as methods contributes to a better understanding of the effects of the DST approach and provides an overall picture of how students and the teacher evaluated the whole system. Arguably, triangulation of the data collection procedures made the study more rigorous and the results more reliable.

Although this study yielded many promising and, in some cases, surprising insights and perspectives into the improvement of English speaking and other language-learning phenomena, some limitations should be addressed.

First, the findings were from an experiment on a tertiary school English speaking course; therefore, it could be difficult to generalize the findings to other courses or subjects. Moreover, the digital story software adopted in this study guided the students to produce the videos using a step-by-step procedure; consequently, more experiments are needed to investigate the effectiveness of using other softwares with more flexible functions. In the future, it is expected that more experiments can be conducted to further evaluate the effectiveness of this approach in other courses.

Second, the participants were chosen on the basis of convenience and availability. The samples were not randomized and balanced and learners were participants in the

study on the basis of their classroom enrollment. Consequently, there were not equal numbers of male (8) and female (92) students. Even though an equal number of males and females is not mandatory in studies of gender difference (e.g., Brantmeier, 2004; Young & Oxford, 1997), the unequal numbers of male and female students still represents a limitation.

Third, the participants in this study were 100 second-year undergraduate English majors in Qiannan Normal University for Nationalities, China, who were intermediate EFL learners. Students from other majors and other levels were not included in this study. Thus the findings of this study should be treated with caution in relation to generalizations.

5.5 Recommendations for further research

Presumably more needs ought to be found out about DST as an educating and learning instrument. The field is experiencing a colossal development spurt in instruction as more instructors are finding out about it and are discovering approaches to incorporate it through classroom activities. The opportunities of research in the area of applying DST in language teaching and learning are just beginning to be seen. New explorations will surely give more noteworthy experiences and comprehension in how DST can draw in, advise and illuminate new ages of students and teachers to come. In light of the limitations discussed above and remaining issues regarding the DST

approach, more research should be conducted to further explore the effects of this English speaking learning approach.

First, the study was a preliminary attempt to improve Chinese EFL learners' speaking skills. A large-scale replication study is clearly needed.

Second, the present study just measured the improvement of speaking skills through DST instruction. Measuring other skills of language through DST instruction remains a fertile ground for further research.

Third, this study set out to help students learn speaking in an autonomous learning environment. Due to the limited access to online tools, offline software, PhotoStory3, was employed for this study. The research suggests that further empirical studies could be conducted using a combination of communication tools like Vocaroo, vozMe, and VoiceThread so as to provide more opportunities for students to promote self-confidence and to autonomously develop their language skills.

Fourth, the participants in the present study were second-year tertiary students. As a result, the interpretation and generalizability of these findings are limited. More empirical studies could be conducted at other levels. Future research may be targeted at different-sized groups of students or to other levels.

Fifth, because of government regulations, the predesigned learning materials for the experimental group were selected from the book that the control group was using although the experimental group was reported using other materials. Students were not

totally free to choose what they wished to learn though they could supplement this course with other materials found on the Internet and elsewhere. Therefore, empirical studies focusing on the nature of materials for learners are recommended.

Sixth, when analyzing the students' pretest and posttest recordings, the researcher found that they were a great source of difficulties and problems identified with Chinese EFL students as the tests covered almost all features of English. Further analysis and categorizations of these problems in the context of a formal error analysis is strongly recommended.

Seventh, EFL teachers' perceptions of alternative assessments and learner autonomy are needed to investigate so as to get perceptions from different aspects.

A final suggestion for future research is that more variables should be considered. In addition to gender, age, and major, learners with different mother tongues or of different ethnicities could be investigated with potentially valuable results.

These remarks bring the dissertation to a conclusion. Research questions have been answered (at least tentatively), meanwhile many questions have been raised to be tackled in the future. Hopefully, the questions answered provide us with a principled starting point for improving the English speaking proficiency of Chinese university EFL majors.

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APPENDICES

APPENDIX A

QUESTIONNAIRE ON STUDENTS' REFLECTIONS OF DST INTERVENTION

Dear students,

This questionnaire is to investigate your opinions of the use of DST intervention. There is no right or wrong answer. Please feel free to respond to the statements below using the following scale by circling the number that best suit to your feeling. Circle only one answer; do not circle between numbers or indicate a fraction or a range. Your response to the questionnaire will be kept confidential.

Thank you for your cooperation.

Part I Personal Information

Gender: □ Male □ Female

Age (years): □ below 21 □ 21 & above

Ethnic group: □ Han □ Ethnic minority

English speaking performance in the previous semester:

□F □D □C □B □A

(F=fail, D=60-70, C=71-80, B=81-90, A=91-100)

Part II Questions

1. Do you think DST intervention is effective for English speaking learning?

□Yes □No

2. If the answer is "Yes", please continue with the following questionnaire.

Strongly Disagree Disagree Neutral Agree Strongly Agree

1 2 3 4 5

I feel that DST intervention allows students to improve their	**Circle the number**
1. Deep learning	1 2 3 4 5
2. Critical thinking	1 2 3 4 5
3. New insights	1 2 3 4 5
4. Writing skills	1 2 3 4 5
5. Technical skills	1 2 3 4 5
6. Presentation skills	1 2 3 4 5
7. Ability to apply knowledge to practice	1 2 3 4 5
Other reflections:	

APPENDIX B

QUESTIONNAIRE ON STUDENTS' REFLECTIONS OF DST INTERVENTION

（CHINESE VERSION）

关于使用数字故事的问卷调查

亲爱的同学，你好！

本问卷是为了全面了解英语专业学生在使用数字故事学习英语的情况。此问卷内容只作为研究目的使用，没有正确或者错误的答案之分，只是为了真实反应你们使用数字故事学习英语的情况。我们将对问卷的内容严格保密。谢谢你的配合！

第一部分 个人信息

性别: □**男** □**女**

年龄: □**21以下** □**21及以上**

民族: □汉族 □**少数民族**

上学期英语口语成绩：

□F □D □C □B □A

(F=**不及格**, D=**差**, C=**中**, B=**良**, A=优)

第二部分 问卷内容

你认为数字故事有助于提高英语口语吗？

□**是** □**不**

2. **如果你的回答是"是"**，请继续做以下问卷

非常不同意 不同意 不确定 同意 非常同意

1 2 3 4 5

我认为数字故事能让学生提高.....	**选择最佳答案**
1. 深入学习	1 2 3 4 5
2. 批判式学习	1 2 3 4 5
3. 新见解	1 2 3 4 5
4. 写作技能	1 2 3 4 5
5. 技术技能	1 2 3 4 5
6. 展示技能	1 2 3 4 5
7. 理论转化为实践的能力	1 2 3 4 5
其它:	

