EFFECTIVENESS OF THE INSTRUCTOR-DESIGNED INSTRUCTIONAL MATERIALS TO ENHANCE THE BLIND'S LISTENING COMPREHENSION THROUGH THE FLIPPED CLASSROOM IN THAI CONTEXT

Arnon Jannok

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Arts in English Language Studies

Suranaree University of Technology

Academic Year 2018

ประสิทธิผลของสื่อการสอนที่ออกแบบโดยผู้สอนเพื่อพัฒนาการฟัง เพื่อความเข้าใจของนักเรียนตาบอดผ่านรูปแบบห้องเรียนกลับด้านในบริบทของประเทศไทย

นายอานนท์ จานนอก

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตรมหาบัณฑิต
สาขาวิชาภาษาอังกฤษศึกษา
มหาวิทยาลัยเทคโนโลยีสุรนารี
ปีการศึกษา 2561

EFFECTIVENESS OF THE INSTRUCTOR-DESIGNED INSTRUCTIONAL MATERIALS TO ENHANCE THE BLIND'S LISTENING COMPREHENSION THROUGH THE FLIPPED CLASSROOM IN THAI CONTEXT

Suranaree University of Technology has approved this thesis submitted in partial fulfillment of the requirements for a Master's Degree.

Thesis Examining Committee

(Asst. Prof. Dr. Pragasit Sitthitikul)
Chairperson

(Dr. Suksan Suppasetseree)
Member (Thesis Advisor)

(Asst. Prof. Dr. Issra Pramoolsook)
Member

(Prof. Dr. Santi Maensiri)
Vice Rector for Academic Affairs and Internationalization

(Assoc. Prof. Dr. Weerapong Polnigongit)
Dean of Institute of Social Technology

อานนท์ จานนอก : ประสิทธิผลของสื่อการสอนที่ออกแบบโดยผู้สอนเพื่อพัฒนาการฟังเพื่อความเข้าใจของนักเรียนตาบอดผ่านรูปแบบห้องเรียนกลับด้านในบริบทของประเทศไทย (EFFECTIVENESS OF THE INSTRUCTOR-DESIGNED INSTRUCTIONAL MATERIALS TO ENHANCE THE BLIND'S LISTENING COMPREHENSION THROUGH THE FLIPPED CLASSROOM IN THAI CONTEXT) อาจารย์ที่ปรึกษา : อาจารย์ ดร.สุขสรรพ์ ศุภเศรษฐเสรี, 372 หน้า

งานวิจัยนี้เป็นการศึกษาประสิทธิผลของสื่อการสอนที่ออกแบบโดยผู้สอนเพื่อพัฒนาการฟังเพื่อความเข้าใจของนักเรียนตาบอดผ่านรูปแบบห้องเรียนกลับด้าน มีจุดมุ่งหมายเพื่อวัดประสิทธิผลของสื่อการสอนที่ออกแบบโดยผู้สอนเพื่อพัฒนาการฟังเพื่อความเข้าใจของนักเรียนตาบอดผ่านรูปแบบห้องเรียนกลับด้านและสำรวจความพึงพอใจของนักเรียนตาบอดต่อสื่อการสอนที่ออกแบบโดยผู้สอนเพื่อพัฒนาการฟังเพื่อความเข้าใจของนักเรียนตาบอดผ่านรูปแบบห้องเรียนกลับด้าน

กลุ่มตัวอย่างนักเรียนหญิงตาบอด โรงเรียนการศึกษาคนตาบอดขอนแก่น จำนวน 10 คนที่กำลังทำการศึกษาอยู่ในปีการศึกษา 2561 ได้รับการคัดเลือกให้เข้าร่วมในการวิจัยครั้งนี้ การมีโอกาสได้เรียนภาษาอังกฤษนับเป็นปัญหาด้านการศึกษาสำหรับนักเรียนตาบอดมาเป็นระยะเวลาหลายปี ดังนั้นงานวิจัยชิ้นนี้จึงได้มีการออกแบบโดยการนำวิธีการเชิงคุณภาพและเชิงปริมาณมาใช้ในการเก็บรวบรวมข้อมูลการทดลองตลอดช่วงระยะเวลา 12 สัปดาห์ แบบทดสอบก่อนและหลังเรียนใช้ในการรวบรวมข้อมูลเกี่ยวกับการพัฒนาการฟังเพื่อความเข้าใจในการฟังของนักเรียนตาบอด โดยมีการใช้แบบสอบถามที่มีจำนวนคำถาม 14 ข้อ การสัมภาษณ์แบบกึ่งโครงสร้างและการสังเกตการณ์ในห้องเรียนเพื่อให้ทราบถึงความพึงพอใจของนักเรียนตาบอดต่อสื่อการสอนที่ออกแบบโดยผู้สอนเพื่อพัฒนาการฟังเพื่อความเข้าใจของนักเรียนตาบอดผ่านรูปแบบห้องเรียนกลับด้าน การวิเคราะห์คะแนนก่อนและหลังเรียนพบว่าผลการวิจัยมีระดับนัยสำคัญอยู่ที่ 0.05 สื่อการสอนที่ออกแบบโดยผู้สอนเพื่อพัฒนาการฟังเพื่อความเข้าใจของนักเรียนตาบอดผ่านรูปแบบห้องเรียนกลับด้านช่วยให้นักเรียนตาบอดมีความเข้าใจในการฟังเพิ่มมากขึ้นด้วยคะแนนเฉลี่ยก่อนเรียน ($\bar{x}$ = 9.20, SD. = 1.48) และคะแนนเฉลี่ยหลังเรียน ($\bar{x}$ = 10.90, SD. = 2.60)ในส่วนของแบบสอบถาม การสัมภาษณ์กึ่งโครงสร้างและการสังเกตการณ์ในชั้นเรียน ผลการวิจัยพบว่านักเรียนตาบอดมีความพึงพอใจที่มีค่าเฉลี่ยเท่ากับ 4.11 หมายความว่าระดับความพึงพอใจของนักเรียนตาบอดต่อสื่อการสอนที่ออกแบบโดยผู้สอนเพื่อพัฒนาการฟังเพื่อความเข้าใจของนักเรียนตาบอดผ่านรูปแบบห้องเรียนกลับด้านอยู่ในระดับพึงพอใจ ซึ่งการใช้สื่อการสอนที่ออกแบบโดย

ผู้สอนเพื่อพัฒนาการฟังเพื่อความเข้าใจของนักเรียนตาบอดผ่านรูปแบบห้องเรียนกลับด้านนั้นช่วยให้นักเรียนตาบอดที่มีเวลาในการเรียนรู้น้อยและขาดแคลนสื่อการสอนที่เหมาะสมที่จะนำไปใช้ในการพัฒนาการฟังเพื่อความเข้าใจให้ดียิ่งขึ้น

สาขาวิชาภาษาต่างประเทศ
ปีการศึกษา 2561

ลายมือชื่อนักศึกษา อานนท์ คนนอก
ลายมือชื่ออาจารย์ที่ปรึกษา สุวรรณ ศุภเศรษฐศิริ

ARNON JANNOK : EFFECTIVENESS OF THE INSTRUCTOR-DESIGNED INSTRUCTIONAL MATERIALS TO ENHANCE THE BLIND'S LISTENING COMPREHENSION THROUGH THE FLIPPED CLASSROOM IN THAI CONTEXT. THESIS ADVISOR : SUKSAN SUPPASETSEREE, Ph.D., 372 PP.