APPENDIX C

IOC ANALYSIS FOR STUDENTS' REFLECTIONS OF DST INTERVENTION

Items	Experts					Result of analysis
	1	2	3	4	5	
Q1	+1	+1	+1	+1	+1	✓
Q2	-1	+1	+1	+1	+1	✓
Q3	+1	+1	+1	-1	+1	✓
Q4	+1	+1	+1	+1	+1	✓
Q5	+1	+1	+1	+1	+1	✓
Q6	+1	0	+1	+1	+1	✓
Q7	+1	+1	0	+1	+1	✓
Total	5	6	6	6	7	

Notes: 1. +1 = the item is congruent with the objective

2. -1 = the item is not congruent with the objective

3. 0 = uncertain about this item

Result of IOC:

(IOC = □R / N)

Item number: 7

R = 5 + 6 + 6+ 6+ 7 = 30 (Scores given by experts)

N = 5 (Number of experts)

IOC = 30/5 = 6

Percentage: 6/7×100% = 86%

The table above shows that the analysis result of IOC is 6, and the percentage is 85% which is higher than 80%. Therefore, the items are suitable for adoption a trial questionnaire.

APPENDIX D

QUESTIONNAIRE ON LEARNERS' PERCEPTIONS OF SELF- AND PEER- ASSESSMENTS

Dear students,

This questionnaire is to investigate your opinions of alternative assessments (AA). There is no right or wrong answer. Please feel free to respond to the statements below using the following scale by circling the number that best suit to your feeling. Circle only one answer; do not circle between numbers or indicate a fraction or a range. Your response to the questionnaire will be kept confidential.

Thank you for your cooperation.

Part I Personal Information

Gender: □Male □Female

Age (years): □below 21 □21 & above

Ethnic group: □Han □Ethnic minority

English speaking performance in the previous semester:

□F □D □C □B □A

(F=fail, D=60-70, C=71-80, B=81-90, A=91-100)

Part II Questions

Strongly Disagree Disagree Neutral Agree Strongly Agree

1 2 3 4 5

Learners' attitudes towards alternative assessment (AA)	**Circle the number**
1. AA is helpful to my learning.	1 2 3 4 5
2. AA makes me understand more about teacher's requirement.	1 2 3 4 5
3. AA activities increase the interaction between the T & Ss.	1 2 3 4 5
4. AA helps me develop a sense of participation.	1 2 3 4 5
5. I think students are eligible to assess their own and their peers.	1 2 3 4 5
6. I appreciate to be graded by my own/by my peers.	1 2 3 4 5
7. AA activities motivate me to learn.	1 2 3 4 5
8. Being graded by AA motivates me to participate more in the class.	1 2 3 4 5
9. AA improves my speaking presentation skills.	1 2 3 4 5
Others:	

APPENDIX E

QUESTIONNAIRE ON LEARNERS' PERCEPTIONS OF SELF- AND PEER- ASSESSMENTS

(Chinese Version)

关于自我评价及同行评价的问卷调查

亲爱的同学，你好！

本问卷是为了全面了解英语专业学生在自我评价及同行评价的情况。此问卷内容只作为研究目的使用，没有正确或者错误的答案之分，只是为了真实反应你们自主学习的情况。我们将对问卷的内容严格保密。谢谢你的配合！

第一部分 个人信息

性别: □男 □女

年龄: □21以下 □21及以上

民族: □汉族 □少数民族

上学期英语口语成绩：

□F □D □C □B □A

(F=不及格, D=差, C=中, B=良, A=优)

第二部分： 问卷内容

非常不同意 不同意 不确定 同意 非常同意

1 2 3 4 5

对两项评价的态度（个人评价与同行评价）	**选择最佳答案**
1. 有助于学习	1 2 3 4 5
2. 有助于更好了解老师对我们的评价	1 2 3 4 5
3. 有助于增进师生互动	1 2 3 4 5
4. 有助于提高我的参与性	1 2 3 4 5
5. 学生是胜任自我评价和同行评价的	1 2 3 4 5
6. 我喜欢自我评价与同行评价	1 2 3 4 5
7. 自我评价与同行评价有助于提高我的学习动力	1 2 3 4 5
8. 自我评价与同行评价使我上课更加积极参与	1 2 3 4 5
9. 自我评级与同行评价能提高我的口语能力	1 2 3 4 5
其它:	

APPENDIX F

IOC ANALYSIS FOR LEARNERS' PERCEPTIONS OF SELF- AND PEER- ASSESSMENTS

Items	Experts					Result of analysis
	1	2	3	4	5	
Q1	+1	+1	+1	+1	+1	✓
Q2	-1	+1	+1	+1	+1	✓
Q3	+1	+1	+1	+1	+1	✓
Q4	+1	+1	+1	+1	+1	✓
Q5	+1	-1	+1	+1	+1	✓
Q6	+1	0	+1	+1	+1	✓
Q7	+1	+1	0	+1	+1	✓
Q8	0	+1	+1	0	+1	✓
Q9	+1	+1	+1	+1	+1	✓
Total	6	6	8	8	9	✓

Notes: 1. +1 = the item is congruent with the objective

2. -1 = the item is not congruent with the objective

3. 0 = uncertain about this item

Result of IOC:

(IOC = □R / N)

Item number: 9

R = 6 + 6 + 8 + 8+ 9 = 37 (Scores given by experts)

N = 5 (Number of experts)

IOC = 37/5 = 7.4

Percentage: 7.4/9 × 100% = 82%

The table above shows that the analysis result of IOC is 7.4 and the percentage is 82 which is higher than 80%. Therefore, the items are suitable for adoption as a trial questionnaire.

APPENDIX G

LEARNER AUTONOMY SURVEY QUESTIONNAIRE

Dear students,

This questionnaire is to investigate your opinions of learner autonomy. There is no right or wrong answer. Please feel free to respond to the statements below using the following scale by circling the number best suit to your feeling. Circle only one answer; do not circle between numbers or indicate a fraction or a range. Your response to the questionnaire will be kept confidential.

Thank you for your cooperation.