BLIND STUDENTS/ FLIPPED CLASSROOM/ LISTENING COMPREHENSION/ MATERIAL DEVELOPMENT

This research study involved the effectiveness of the instructor-designed instructional materials to enhance the blind's listening comprehension in the flipped classroom context. Its aims were to investigate the effectiveness of the instructor-designed instructional materials in enhancing the blind's listening comprehension in the flipped classroom context and explore the blind's satisfactions toward the instructor-designed instructional materials in the flipped classroom context.

A set of 10 blind female students at the Khon Kaen School for the Blind was selected to participate in this study in the academic year 2018. Exposure to the English language has existed as an educational problem for many years for blind students. As a consequence, a combined qualitative and quantitative methodological approach was implemented as sources for collecting the data over a period of 12 weeks in experimental design. Pretest and posttest were used to collect data regarding the blind's listening comprehension enhancement. A 14-item-questionnaire list was used altogether with the semi-structured interview and classroom observation in order to know the blind's satisfactions toward the instructor-designed instructional materials in the flipped classroom context. In response to the instructor-design instructional

materials in the flipped classroom context, the analysis of pretest and posttest scores revealed that the result is significant and $p = 0.05$. They helped the blind students enhance the listening comprehension with average scores of pretest ($\bar{x} = 9.20$, SD. = 1.48) and the average scores of posttest ($\bar{x} = 10.90$, SD. = 2.60). In regards to the questionnaire, semi-structured interview, and class observation, the findings revealed that the blind students had the satisfaction level at the average score of 4.11. That means the blind students were satisfied with the instructor-designed instructional materials in the flipped classroom context. The implementation of the instructor-designed instructional materials could help the blind students who suffered from an insufficiency of learning time and a shortage of the appropriate instructional materials to perform better in listening comprehension.

School of Foreign Languages

Academic Year 2018

Student's Signature Arnon Jarnok

Advisor's Signature Sukran S.

TABLE OF CONTENTS

Page

TABLE OF CONTENTS (Continued)

Page

TABLE OF CONTENTS (Continued)

Page

TABLE OF CONTENTS (Continued)

Page

TABLE OF CONTENTS (Continued)

Page

LIST OF TABLES

Table **Page**

LIST OF TABLES (Continued)

Table **Page**

LIST OF FIGURES

Figure **Page**

LIST OF TABLES (Continued)

Figure **Page**

CHAPTER 1

INTRODUCTION

The purpose of this chapter is to make a presentation on the introduction, comprising eight major parts. The ensuing sections cover background of the study, statement of the problem, research objectives, research questions, statement of hypotheses, significance of the study, definitions of key terms, and finally the scope of the study.

1.1 Background of the Study

In this global society, English is the most important language that has been used as a medium between people who speak different languages. For those who can communicate in English, it is exceedingly easy for them to overcome the language barriers. The recent decades have also seen a huge rise in the number of English users in several authorities of Thailand owing to the Association of Southeast Asian Nations (ASEAN). The government eagerly promotes using the English language in every segment because the Association of Southeast Asian Nations, also known as ASEAN, has made positive impacts. According to the ASEAN Charter, Article 34, states that the working language of ASEAN shall be English, so the English language is an official language for ASEAN countries to cooperate with one another (Association of Southeast Asian Nations, 2008). For this reason, English is now widely used in the Thai

community. Meanwhile, each country normally uses its official language to communicate among people in the nation. To close this gap, the English language is brought to help people who come from any distant countries to communicate effectively. Moreover, Thailand has earned an excessive amount of income from tourism. Based on Australia in the Asia Century Task Force 2011, the rapid growth in services, resources, and other goods have been causing the political and economic engagement in the region and across the globe. There is no doubt that English is aimed at strengthening the capacity in business. From what has mentioned above, English then is a reason to be employed to promote the English ability of the Thais and to harmonize with the ASEAN Charter in multiple new forms in the country such as TV programs, newspapers, signs, books, technological devices, English online pages, etc. In addition, the English language is a compulsory subject in Thai schools.

The book, "*Education in Thailand*" written by Office of the Education Council, Ministry of Education distinguishes types of Thai Education into three types (Office of Education Council, 2017). The first type is Formal Education. The second type is Non-formal Education whereas the last one is Informal Education. Firstly, it is named as Formal Education. It is divided into five formats, including: (1) mainstream education; (2) basic education for children with special educational needs; (3) education for ecclesiastics and educational provision by several religious institutions; (4) specialized education provided by specific agencies other than the Ministry of Education; and (5) international education provided by using languages other than Thai (generally English) as a medium of instruction. Moving to another type that is Non-formal Education, it can be any schools that are excluded from the school system. The schools can be organized by both private and public groups such as infant and pre-school children, the

school-age population, and over-age population. The last type referred in the book deals with Informal Education. The distinctive point of this type with the others is that the learners are independent to learn. They are able to select what they would like to learn based on their interests, potential, readiness, and opportunities e.g. community learning centers, village reading centers, natural learning sources in each community, etc.

In this study, it revolves around the basic education for children with special educational needs as discussed in Formal Education. It consists of three groups of learners who are the gifted, the disadvantaged, and the disabled. Most importantly, the focus of this study is on the learners who have visual disabilities i.e. the blind students in Thailand. They are a group of people who cannot perceive the visual imagery. To put it simply, their eyes do not respond to the light and create visual imagery. On the contrary, being blind does not mean that they are unable to perceive the light. There was a study in mice conducted by Clyde Keeler in 1923 showing that the pupils of the rodents shrank despite photoreceptors loss due to a mutation experience. Surprisingly, the rodents could react to the light and their bodies could maintain circadian rhythms. After that for few decades, the groundbreaking of as-yet-undiscovered photoreceptor was made clear that there were the cells called intrinsically photosensitive retinal ganglion cells (ipRGCs) which were found in both mouse eyes and human eyes. They are the cells that mediate the production of the melatonin that responds to the light (Graham and Wong, 2016). That is, ipRGCs primarily function for photo entrainment of the biological clock, the pupillary light reflex, sleep, etc. (Pickard and Sollars, 2012). The blind therefore are capable of knowing days and nights like the normal-sighted people are. However, the cells do not provide them visual imagery.

From past to present, normal-sighted people tend to have negative ideas toward people with disabilities, especially the blind. The reason is that being blind is immediately noticeable from a distance compared to other disabilities such as the deft or retarded. Based on the basis of physical appearance, the blind have a common variety of symbols such as white cane, thick or darkened glasses, and a guide dog (Hallahan and Kauffman, 1980; Hallahan, Kauffman, and Pullen, 2009). Moreover, normal-sighted people believe that people with visual disabilities cannot do things as normal-sighted people do. According to the book *"Disability at A Glance 2015: Strengthening Employment Prospects for Persons with Disabilities in Asia and the Pacific"*, it pointed out that people with disabilities in the Asia-Pacific region are less likely to be employed, and when they are offered a job— more likely to have contact with vulnerable forms of employment (United Nations Economic and Social Commission for Asia and the Pacific, 2016). The marked tendency for unemployment is attitudes and discrimination. Not only do people without disabilities believe those who have disabilities are able to carry out their job, but also they do not even trust that people with disabilities have good skill and experiences. Moreover, situations of people with disabilities in Thailand are considered another big worry. According to the National Persons with Disabilities' Quality of Life Development Plan (Volume 5) B.E. 2560-2564 (2017-2021), it stated that 1.65 million people or 2.52% of the Thailand's population experienced some forms of disabilities (National Government Board for Persons with Disabilities' Quality of Life Development and Promotion, n.d.). Having good schooling is a huge tribulation for 613 thousand people with disabilities. In the same vein, the researcher had a great opportunity to put the idea out for the discussion with a female employee who has worked in one of the renowned hotels in Thailand and has branches in many different

countries around the globe. She told the researcher that there were many deft employees working at the same hotel with her, but none of the blind. The reasons the employee shared with the researcher can be listed as follows. Firstly, the hotel does not need to produce and provide assistive devices such as braille, tactile paving, etc. as they are hotel cleaners. Secondly, hiring disabled workers can offer a tax deduction. Thirdly, it can create a positive image for the company. Finally, the disabled workers have a job. In addition, Ainin (2016) demonstrated some problematic factors that the students with disabilities in Surabaya, Indonesia, have encountered. The finding of Ainin's study revealed that in 70 percent of all students with disabilities, they were rejected to participate in the same class with the normal-sighted students due to the parents of the normal-sighted students' attitudes. The teachers themselves at the school in which the students were studying did not graduate with a degree in special education. The tuition fee also posed a problem for the parents of the disabled students. Still, being blind which is considered disabled does not mean they are stupid (Hallahan, Kauffman, and Pullen, 2009). Thus, it is tremendously critical for everyone in society to treat people with disabilities equitably (Narot, 2010). To refer back to the group of people with visual disabilities, they should be assisted in many dimensions such as giving education, teaching life skills, assistive technology, and so on. Despite the facts that people with visual disabilities sometimes want to receive help from the normal-sighted, they prefer to receive with an appropriate degree because it may embarrass or frustrate them when too much help is given. People with disabilities are not satisfied with those who are full of pity for them. They do not want others to think as if disabilities are a burden because they only need to do things differently in some points. In addition, giving education is believed as a meaningful substance that can help the blind to play a part in society.

However, a majority of the blind who cannot succeed in education have not stayed out of trouble in Thailand. With the regards of the study done by Cheausuwantavee, and Cheausuwantavee (2012), the results showed that there had been no further educational provisions and facilities contributing to the blind even if they have been enacted within the law. In fact, those who have visual disabilities can be instructed in spite of the biological constraints of learning. They are capable of learning how to use other senses to compensate their lost sense, either their hands for touching or their ears for hearing in order to structure representations of the world. In case of being at school, the blind can learn through braille, large print books, audio format, haptic teaching aids, CD, computer technology equipment, etc.

1.2 Statement of the Problem

Because of lacking visual sense, the blind have to adjust their studying by using other senses; however, many studies have shown the problems with the materials for the blind. The teachers at the school for the blind were not knowledgeable about producing materials that could strengthen the blind's learning skills. Wanawananon (1985) and Meesri (1997) mentioned the root of the problem might have been from the teachers because they did not graduate with a degree in special education (as cited in Rattanavanich, 2015) as similar to what Ainin (2016) mentioned. The next problem about the materials for learning at school stated by Araluce (2002) was that the teachers already had a big amount of work to be completed, so they did not want to increase their workload. Supawattanakul (2006) interviewed Suthi, the Director of Thailand Association for the Blind, and gained information that materials production process

created problems for the blind in diverse viewpoints. The main problem indicated by the director was concerned with the cost of materials i.e. some materials needed to be imported from other countries. Consequently, it seems so clear that the high cost of the materials was a problem for the blind. Furthermore, some imported instructional materials normally came with the English language or the language of the country of origin, so the materials had to be translated before being utilized. The teachers also said that it was not their duty to produce materials, but government responsibility to provide the instructional materials (Efstathiou and Polichronopoulou, 2015). Kanoksilapatham, Poonpon, & Khamkhong (2016) proposed the detailed explanation about the current educational issues in Thailand under the concept of English Teaching in Regional Contexts entitled *"Global English Enhancement and Regional Thainess Maintenance Using Community-based Instructional Innovation"*. A relationship between the blind and the normal-sighted students based on the previous reviews was that the relevant instructional materials did not affect only on the blind, but also were the big problem for the normal-sighted students. According to the Center of Educational Technology (2005), a majority of the blind students (81.58%) at the secondary level from the five schools for the blind in Bangkok and perimeter provinces indicated that a number of braille books and audiobooks were inadequate. Over half of the blind who responded to the questions regarding instructional materials around 55.26 percent also commented that the Thai language, mathematics, and the English language audiobooks were the most important for them to review after class. In the current situation, there is much propaganda from the school for the blind sporadically inviting people to join the activities to produce instructional materials for the blind in the form of audiobooks. During face-to-face conversation, the teachers at the Nakhon Ratchasima School for