Part I Personal Information

Gender: □Male □Female

Age (years): □below 21 □21 & above

Ethnic group: □Han □Ethnic minority

English speaking performance in the previous semester:

□F □D □C □B □A

(F=fail, D=60-70, C=71-80, B=81-90, A=91-100)

Part II Questions

Strongly Disagree Disagree Neutral Agree Strongly Agree

1 2 3 4 5

S.N.	Perceptions on Learner Autonomy	Circle the number
1	I think I have the ability to learn English well.	1 2 3 4 5
2	I make decisions and set goals of my learning.	1 2 3 4 5
3	I make good use of my free time in studying English.	1 2 3 4 5
4	I preview before the class.	1 2 3 4 5
5	In the class, I try to use every opportunity to take part in the activities where and when I can speak in English.	1 2 3 4 5
6	I speak confidently in front of the people.	1 2 3 4 5
7	I make notes and summaries of my lessons.	1 2 3 4 5
8	I talk to the teachers and friends outside the class in English.	1 2 3 4 5
9	I practice English outside the class also such as: record my own voice; speak to other people in English.	1 2 3 4 5
10	I use library to improve my English.	1 2 3 4 5
11	I use audio-visual materials to develop my speech.	1 2 3 4 5
12	I attend different seminars, training courses, conferences, to improve my English.	1 2 3 4 5
13	I take risk in learning the English language.	1 2 3 4 5
14	I note my strengths and weaknesses in learning English and improve them.	1 2 3 4 5
15	I revise lessons and seek the reference books.	1 2 3 4 5

16	Besides the contents pre-scribed in the course, I read extra materials in advance.	1 2 3 4 5
17	When I make progress in learning, I reward myself.	1 2 3 4 5
18	I use internet and computers to study and improve English.	1 2 3 4 5
19	Students have to be responsible for finding their own ways of practicing English.	1 2 3 4 5
20	Students should use self-study materials to learn English.	1 2 3 4 5
21	Students have to evaluate themselves to learn better.	1 2 3 4 5
22	Students should mostly study what has been mentioned under the course.	1 2 3 4 5
23	Students should build clear vision of their learning before learning English.	1 2 3 4 5
24	A lot of learning can be done without a teacher.	1 2 3 4 5
25	Teachers have to be responsible for making students understand English.	1 2 3 4 5
26	Teachers should point out the students' errors.	1 2 3 4 5
27	Teachers not only have to teach 'what' but should also teach 'how' of English.	1 2 3 4 5
28	Teachers have to provide exam oriented notes and materials.	1 2 3 4 5
29	The failure of the students is directly related to the teachers' classroom employment.	1 2 3 4 5
30	Teachers need to use their authority in teaching/learning.	1 2 3 4 5
31	The student-teacher relationship is that of raw-material and maker.	1 2 3 4 5

APPENDIX H

LEARNER AUTONOMY SURVEY QUESTIONNAIRE

(CHINESE VERSION)

关于自主学习的问卷调查

亲爱的同学，你好！

本问卷是为了全面了解英语专业学生在自主学习方面的情况、遇到的问题、以及你们的期望等。此问卷内容只作为研究目的使用，没有正确或者错误的答案之分，只是为了真实反应你们自主学习的情况。我们将对问卷的内容严格保密。谢谢你的配合！

第一部分 个人信息

性别: □男 □女

年龄: □21以下 □21及以上

民族: □汉族 □少数民族

上学期英语口语成绩：

□F □D □C □B □A

(F=不及格, D=差, C=中, B=良, A=优)

第二部分 问卷内容

非常不同意 不同意 不确定 同意 非常同意

1 2 3 4 5

序号	关于自主学习的观点	选择最佳选项
1	我认为我有能力把英语学好。	1 2 3 4 5
2	我为自己的学习设定目标。	1 2 3 4 5
3	我充分利用业余时间学习英语。	1 2 3 4 5
4	我课前预习。	1 2 3 4 5
5	我在课堂上抓住任何机会说英语。	1 2 3 4 5
6	我公共场合能自信地说英语。	1 2 3 4 5
7	我上课记笔记。	1 2 3 4 5
8	我课外和老师以及我的朋友说英语。	1 2 3 4 5
9	我课外自己练习说英语并录音。	1 2 3 4 5
10	我利用图书馆提高自己的英语。	1 2 3 4 5
11	我利用影音材料提高自己口语。	1 2 3 4 5
12	我参加各种英语活动来提高自己的英语水平。	1 2 3 4 5
13	我认为学习英语有风险。	1 2 3 4 5
14	我能扬长避短改善自己的英语。	1 2 3 4 5

15	我复习功课并查阅资料。	1 2 3 4 5
16	我除了阅读课本内容还要阅读课外读物。	1 2 3 4 5
17	我取得进步时会自己奖励自己。	1 2 3 4 5
18	我利用网络及计算机来提高自己的英语。	1 2 3 4 5
19	学生应当学会找到适合自己的英语学习方法。	1 2 3 4 5
20	学生应当大量运用自学资料来学习英语。	1 2 3 4 5
21	学生应当学会自己评估英语学习以便更好学习。	1 2 3 4 5
22	学生应当围绕课程教材学习英语。	1 2 3 4 5
23	学生学习英语应当有明确的目标。	1 2 3 4 5
24	英语学习大部分是不需要老师的。	1 2 3 4 5
25	英语老师应当办法让学生听懂英语。	1 2 3 4 5
26	老师应当指出学生的错误。	1 2 3 4 5
27	老师不仅要教学什么还要教怎么学。	1 2 3 4 5
28	老师应当提供考试复习资料。	1 2 3 4 5
29	学生的失败归因于教师的课堂教学。	1 2 3 4 5
30	老师有必要在英语教学中运用自己的权威。	1 2 3 4 5
31	师生关系应当是生产者与生产原材料的关系。	1 2 3 4 5

APPENDIX I

IOC ANALYSIS FOR LEARNER AUTONOMY SURVEY QUESTIONNAIRE

Items	Experts					Result of analysis
	1	2	3	4	5	
Q1	+1	+1	+1	+1	+1	✓
Q2	-1	+1	+1	+1	+1	✓
Q3	+1	+1	+1	+1	+1	✓
Q4	+1	+1	+1	+1	+1	✓
Q5	+1	-1	+1	+1	+1	✓
Q6	+1	0	+1	+1	+1	✓
Q7	+1	+1	0	+1	+1	✓
Q8	0	+1	+1	0	+1	✓
Q9	+1	+1	+1	+1	+1	✓
Q10	+1	+1	+1	+1	+1	✓
Q11	-1	+1	+1	+1	+1	✓
Q12	+1	+1	+1	+1	+1	✓
Q13	+1	+1	+1	+1	+1	✓
Q14	+1	-1	+1	+1	+1	✓
Q15	+1	0	+1	+1	+1	✓
Q16	+1	+1	0	+1	+1	✓
Q17	0	+1	+1	0	+1	✓
Q18	+1	+1	+1	+1	+1	✓
Q19	+1	+1	+1	+1	+1	✓
Q20	+1	+1	+1	+1	+1	✓

Q21	+1	+1	+1	+1	+1	✓
Q21	+1	+1	+1	+1	+1	✓
Q22	+1	-1	+1	+1	+1	✓
Q23	+1	0	+1	+1	+1	✓
Q24	+1	+1	+1	+1	+1	✓
Q25	+1	+1	+1	0	+1	✓
Q26	+1	+1	+1	+1	0	✓
Q27	+1	+1	+1	+1	+1	✓
Q28	+1	+1	+1	+1	+1	✓
Q29	+1	+1	+1	+1	+1	✓
Q30	+1	0	+1	+1	+1	✓
Q31	+1	+1	+1	+1	+1	✓
Total	27	24	29	28	30	

Notes: 1. +1 = the item is congruent with the objective

2. -1 = the item is not congruent with the objective

3. 0 = uncertain about this item

Result of IOC:

(IOC = □R / N)

Item number: 31

R = 27+24+29+ 28+30 = 138 (Scores given by experts)

N = 5 (Number of experts)

IOC = 138/5 = 27.6

Percentage: 27.6/31×100% = 89%

The table above shows that the analysis result of IOC is 27.6 and the percentage is 89 which is higher than 80%. Therefore, the items are suitable for adoption as a trial questionnaire.

APPENDIX J

A SEMI-STRUCTURED INTERVIEW ON STUDENTS' PERCEPTIONS OF DST INTERVENTION

Dear students,

This questionnaire is to investigate your opinions of improving English speaking through DST intervention. There is no right or wrong answer. Please feel free to respond to the statements below using the following scale by circling the number that best suit to your feeling. Circle only one answer; do not circle between numbers or indicate a fraction or a range. Your response to the questionnaire will be kept confidential.

Thank you for your cooperation.

Part I Personal Information

Gender: □Male □Female

Age (years): □below 21 □21 & above

Ethnic group: □Han □Ethnic minority

English speaking performance in the previous semester:

□F □D □C □B □A

(F=fail, D=60-70, C=71-80, B=81-90, A=91-100)

Part II Interview Questions

1. Is DST intervention helpful to your speaking learning? If yes, in what ways? If not, why not?

2. Is DST intervention interesting? If yes, in what ways?

3. Do you believe that DST intervention will improve your speaking? Why?

4. Comparing the traditional approach to DST intervention, which one do you prefer? Why?

5. Do you like learning speaking in groups or on your own? Why?

6. Do you think DST intervention can help you to develop learner autonomy? Why?

7. What skills do you think DST intervention has helped you to improve?

8. What else would you like to say about speaking learning?

APPENDIX K

A SEMI-STRUCTURED INTERVIEW ON STUDENTS' PERCEPTIONS OF DST INTERVENTION (CHINESE VERSION)

关于使用数字故事学习英语口语的

半结构式访谈问卷

亲爱的同学，你好！

本问访谈是为了全面了解英语专业学生使用数字故事来提高英语口语能力的情况。此访谈内容只作为研究目的使用，没有正确或者错误的答案之分，只是为了真实反应你们自主学习的情况。我们将对问卷的内容严格保密。谢谢你的配合！

第一部分 个人信息

性别: □男 □女

年龄: □21以下 □21及以上

民族: □汉族 □少数民族

上学期英语口语成绩：

□F □D □C □B □A

(F=不及格, D=差, C=中, B=良, A=优)

第二部分：访谈问题

1. 数字故事有助于你英语口语学习吗？如果是，是在哪些方面？如果不是，为什么？

2. 数字故事有趣吗？如果是，是在哪些方面？

3. 你认为数字故事能提高你的英语口语能力吗? 为什么?

4. 数字故事与传统的口语教学模式相比，你更喜欢哪一种？为什么？

5. 你喜欢小组学习口语还是喜欢自己学习口语？为什么？

6. 你认为数字故事能提高你的自主学习能力吗？为什么？

7. 数字故事对你有那些帮助?

8. 你对英语口语学习有什么其它建议吗？

APPENDIX L

IOC ANALYSIS FOR THE SEMI-STRUCTURED INTERVIEW

ON STUDENTS' PERCEPTIONS OF DST INTERVENTION

Items	Experts					Result of analysis
	1	2	3	4	5	
Q1	+1	+1	-1	+1	+1	✓
Q2	+1	+1	+1	+1	+1	✓
Q3	+1	+1	+1	+1	+1	✓
Q4	+1	+1	+1	+1	+1	✓
Q5	+1	+1	+1	+1	+1	✓
Q6	+1	0	+1	+1	+1	✓
Q7	+1	+1	0	+1	+1	✓
Q8	0	+1	+1	0	+1	✓
Total	7	7	5	7	8	✓

Notes: 1. +1 = the item is congruent with the objective

2. -1 = the item is not congruent with the objective

3. 0 = uncertain about this item

Result of IOC:

(IOC = □R / N)

Item number: 8

R = 7 + 7 + 5 + 7+ 8 = 34 (Scores given by experts)

N = 5 (Number of experts)

IOC = 34/5 = 6.8

Percentage: 6.8/8 x 100% = 85%

The table above shows that the analysis result of IOC is 6.8, and the percentage is 85% which is higher than 80%. Therefore, the items are suitable for adoption in an interview questionnaire.

APPENDIX M

A SEMI-STRUCTURED INTERVIEW ON TEACHER'S PERCEPTIONS OF DST INTERVENTION

Dear Mr/Ms,

This interview is to investigate your opinions on DST intervenion. There is no right or wrong answer. Please feel free to say what you think about DST intervenion. The interview content will be kept confidential. Thank you for your cooperation.

Interview questions:

1. Is DST intervention helpful to your teaching of English speaking? If yes, in what ways? If not, why not?
2. Do you believe that DST intervention has helped improve your studetns' speaking? Why?
3. Comparing the traditional approach to DST intervention, which one do you prefer? Why?
4. What else would you like to say about DST intervention?