the Blind informed the researcher that a number of instructional materials for the blind are a lot higher than the past but the material inadequacies are still problematic up until now. Another interesting information obtained from the teachers at the Khon Kaen School for the Blind regarding instructional materials was comparable in shortage to that found at the Nakhon Ratchasima School for the Blind. The teachers at the Khon Kaen School for the Blind, too, emphasized the remaining problem in terms of material appropriateness despite being given and supported by the government financing. The features of the materials cannot advance the blind to achieve their ultimate goals as they are designed because of having a big amount of pictures and drag-and-drop activities that the blind were unable to take control or change a position freely. The researcher also gained necessary information from a teacher who has taught in the Khon Kaen School for the Blind that one of the problems he encountered at the beginning of the term was no handing down of materials from the last teacher, even a piece of paper about what the former teacher has used was not given. He was extremely concerned about this problem because it would have an effect on the students since there was no conformity between the former and current teachers. He then advised that the teachers themselves should hand down the materials to the next teacher as much as possible. That is, the researcher should find the most suitable learning approach that can help the blind to improve their listening skill and provide convenience to the teachers in terms of lesson conformity.

Heretofore the blind did not have a chance to expose to listening, which is considered the main perception for them, as much owing to the material inadequacies. Most of the language teachers tend to give attention to speaking skill since they think that it is the most successful skill of learning a language. One of the teachers at the

Nakhon Ratchasima School for the Blind has shown interest on other things during class in lieu of teaching the lesson from the book such as teaching how to write braille and memorize the braille abbreviations i.e. two letters in “ch” will be transformed into one letter in braille. Furthermore, some learning packages do not serve and fit the blind’s ability to use because of the fact that the design is likely to be considerably complicated. The teachers at the Khon Kaen School for the Blind once reported that they wanted their students to be able to comprehend the spoken discourse because it will subsequently affect speaking, reading, or writing when the blind cannot understand what other people have said. Another requisite point to be illustrated here is that the teachers are unable to emphasize much on listening and speaking due to the policy that aims to enhance writing and reading braille. It becomes now well-established from a variety of studies that teaching listening is considered enormously vital. Kaufmann (2016) offers agreement for this idea because it is believed that listening skill was the grounded skill that should be improved since it could lead to other language competences such as speaking, vocabulary, or accuracy. Another point mentioned by Kuafmann (2016) was that the speaking skill could best be improved when people have massive exposure to listening adequately. Referring back to the ideas of what Kaufmann (2016) mentioned, they imply that the more the students have high exposure or experience to the listening skill, the improvements of the other competencies aforementioned would follow. In accordance with Richards’ statement (2005), teaching listening has started to play a crucial role compared to the situations in the past. Brown (1994) also pointed out that listening comprehension has attracted educators to focus on teaching and learning a language because it does not only assist people to be able to understand the listening more, but it also helps other language aspects to grow

invaluably. However, some may still think that it is difficult to master due to the nature of listening: The input normally comes and passes very quickly (Ur, 1991). This view is supported by Kaufmann (2015) who mentioned a way that could weaken this attribute, that using the listening materials could offer the listeners exposure to the speech as much as they desire. Thus, it would lead students to process information easily and effectively by listening to the recorded spoken language or audio files since the audio files can be played back and forth. Another idea regarding listening is that comprehension will take place when the rate of delivery should not be too fast. Having pauses then can facilitate listeners to comprehend better than listening to sheer speed conversations (Richards, 1983). Previous reviews have established the ideas of listening difficulties affected by the characteristics of spoken language. The difficulties of listening will be further discussed in Chapter 2. To date, there has been little agreement on how best to improve students to be better listeners.

So far, this chapter comes into focus on the problems of instructional materials. Therefore, the following section will discuss another problem after the researcher has done class observation. It was noticeable to the researcher that the time spent in class was relatively short and seemed to be inadequate because the blind had to walk to the next class when the previous class was over. Some of the blind students were slow walkers while on their way to class; others also often left a certain way to the class. Additionally, the blind spent a lot of their time finding the worksheet from the recent class. Because of these factors, they affected the teachers to lose the one-third of class time waiting for the blind to come and be ready for class. Much of the time wasted in getting the blind to be prepared before class resulted in the lessons to be undone. Lack of time, therefore, can cause the blind's comprehension toward the lessons. General

ideas obtained from the class observation were of use to the researcher to give importance to the class time being utilized and eradicate the gap of time constraints. The teachers should provide them sufficient time to practice. Furthermore, teaching them how to listen may be regarded as a must since the teachers are able to direct the blind to reach their highest potentials. In order to see the aforementioned problems clearly, Figure 1.1 provides the summary of problems presented in needs analysis collected at the schools for the blind.

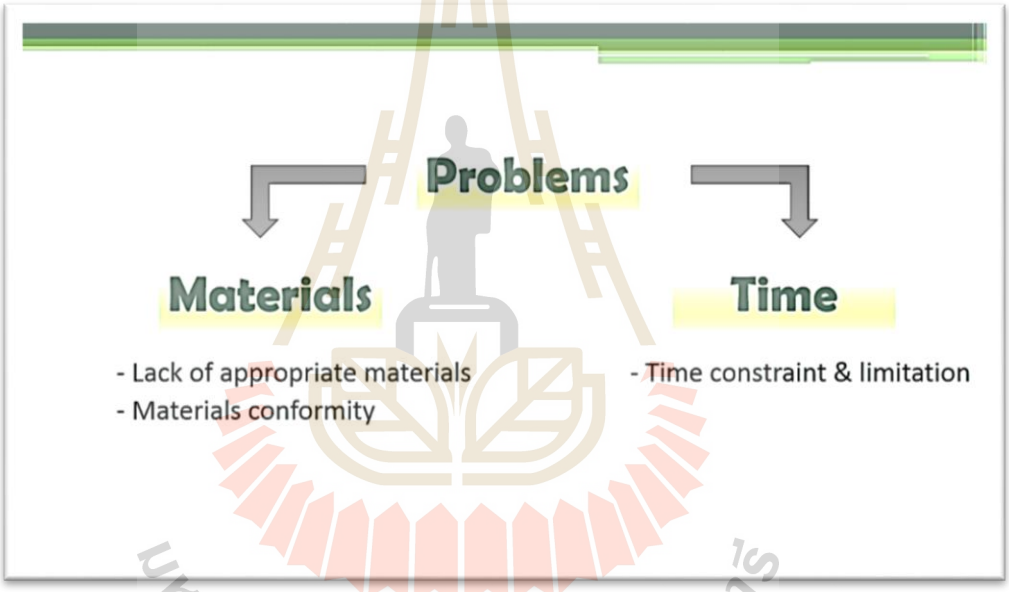


Figure 1.1: The Problems from the Needs Analysis (own photo)