APPENDIX N

HOLISTIC RUBRIC FOR DST PRESENTATION

Score	Level	Criteria
5 Between 91-100	Advanced speaking (excellent)	Speech is well organized in a story; information is plausible and precise and is presented logically and with appropriate transitions. Vocabulary is fully including idioms, colloquialisms, and pertinent cultural references. Good fluency and accurate pronunciation of individual sounds Most sentences have embedded more than twelve words.
4 Between 81-90	Accomplished speaking (very good)	Speech is generally organized in a story; information is somewhat plausible and precise and is presented logically. Vocabulary is varied including idiomatic expressions and has high degree precision. Occasional non-native pronunciation errors, but the speaker is always intelligible. Each sentence has embedded clauses or phrases and contains at least twelve words.
3 Between 71-80	Competent speaking (good)	Speech is somewhat organized story; information maybe imprecise or implausible. Vocabulary in general is varied, including some use of idiomatic expressions. Some problems with speech rate and intonation but these do not cause serious problems with intelligibility. Each sentence has embedded clauses or phrases and contains at least eight words.
2 Between 61-70	Developing speaking (not good)	Speech may be insufficient and is poorly organized with basic ideas; information maybe imprecise or implausible. Numerous vocabulary words are repeated rather than using a variety of words. Numerous phonemic errors and foreign stress that cause the speaker to be occasionally unintelligible.

		A few sentences have embedded clauses or phrases and contain at least five words.
1 Below 60	Beginning speaking (poor)	Limited ability to respond to the story; information is irrelevant to inaccurate. Very few vocabulary words are used; single words are used rather than complete thoughts. Very significant phonemic errors and foreign stress that causes the speaker to be unintelligible Each sentence has no embedded clauses or phrases and contains less than five words.

APPENDIX O

ANALYTIC RUBRIC FOR DST PRESENTATION

Category	Score	Description
Pronunciation	5	Few nonnative pronunciation errors with nonnative accent.
	4	Occasional pronunciation errors, but the speaker is always intelligible.
	3	Some consistent phonemic errors and foreign stress and intonation patterns, but the speaker is intelligible.
	2	Frequent phonemic errors and foreign stress and intonation patterns so speaker is a fairly intelligible.
	1	Very significant phonemic errors and foreign stress and intonation patterns so the speaker is unintelligible.
Discourse	5	Speech is well organized in a story; information is plausible and precise and is presented logically and with appropriate transitions.
	4	Speech is generally organized in a story; information is plausible and precise and is presented logically.
	3	Speech is somewhat insufficient and is poorly organized; information maybe imprecise or inaccurate.
	2	Speech may be insufficient and is poorly organized with basic ideas; information is imprecise or inaccurate.
	1	Limited ability to respond to the story; information may be irrelevant or inaccurate.
Vocabulary	5	Vocabulary is fully including idioms, colloquialisms, and pertinent cultural references.
	4	Vocabulary is varied, including idiomatic expressions.
	3	Vocabulary in general is varied, including some use of idiomatic expressions.
	2	Numerous vocabulary words are repeated rather than using a variety of words.
	1	Very few vocabulary words are used; single words are used rather than complete thoughts.
Grammar	5	Few grammatical errors that could be made inadvertently by native speakers.
	4	Sporadic minor grammatical errors that could be made inadvertently by native speakers.

	3 2 1	Generally good control in all construction with grammatical errors that do not interfere with overall intelligibility. Some control of basic grammatical construction but with major and/or repeated errors that interfere with intelligibility. Virtually no grammatical or syntactical control except in simple stock phrases.
Sentence complexity	5 4 3 2 1	Most sentences have embedded more than 12 words. Each sentence has embedded clauses or phrases and contains at least12 words. Each sentence has embedded clauses or phrases and contains at least 8 words. A few sentences have embedded clauses or phrases and contain at least5 words. Each sentence has no embedded clauses or phrases and contains less than 5 words.

APPENDIX P

RATING CRITERIA FOR TEM4-ORAL

ENGLISH VERSION

Range	**Retelling**	**Talking on a given topic**	**Role-playing**
Excellent	Able to retell the detailed contents of the listening material with good organization.	Able to organize speech according to the given topic, with abundant contents, fluent expression and no unnecessary pauses.	Able to hold two-way dialogues flexibly according to the given role and situation.
Fairly Good	Able to retell the important contents of the listening material with good organization.	Able to organize speech according to the given topic, with fairly abundant contents, with occasional stammer or hesitation, which does not interfere with communication.	Able to hold two-way dialogues according to the given role and situation, but with inadequate flexibility.
Pass	Able to retell the important contents of the listening material but with poor organization.	Basically able to organize speech according to the given topic, but with some contents inadequate or do not stick to the point, frequent stammer or hesitation, which hardly interfere with communication.	Basically able to hold two-way dialogues, mainly according to the given role and situation.
Fail	Loss of important contents, or serious mismatch between the retold story and the original story.	Basically able to organize speech according to the given topic, but with illogical, simple or irrelevant contents, frequent stammer or hesitation, which severely interfere with communication.	Obvious incompetence to communicate with partner.

	Pronunciation	**Grammar**
Excellent	Accurate and clear pronunciation, natural intonation.	Nearly accurate grammar, with hardly any obvious mistakes; appropriate diction and abundant vocabulary.
Fairly Good	Accurate and clear pronunciation, basically natural intonation.	Having some obvious grammatical mistakes, but not very serious; fairly appropriate diction and fairly large vocabulary.
Pass	Basically accurate and clear pronunciation, intonation a bit unnatural.	Having some serious grammatical mistakes, which do not obviously interfere with communication; basically appropriate diction and basically large vocabulary.
Fail	Inaccurate and unclear pronunciation, unnatural intonation.	Having serious grammatical mistakes, which obviously impede communication; a lot of mistaken diction and rather small vocabulary.

APPENDIX Q

ORAL PROFICIENCY TEST (PRETEST) PAPER

(10 minutes)

Task1: Retelling a story (3 minutes)

Listen to the story and then retell the story

I once knew an old man whose bad memory made him famous. John Smith was so forgetful that he sometimes forgot what he was talking about in the middle of a sentence. His wife had to constantly remind him about his meetings, his classes – even his meals! Once he forgot he had eaten breakfast twice, at home and at school. His wife liked to remind her neighbors, "If John didn't have his head tied on. He would forget that too!" Since Smith was a professor at a well-known university, his forgetfulness was often an embarrassment. It wasn't that he was not clever, as some critical people tended to say, but just very, very absent-minded.

One hot summer day, Professor Smith decided to take his children to a seaside town about a three-hour train ride away. To make the trip more interesting for his young children, he kept the name of the town a secret. However, by the time they arrived at the station, Smith forgot the name of the town he was planning to visit. Luckily, a friend of his happened to be in the station. He offered to take care of the children while Smith hurried back home to find out where he was going.

The professor's wife was surprised to see him again so soon.

"Oh, my dear, I forgot the name the town."

"What? You forgot the name? Maybe one day you will forget my name! Now I'll write the name of that town on a piece of paper, and you put it in your pocket and please, please don't forget where you put it."

Satisfied that she had solved the problem, she sent her husband off again. Ten minutes later she was astonished to see him outside the house for the third time.

"What is the matter now?" "As you told me, I didn't forget where I put the name of that town, but I forgot where I left our children!"

Task2: Talking on a given topic (3 minutes)

Directions: Describe a teacher of yours whom you find unusual.

Task3: Role-playing (4 minutes)

Directions: Many high school graduates in China are going overseas for their college education. A friend of yours is graduating this year and would like to ask for your advice on whether it is a good idea for a high school graduate to go abroad to study.

Student A: You think this friend should go by all means, and you should try to convince your partner. Remember you should start the conversation.

Student B: You think this friend should finish college in China before thinking about going abroad, and you should try to convince your partner. Remember your partner will start the conversation.

APPENDIX R

ORAL PROFICIENCY TEST (POSTTEST) PAPER

(10 minutes)

Task1: Retelling a story (3 minutes)

Listen to the story and then retell the story

A philosophy professor stood before his class and had some items in front of him. When class began, wordlessly he picked up a large empty glass jar and proceeded to fill it with rocks right to the top, rocks about two inches in diameter.

He then asked the students if the jar was full. They agreed that it was.

The professor then picked up a box of pebbles and poured them into the jar. He shook the jar lightly. The pebbles, of course, rolled into the open spaces between the rocks. The students laughed.

He asked his students again if the jar was full. They agreed: yes, it was.

The professor then picked up a box of sand and poured it into the jar.

Of course, the sand filled up all the remaining space.

"Now," said the professor, "I want you to recognize that this is your life."

The rocks are the important things – your family, your partner, your health, your children – anything that is so important to you that if it were lost, you would be nearly destroyed. The pebbles are the other things in life that matter, but on a smaller scale. The pebbles represent things like your job, your house, your car. The sand is everything else. The small stuff.

If you put the sand or the pebbles into the jar first, there is no room for the rocks. The same goes for your life. If you spend all your energy and time on the small stuff, or material things, you will never have room for the things that are truly most important. Pay attention to the things that are critical in your life. Play with your children. Take your partner out dancing. Talk with your parents. There will always be time to go to work, clean the house, give a dinner party and fix the disposal. "Take care of the rocks first – the things that really matter. Set your priorities. The rest is just pebbles and sand. They will take care of themselves."

Task2: **Talking on a given topic** (3 minutes)

Directions: **Describe a lesson you have learned which has enriched your life experience**.

Task3: **Role-playing** (4 minutes)

Student A: You and your friend are discussing what you are going to do together during this coming summer vacation. Your friend prefers to work in a big company to

earn some money. You prefer to do some voluntary work for society. You try to persuade each other by giving various reasons. Remember you will initiate the conversation.

Student B: You and your friend are discussing what you are going to do together during this coming summer vacation. Your friend prefers to do some voluntary work for society. You prefer to work in a big company to earn some money. You try to persuade each other by giving various reasons. Remember your partner will initiate the conversation.

APPENDIX S

THE INFORMED CONSENT FORM

The research project in which you will participate is to implement a project-based learning (PBL) intervention based on digital storytelling (DST) for improving Chinese university EFL learners' speaking skills. It will be conducted for a period of 12 weeks during the first term of the Academic Year 2016-2017. Your role in this project is to carry out the instructions in the course of English Speaking. The oral pre-test and post-test will be conducted to determine whether your speaking ability will be improved through DST intervention. You will be invited to take these tests before and after the experiment. During the course, some of your classroom talks will be recorded. In addition, your English Speaking performance in the previous final term will be used in the study. All of the information that you provide will be kept completely confidential. When I write up my report, I promise not to use your real name. I shall give you a summary of my findings once the research is finished and hope that you find it helpful in your English study. If you have any questions about the research project, please feel free to ask me. If you agree to participate in it, please sign below.

Signed Participant: Date:

Signed Researcher: Date:

APPENDIX T

THE INFORMED CONSENT FORM

(CHINESE VERSION)

知情同意书

您将参与的这项实验研究在2016-2017学年的第一学期进行，为期12周。目的是探讨中国大学英语专业学生通过基于项目学习的数字故事口语教学，学生英语口语水平的提高情况。您在这项研究中的角色是学习“英语口语”这门课程。研究者将对您进行口语前、后测,以了解为期12周的学习，您的口语水平是否有提高。在课程学习中，您的部分课堂对话将被录音。此外，您的上学期期末英语口语成绩也将用于本项研究。研究者对您所提供的所有信息资料将会严格保密。在撰写研究报告中不会出现您的名字。一旦本项研究完成,将给您一份简要的研究结果报告,并希望对您的英语学习有帮助。如果您对本项实验研究有任何疑问，请向我提出。如果您同意参与本项研究，请在下面签名。

参与者签名：　　日期：

研究人员签名：　　日期：

APPENDIX U

PROCEDURES OF CREATING A DIGITAL STORY

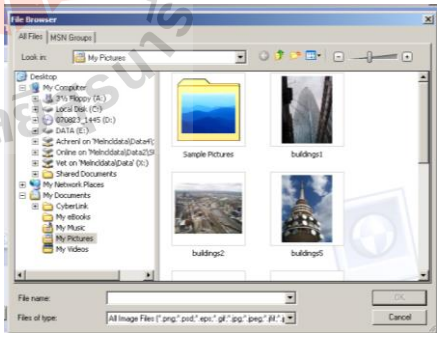
Step 1: Starting

- Open **Photo Story 3**. Click **Start**. Choose **Programs**. Choose **Photo Story** 3.
- Click on **Begin a New Story**.
- Then click **Next**.

Step 2: Putting in the pictures

When the next screen appears, click on **Import Pictures** to put in photos or other images.

The computer will take you to where you can get photos for your story, or you can go to the folder where you have saved your own photos and other images.



- Press the **Control** key and at the same time click on the photos that you want.
- When you have chosen the photos you want to use, click **OK**.

NB Don't have too many photos. You only need only 8 – 10 for practising.

You can import more photos later, or you can delete any you decide you don't need.

Step 3: Ordering the photos in the film strip

You will see all of the photos you chose in a **film strip** at the bottom of the page.

The film strip shows you the order the photos will be in your photo story.

To **change the order** of the photos, you can either:

- Click and drag the photo to where you want it, or
- Use the arrows on the right of the film strip.

To **delete a photo** from the film strip:

- Click on the photo you don't want, then
- Click on the **X** button on the right of the film strip.

This doesn't delete the photo from your computer ... only from your digital story. You can import it again if you change your mind.