As can be seen from Figure 1.1 above, it is necessary for the researcher to overcome the problems. Most importantly, there have been reviews regarding the advantages of the flipped classroom. They showed that the flipped classroom might benefit students' learning process since it provides chances for students to learn in a supportive environment. In the present study, "a supportive environment" is therefore defined in terms of having more time and appropriate materials to learn. Then, this section will contribute to the sweeping ideas of the flipped classroom. The flipped

classroom is about the way of superseding direct instruction from the class time by providing video lectures, lecture slides, digital modules, and/or other online media to students to learn outside of the class (Poorvu Center for Teaching and Learning, n.d.). After students garner knowledge outside of their class time, they will demonstrate the knowledge inside of the class. From this, the time dedicated in class can encourage students to work collaboratively and construct knowledge with their classmates (Szparagowski, 2014). Student engagement is then increased because of the effective use of the class time based on the flipped classroom model (Toto and Nguyen, 2009). Similarly, students can spend their time when they learn by themselves out of class time. The student learning process can be enhanced by simply replaying and pausing if asynchronous video-recorded lectures are used (Tainter, Wong, Cudemus-Deseda, & Bittner, 2017). Therefore, the flipped classroom is an approach of making the most use of the teaching and learning time; it maximizes the class time (Syondavis, n.d.). What the researcher would like to describe next is an account of the materials used in the flipped classroom. According to Bergmann and Sams (2014), teachers must have awareness of material accessibility because not all the students can gain access to the Internet. Therefore, the alternative options are necessary by giving students DVDs, flash drives, and take-home devices. Teachers do not need to possess professional ability in producing video lectures, but at least can create materials by making use of basic programs or websites such as PowerPoint, online websites (YouTube/TEDTalks), and audio files or video recordings prepared with their own computers or mobile phones. Despite having advantages in terms of teaching and learning time, the flipped classroom model still has some weaknesses. The preparation of the materials costs a big amount of time for the first time because teachers have to create and locate materials

for students. However, teachers are able to reuse the materials again for the next class (Centre for Teaching Excellence, n.d.). From what has described, it concludes that teachers do not have to possess high technical ability in order to produce instructional materials, but rather can develop the instructional materials that serve successfully in the learning process such as having clear educational objectives and providing a supportive learning environment. Henceforth, the process of creating the instructor-designed instructional materials to enhance the blind's listening comprehension learned through the flipped classroom will be further described in detail in Chapter 3.

It is perspicuous that listening is considerably important for the blind to perceive semiotic representations. Moreover, the most desired thing after getting involved with the English language teachers and principals of the Nakhon Ratchasima School for the Blind and the Khon Kaen School for the Blind during needs analysis was that they have a passionate desire to assist the blind to expose and practice listening skill more frequently. Still, they hardly ever have chances to do listening activities as much because of a time-consuming job and a shortage of materials. Most importantly, the teachers believe that having a firm basis could help the blind to have a remarkable improvement although it seems to take a lot of effort at the beginning. The teachers from the Nakhon Ratchasima School for the Blind and the Khon Kaen School for the Blind together hold the view that listening skill should be the first skill that is strengthened. All in all, this study aims to help the teachers who lack time and technology skill to produce the instructional materials for the blind at the Khon Kaen School for the Blind. In addition, the flipped classroom will be implemented to solve the problems and fulfill the needs mentioned earlier because the instructor-designed instructional materials can be uploaded to the Internet and then the blind can improve

their listening skill through the uploaded materials. After learning by themselves through instructional materials out of the class timetable, they become informed students who are ready to work, do activities, and demonstrate knowledge inside of the classroom. From the characteristic of uploaded materials, they will allow the next teacher to gain access and make conformity between all the contents. The blind are also able to listen to the materials for multiple times without bothering the teachers when they want to replay what they would like to emphasize something. They are capable of learning individually with their own pace, rate, and ability in lieu of learning in a big group before coming to class. Based on the flipped classroom model, these advantages suggest that the blind could have more time to work on listening that the teachers truly want them to master. As is generally known, listening activities are time-consuming. Therefore, the flipped classroom model is found helpful to solve the problems of time constraints. In addition, it is beneficial that it allows the blind to learn outside of the class before demonstrating their factual knowledge for doing activities as well as addressing questions/concerns if they have. It also encourages students to be active learners. Moreover, in terms of instructional materials, the blind will have appropriate and supportive materials to learn by themselves since the instructional materials will be intentionally devised in order to serve their learning styles. In the following paragraph, the researcher will briefly discuss the reasons for choosing the Khon Kaen School for the Blind as the research setting.

Owing to what the researcher found proper to conduct a study at the Khon Kaen School for the Blind as a path could be specified and listed here; (1) the blind at Khon Kaen have been trained how to use computer for years; (2) when observing class, it can be seen that the teachers at Khon Kaen really used computer in teaching learning

process; (3) there are adequate and well-equipped facilities; (4) the school has already scheduled the day of the weekends to be an extra learning day; therefore, using flipped classroom would support the blind' listening comprehension because the effects of not having an obvious plan and specific goal of the teachers caused the class time to be spent without purpose; and (5) the number of the blind was sufficient to be representative of the population. In addition, the produced materials would rely on the nature of language in order to design it effectively and appropriately for the blind. The bottom line is that this study aims to investigate whether or not the instructor-designed instructional materials can enhance the blind's listening comprehension in the flipped classroom context, and to explore the satisfaction level after the blind students have used the instructor-designed instructional materials.

Significantly, conducting research about the blind's ability in the English language would be a neglected thing in the Thai Educational System because it seems so clear that there is a small amount of research being done with the blind in the English language learning context. Therefore, this study can be used as a big step for the next research in this field. In addition, there is a need to conduct research in this field in order to enhance the blind's ability in listening to the English language because it could deliver value for future studies. The results will eventually be useful if there are any weaknesses to be improved or solved with the self-designed instructional materials for the future.

1.3 Research Objectives

The present study aims:

1.3.1 To investigate the effectiveness of the instructor-designed instructional materials in the flipped classroom context for the blind at the Khon Kaen School for the Blind, and

1.3.2 To explore the blind's satisfaction level toward the instructor-designed instructional materials in the flipped classroom context whether they can enhance the blind's listening comprehension.

1.4 Research Questions

The present research is specifically designed to answer the following questions:

1.4.1 To what extent do the instructor-designed instructional materials in the flipped classroom context enhance the blind's listening comprehension in the Khon Kaen School for the Blind?