Step 4: Editing pictures

When you click on a photo in the film strip, it comes up on your screen as a large picture.

You can edit this photo (change the way looks) by using the icons under the large picture.

Click the first icon to **change the colour levels**.

Click the second icon to **correct red eye**.

Click the third and fourth icons to **rotate** (turn) the photo.

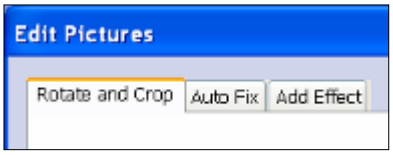
Click the **Edit** icon to make **more changes**.

The Edit icon

If you click on the **Edit** icon, you can **crop** a photo. This means you can cut it on the computer and use just a part of it.

Also, try clicking on **Auto Fix** and the **Add Effect** to see what they do.

Just experiment!



If you don't like the changes, click on **Reset**.

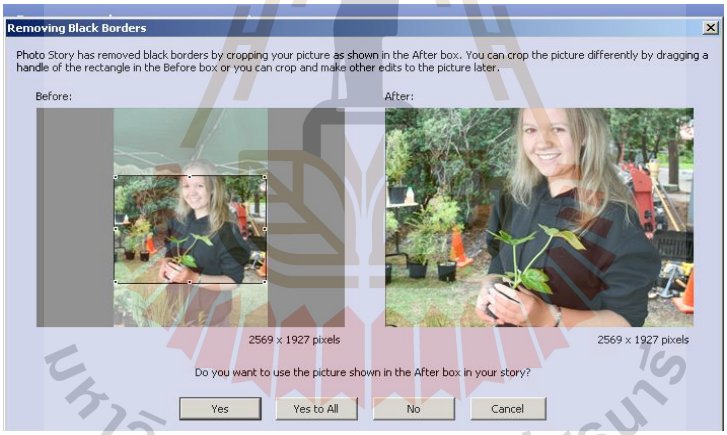
When you've finished, click **Next**.

Removing the black colour around the photo

On the right of the large picture is a **Remove black borders** icon.

If the photo is the wrong size for the photo story, it will have a black border around it. You can change this, but you will lose part of the photo.

If you click on **Remove Black Borders**, Photo Story 3 will show you two of the same photo.



The picture on the left is the photo **before** you take off the black borders.

The picture on the right shows you what it will look like **after** you take them off.

- If you like the change, click **Yes**.
- If you don't like it, click **No**.

Photo Story 3 will show you your photos one by one.

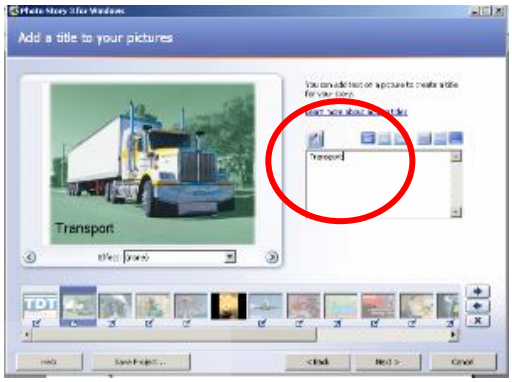
- If you click **Yes to All**, Photo Story 3 will change all your photos without showing you first.

To return to your digital story, click **Cancel**.

Click **Next** to move on to the next screen.

Step 5: Adding text

This is where you can write something on the photos in your story.



To write on a photo:

- Press **Delete** to empty the words in the box.
- Type your text in the box.

You can change the font, colour and size of the writing, and its position on the photo.

- To change the font, colour and size, click 
- Click the other icons to put the text at the top, bottom or side of the photo.

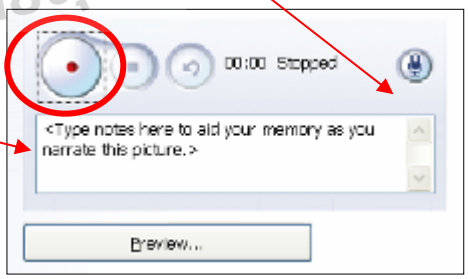
Click **Next** to move to the next screen.

Step 6: Recording narration

This is where you can record your voice. You will need a headset with a microphone.

You can change the volume levels by clicking on the button on the right. The computer will check everything for you.

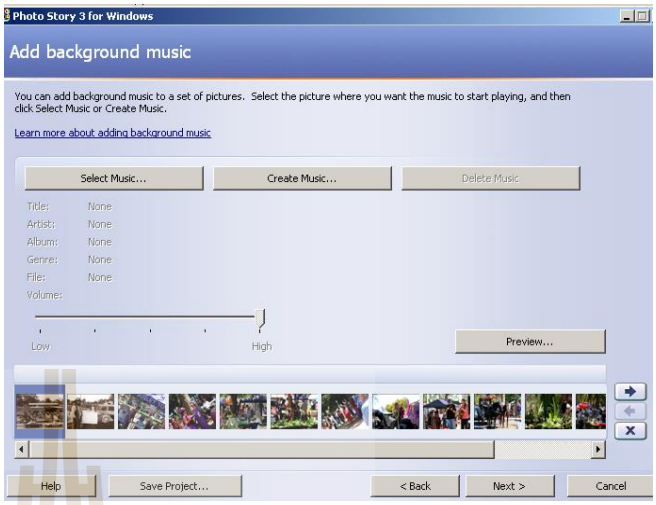
To record:



- Decide what you want to say.
- To help you remember, you can type notes into the box before you record your voice.
- Plug in your microphone.
- Click the large button with the red dot to begin the recording.
- When you have finished, click **Preview** to hear how it sounds.

Click **Next** to move to the next screen.

Step 7: Adding music



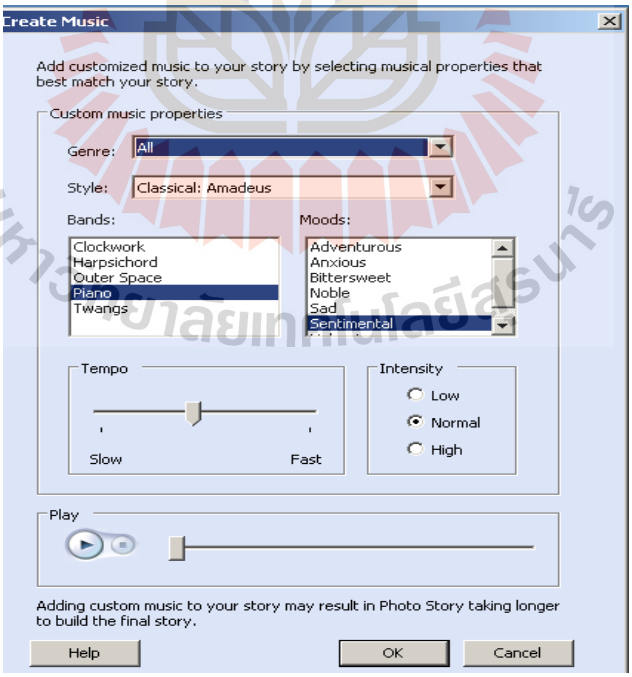
You can add music if you want sound behind the photos, or if you want some quiet music behind your voice.

You can either:

- Click **Select Music** if you have music in a file on your computer that you want to use, or
- Click **Create Music** to make your own music in Photo Story 3.

To create music in Photo Story 3:

- Select a style, band and mood.
- Click **Play** to listen to your selection.
- Adjust the Tempo (speed) and Intensity.



When you have decided what music you want to use, click **OK**.

Then click **Next** to move to the next screen.

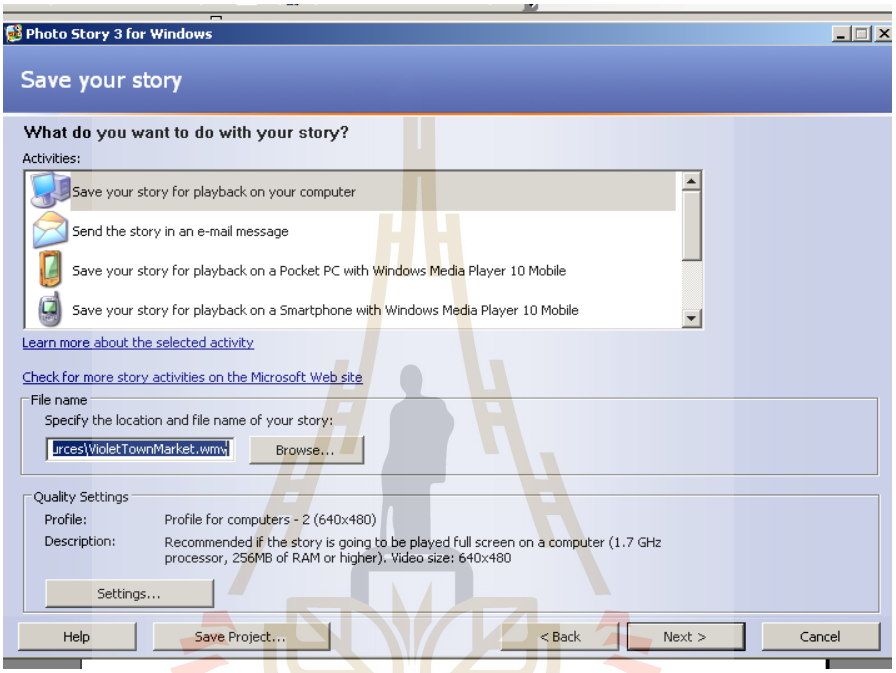
Step 8: Saving your digital story

There are two stages of saving your digital story:

(1) when you are still working on it, and

(2) when it is finished.

Saving your story when you are still working on it:



- Click on Save Project... to save changes.

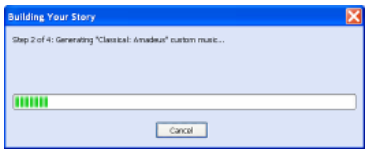
It's a good idea to save after each step so that you don't lose all your work if something goes wrong. You also use **Save Project** if you want to stop working on the digital story now and come back to it later.

Your work will be saved as a **Photo Story 3. Document** and have an icon like this:

This icon means you can keep working on it and make more changes.

Saving your digital story when it is finished:

- Select **Save your story for playback on your computer**.
- Click **Browse** to find the folder where you will save your story.
- Click **Next**, and Photo Story 3 will begin to build your digital story – it will put all the 'things' in the right place e.g. photos, voice, music, effects.



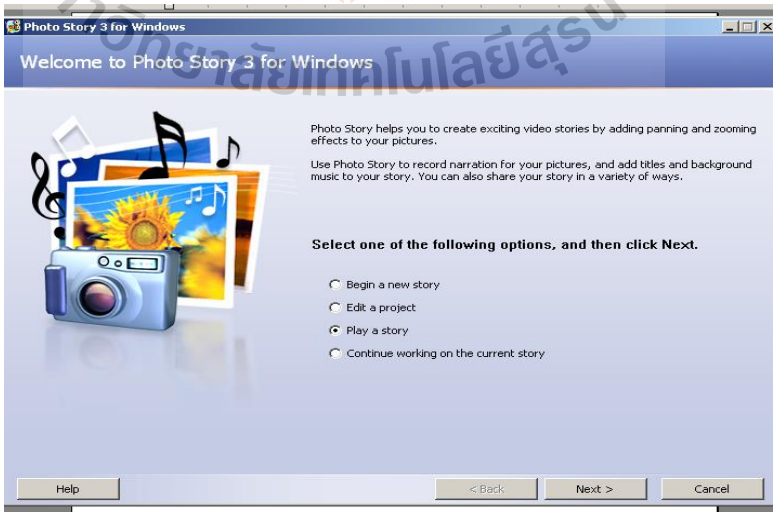
Your digital story will be saved as a Windows Media Audio/Video (WMV) file. It will usually have this icon:

You will not be able to make any more changes, so make sure you only save your final product this way.

Step 9: Viewing your story

You digital story is now complete and ready for you to show to others. To view the story:

- Go back to the first menu.
- Click on **Play a story**.



Put on your headphones, sit back and enjoy!

CURRICULUM VITAE

Qiwei Wei was born on December 22, 1970 in Libo, Guizhou, China. He graduated from Guizhou Normal University in 1991 with a Bachelor of Arts degree in English Language and Literature. In 2009, he earned a Master of Arts in International Business English in Dongbei University of Finance & Economics, China.

Upon graduation from Guizhou Normal University in 1991, Qiwei Wei started his teaching career at Qiannan Normal University for Nationalities (QNUN) Guizhou, China. He was Chair of School of Foreign Languages of QNUN from 2008 to 2015. Currently he is Director of Center for International Affairs (CIA) and a professor of English Language and Literature at QNUN.

Since 2013, he has been enrolled in the PhD program of English Language Studies at the School of Foreign Languages, Institute of Social Technology, Suranaree University of Technology, Thailand. His research interests include Chinese Ethnic Minority Languages Studies, English Language Teaching Methodologies, and Learner Autonomy.