1.4.2 What is the blind's satisfaction level toward the instructor-designed instructional materials in the flipped classroom context whether they can enhance the blind's listening comprehension?

1.5 Statement of Hypotheses

The hypotheses of this study are as follows:

1.5.1 The blind's average listening posttest scores will be significantly higher than their average listening pretest scores at the level of 0.05.

1.5.2 The blind feel “satisfied” in the satisfaction level toward the instructor-designed instructional materials in the flipped classroom context.

1.6 Significance of the Study

The findings of this study would have an advantageous effect on teachers that the flipped classroom is one of the effective methods used to help students to improve their learning ability in spite of time constraints. The significance of the method derived from the previous reviews is that the flipped classroom maximizes learning opportunities with a variety of practices, that is the blind are actually able to demonstrate knowledge instead of spending class time listening to the content. Based on the problems obtained from needs analysis, the present study is conducted in order to help the teachers and students at the Khon Kaen School for the Blind. In parts of the teachers, they will be rendered assistance in producing appropriate instructional materials to serve the blind’s learning style while the blind themselves can enhance listening comprehension and improve learning skill through the instructor-designed instructional materials created by the researcher outside of the class time. It will be more invaluable if the instructor-designed instructional materials and the flipped classroom can enhance the blind’s listening comprehension in other schools for the blind because they can make use and follow the pattern. The teachers, school directors, and Ministry of Education along with many other educational authorities whose profession is related to the blind students and teaching would obtain benefits from this present study. They could adopt the lesson plans that were designed based on the theoretical framework into pedagogical implementation for the blind students or the

students in the Inclusive Educational Program when this study reveals that the flipped classroom and constructivism suitably work for the blind students. The tests could be used to tutor the blind students during the weekend for many purposes e.g. the national test, or school examinations, etc. What is even intriguing for the future researchers whose desires and admiration are to be working with the blind students, the research instruments could be utilized as guidelines. When the instructor-designed instructional materials in the flipped classroom do not work well in eliminating the aforementioned problems, the results can be further used to investigate the causes and then improve the instructor-designed instructional materials in the flipped classroom for the blind since there are a small number of research studies conducted regarding the instructional materials for the blind. The methodologies of the present study will be of use in the future to researchers or instructors who would like to enhance the blind's listening comprehension.

1.7 Definitions of Key Terms

The definitions of key terms in this study can be listed as follows:

1.7.1 **'Instructor-designed Instructional Materials'** in the current study is understood to mean the materials deployed to the blind to listen in the flipped classroom context. The instructor-designed instructional materials are produced by the researcher based on the principles of Constructivism and Flipped Classroom. The production process of the instructor-designed instructional materials comprises 7 phases and 13 steps in designing and constructing the listening instructional materials for the blind in the Khon Kaen School for the Blind. The researcher uses web design tools such as

Adobe Captivate, Text-to-Speech, Audacity, sound recording, sound converting, and YouTube downloader for designing the listening instructional materials. In this research, a set of the instructor-designed instructional materials comprises online listening instructional materials, student books, and exercises.

1.7.2 **'The blind'** or **'the blind students'** is defined a group of students with visual disabilities and must learn to read braille books, use aural methods, magnifying devices, or large-print books. In this study, it means those who have visual disabilities and study in grade 7 to 9 at the Khon Kaen School for the Blind.

1.7.3 **'Satisfaction'** as defined by Cambridge Dictionary refers to "the condition of having a desire or need fulfilled" or "the act of fulfilling (= achieving) a need or wish". In this study, satisfaction level refers to the degree to which the blind students have a desire or need fulfilled toward the instructor-designed instructional materials learned in the flipped classroom context.

1.7.4 **'Constructivism'** in this study refers to as learning theory that the blind students studying at the Khon Kaen School for the Blind utilized in constructing their knowledge through cognition and socialization along with the instructor-designed instructional materials in order to enhance the blind's listening comprehension under the concept of the flipped classroom.

1.8 Scope of the Study

This study sheds light on listening comprehension of the blind by using the instructor-designed instructional materials. The site of the study was the Khon Kaen

School for the Blind. The participants of the study were 10 female blind students who studied in grade 7 to 9. They will be required to learn the English language through the instructor-designed instructional materials in flipped classroom context and do pretest and posttest to investigate whether or not using the instructor-designed instructional materials in flipped classroom is effective for enhancing the blind's listening comprehension when they have more time to learn by themselves with their own pace. A paired t-test would be implemented to know the statistical significance of participants. During the experiment, the observers would observe both in the flipped classroom and in the face-to-face classroom in order to see the natural phenomenon of the blind and external factors of those days of the observation. For better data collection, the participants would be asked to express their satisfaction level toward the instructor-designed instructional materials and the process at the last stage.

In summary, the present study was undertaken to design the listening instructional materials to enhance the blind's listening comprehension in the flipped classroom context and evaluate the effectiveness of the instructor-designed instructional materials after being used by the blind at the Khon Kaen School for the Blind. The researcher will develop the proper instructional materials for the blind to learn, as the teachers want them to enhance their listening skill: by doing this, the instructional material problems considered as a problem for the blind are then resolved. Moreover, since time constraint was another problem causing lesson to be incomplete and putting the blind to have insufficient time to practice, the implementation of flipped classroom was an intriguing method to be used to close the gap. The instructional materials will be launched online for the blind to study by themselves out of the class time before demonstrating the obtained factual knowledge inside of the class. Another

key thing to remember in this present study is that the satisfaction level of the blind students toward the instructor-designed instructional materials. This study would be notably vital since the gathered data from previous studies as well as the teachers in the schools for the blind: the Nakhon Ratchasima School for the Blind and the Khon Kaen School for the Blind, illustrated the instructional material shortage and difficulties in developing materials for the blind. Listening is an important skill for the blind students in language acquisition according to their biological constraints. It is a complicated skill to be enhanced. Therefore, this chapter already provided the background of the study, statement of the problem, research objectives, research questions, statement of hypotheses, significance of the study, definitions of key terms, and scope of the study. Unless it works as expected, the data can be used as the initial step for those who admire to take it further to a more deliberate and advanced stage.

CHAPTER 2

LITERATURE REVIEW

This chapter is concerned with the literatures related to the instructor-designed instructional materials to enhance the blind's listening comprehension. The literature review falls under ten headings. It begins with listening comprehension, people with disabilities and types of disabilities, and definitions of blindness. History of the school for the blind in Thailand, psychological development and blind behavior, learning and the brain are elaborated afterward. Flipped classroom, constructivism, and materials development are further introduced.

2.1 Listening Comprehension

The central idea of this part is to outline background information regarding listening comprehension. This topic is distinguished into five parts: (1) definitions, (2) overview of listening, (3) listening purposes, (4) difficulties in listening processing, and (5) models of comprehension processing. The first section about definitions will be shown as follows.

2.1.1 Definitions

Listening is indispensable in everyday communication and in the classroom in which teachers play a major role in lecturing. Most of the people usually

think that listening is hearing of sounds. However, the idea was incorrect insomuch as hearing is physical. Listening is actually conscious processing of hearing as Taweesak (1999) has categorized sound processing into two dimensions according to auditory phonetics. The first category is sound reception that is with respect to organs functioning for the listening process, starting from sound receiving to transferring electrical nerve impulses to the brain. The other is sound perception that is about sound receiving, and encoding sounds collaboratively with background and/or stored knowledge.

In parts of the term "comprehension" according to "*Dictionary of Language Teaching & Applied Linguistics*", Richards and Schmidt (2002) gave a meaning to the term comprehension as "the identification of the intended meaning of written or spoken communication" (p. 99). In addition, in Richards' study (2005) entitled *"Second Thoughts on Teaching Listening"* indicated that both listening and listening comprehension mean the same thing and these two terms are synonymous in accordance with another of his study named "*Teaching Listening and Speaking: From Theory to Practice*" (2008).

2.1.2 Overview of Listening

Dating back to the past with relevance to listening in classroom settings, it was reckoned to be a passive activity which occurred only by the listeners themselves. It was also viewed as the neglected skill of language teaching (Morley, 2001). Besides, some researchers considered listening as an ability that can be enhanced without assistance during class (Mendelsohn, 1984; Oxford, 1993, as cited in Osada, 2004). Therefore, it was paid scant attention by teachers in the classroom (Vandergrift, 2004).

In a similar case, Osada (2004) summarized the general situations about listening in the past regarding the deficiency of listening practice in the classroom. The listening training in the classroom was seldom provided as it was thought as an easy process because it happens all the time in daily situations. Consequently, the shortage of listening instruction exerts influence on the inadequacy of listening activity. However, Rost (1990) illustrated that listening is a construction process rather than receiving knowledge. Aural comprehension then has shifted its position to be one of the main focusing skills in Second or Foreign Language Acquisition (Morley, 2001). Yet, there are many different purposes of listening that should be taken into consideration when it is applied in the classroom, including in the blind classroom. Thus, the following part will incorporate detailed information about the purposes of listening that might be useful for teachers to know and then make use of it during instructing the students.

2.1.3 Listening Purposes

None of us can deny that we do not desire for something in the listening process. Then, the next section will be listed the purposes of listening by Lindsay and Knight. The purposes are illustrated below.

Lindsay and Knight (2006) mentioned that people listen to many different things around them in their daily life as follows:

- a lecture
- directions
- a taped dialogues displayed in class
- the radio –song, weather forecast, play

- instruction from pieces of machineries
- someone's else conversation (eavesdropping)
- professional advice, for example, from the doctor or the banker
- listen to someone during a conversation i.e. face-to-face or telephone
- announcements giving information such as in the airport or railways station

Lindsay and Knight (2006) then summarized that even though the sounds they listen are from a wide variety of things, they at least have a purpose for their listening depending on the situation:

- listening for information
- listening for specific details
- listening for general meaning
- listening to learn a new language
- listening for the general ideas or gist
- listening for enjoyment or social reasons

In the case of any classrooms which the English language is taught, the purposes of the listening listed above could have teachers realize that students should not listen in order to respond back all of a sudden that they have listened. They have to answer to teachers on what they have obtained from the listening exercises in relation to the set objectives. In spite of happening in an individual's brain, teaching listening should be taken out to be taught in the classroom in order to help students expose to the

target language that seems neglected and difficult in the four language skills (Jaruteerapan, 2014).

2.1.4 Difficulties in Listening Processing

As we know, the spoken language is considerably difficult for second language learners. For that reason, it is important for teachers and students to pay more attention to influencing factors that can obstruct comprehension. One of the most obvious importance to be mentioned in the present study is understanding the difficulties with listening does not only help teachers to facilitate comprehension for the normal-sighted and blind students, but it also assuages students' worries and anxiety in listening. The following are characteristics of spoken language and the problems causing troubles of understanding the language in the listening process.

2.1.4.1 Cultural Differences: Different cultures may influence listening comprehension on the ground of the occurrence of cultural barriers such as crewmembers' cultural, historical, and social background (Wang and Gu, 2005). According to the study conducted by Wang and Gu (2005) concerning intercultural communication barriers in the maritime communication context, there were 112 participants from nine nationalities but the majority was from China and Australia. They did agree that cross-cultural communication led to the communication failure. The responses of the questions on the communication barriers resulted respectively; 91% language barriers, 23% cultural barriers, and 9.5% other barriers. The common roots were from lacking social customs of other nations, cultural differences, cultural preferences, as well as reluctance to admit incomprehension of a message. Generally, this problem frequently takes place in everyday listening i.e. watching foreign TV

programs as we can observe ourselves. Non-native speakers often hear the audience in the studio laughing at the joke narrated by the host, but the non-native speakers who listen to the program may not even understand what the host has recently talked on the show and that causes them to end up in confusion.

2.1.4.2 Accents/Pronunciation: As we know, the English language has been used as a medium among people from different countries, so it undoubtedly causes a variety of exceptional accents in those countries. Trudgill also came to mention that accents of the English language appear to be various than other characterizations (1998, as cited in Melchers and Shaw, 2003). Being unfamiliar with the accents, people may be struggling when having a conversation in spite of being native speakers. Likewise, listening is regarded as the most difficult skill for native speakers when they encountered with the unfamiliar accent for the first time. For instance, Australian people greet their American friends by saying “Good day, mate”, literally pronounced in Australia /gʊd dɑɪ mɑɪt/ while this phrase is regularly pronounced /gʊd deɪ meɪt/ by the Americans. Since they are unable to perceive the strange pronunciation that sounds alien to them, it causes difficulties for listeners to gain the meaning out of the spoken language (Abebin, Majlish, & Akter, 2009). By the reason of being L2 learners, they may be capable of apprehending only the learned accent. Pronunciation in the real-life situation was not the same as the one they have studied in class (Rixon, 1986). Consequently, they are usually agitated when contacting people who speak in a different way from what they get used to hearing.

Lado (1957) illustrated the phonemic and non-phonemic differences in languages. He indicated that some sounds might be phonetically shown as the same sound in spite of being pronounced differently such as /p/ in “pin” (aspirated) and “capture” (unexploded) in English. Even if the properties of the /p/ sounds of the two words are different, they are classified as the same sound which is so-called non-phonemic. This difference is not a key used to distinguish in the English language. By contrast, some people whose language is phonetically different from English. They may not have the ability to distinguish phonemic sounds which exist as non-phonemic sound features in their native languages such as beat and bit because these two words are articulated in the same way such as in the German language; therefore, it leads to difficulties for Germans in both speaking and listening.

Some writers (e.g. Brown, 1977 and Knowles, 1986) have attempted to propose an articulatory perspective concerning with co-articulation and phonological context variability causing variable realizations of phonemes (as cited in Rost, 1990). Common variable realizations are altered because of connected speech rules e.g. free variations, assimilations, as well as reductions and elisions as shown in Table 2.1.

Table 2.1: The Examples of Common Variable Realizations "Learning in Language Learning" (p. 39).

Phrase	IPA Transcription
A. Free variations	
never in the city	[sɪɾi]
just the idea of it (Br.)	[aɪdɪɚəvɪt]
B. Assimilations	
This your handbag	[hæmbæg]
What's this	[wəsːɪs]
C. Reductions and elisions	
going to be a mess	[gunəbi]
terrorist attack	[tɛrːɪst]

Mihaliček and Wilson (2011) have highlighted the relevant characteristics influencing on listening that is called the Cohort Model as shown in Table 2.2. The cohort model was defined as recognizing the words that come in a stream of speech. Because there are no clear boundaries in spoken language as shown in written language, it causes ambiguity in identifying actual phrases without a conversational context. Examples of ambiguity relating to word boundaries as shown in the following page are retrieved from "Language Files" (p. 384).

Table 2.2: The Examples of Phrases without Word Boundaries in Spoken Language

The Examples of Phrases without Word Boundaries	
the sky	this guy
a name	an aim
an Ice man	a nice man
I scream	Ice cream
see Mabel	seem able

2.1.4.3 Vocabulary: It is one of the major aspects that put a lot of pressure on listening. Wattajarukiat, Chatupote, & Sukseemuang (2014) accounted for the factors related to difficulties in listening in their study entitled *"Listening Difficulties and Strategy Use by University Students"*. They uttered that vocabulary was a factor leading to listening comprehension. It is noticeable by reminding of the old situations that being unfamiliar with new word items, sound-combination lexis, and collocations of the language resulting in incomprehension, especially when speakers speak rapidly. Apart from being unfamiliar with the new word items, listeners frequently think that comprehension will take place when they are capable of understanding every word. In this manner, they are disturbed by totally unimportant words. Together, there was a shred of evidence that seems to suggest a pertinent role of the breadth and depth of vocabulary (Teng, 2016). The findings of the study revealed that both the breadth and depth of vocabulary knowledge could enhance listening comprehension. Comparing both dimensions, the researcher indicated that knowing

meaning in-depth was highly relevant to listening comprehension on the grounds that the listeners had multiple meanings for each vocabulary item. Therefore, as long as listeners have known too little or too narrow in terms of vocabulary items, they will easily confront the difficulties in listening comprehension.

2.1.4.4 Suprasegmentals: Because of the nature of verbal language, listeners must fathom the prosodic features existing in a spoken language such as pitch, stress, and intonation which attempt to give an intended meaning to listeners (Ur, 1984). Time and again, Ur indicated that in colloquial language, a student tended to be thrown off balance if they came across a word pronounced differently from what they had learned on how to articulate a proper pronunciation in class such as unstressed functional words, and unstressed syllables, which are turned into schwa /ə/ (Lindsay and Knight, 2006). Ladefoged (2006) also stated that suprasegmantals are important in light of they can tell about age, gender, emotions, and attitudes of the speakers toward the currently spoken topic. Intonation then had a meaningful impact on the meaning of an utterance (Ur, 1984). It is utilized in interrogative sentences as a replacement for using auxiliary or changing word order in sentences to form questions (Ladefoged, 2006).

2.1.4.5 Rate: Listening is attributed as a temporal gestalt (Schnelle, 2010). Richards (2008) indicated that the speech signal is dynamic across time. Listeners have to process it “on-line. Thus, it leads them to have few chances to process the speech once again even if they desire. According to its attribute, the speech may last for a short period of time (Ur, 1991) Speech rate then causes the failure to understand the speech (Wattajarukiat, Chatupote, & Sukseemuang, 2014). Native speakers are

prone to speak considerably fast and listeners could not control the speech. Undoubtedly, it seems to limit listeners' ability when they hear an unfamiliar word (Finch, 2000). It may lead to confusion and frustration in terms of overlapping between the frequencies of sounds which is so-called masking (Keith, 2003). Masking takes place when the last sound of the previous sentence overlapping the first sound of the following word. For those who are sophisticated L2 listeners, they would be struggling because of the speed. Consequently, having pauses may reduce the confusion and hesitancy while displaying the speech to the L2 students.

2.1.4.6 Physical Factors: it can be classified into articulators, the brain, and the ears. The detailed information is provided as follows:

Articulators: Voice quality is about individual characteristics concerning speech producing. Voice quality is a static characteristic for each person (Taweesak, 1999). It is divided into two types: (1) under the speaker's control and (2) beyond the speaker's control.

(1) Under the speaker's control: it is mainly related to prenatal and some of the postnatal characteristics such as the thickness or thinness of vocal cords which causes the differences of speech producing between men and women. In addition, there are some symptoms influencing speech producing e.g. cleft palate, cleft lip. Furthermore, injury around the articulatory area may be a factor affecting unusual speech producing.

(2) **Beyond the speaker's control:** it revolves around articulatory modifications. Some people tend to be very good at imitating someone's voice, but it does not mean that they have the abilities to ape all characteristics statically.

From these characteristics, due to distinct voice quality and articulatory clarity of each person, we can recall people's voices all of a sudden (Rost, 1990). Therefore, we often face difficulties in listening to men and adults than those who are teenagers or women. Men will speak with a low voice, while women speak in a higher tone that causes ease in listening.

The brain: Early studies about comprehension were investigated by observing the neuroimaging capabilities. The brain area that is known for language comprehension of words and sentences is Wernicke's area in the posterior temporal lobe (Mihaliček and Wilson, 2011). For those who have a lesion in this area, it will cause receptive disorders and influence the process of language comprehension (Dronkers et al, 2004; Mihaliček and Wilson, 2011). The Figure of Wernicke's area which is located in the brain is shown in Figure 2.1.

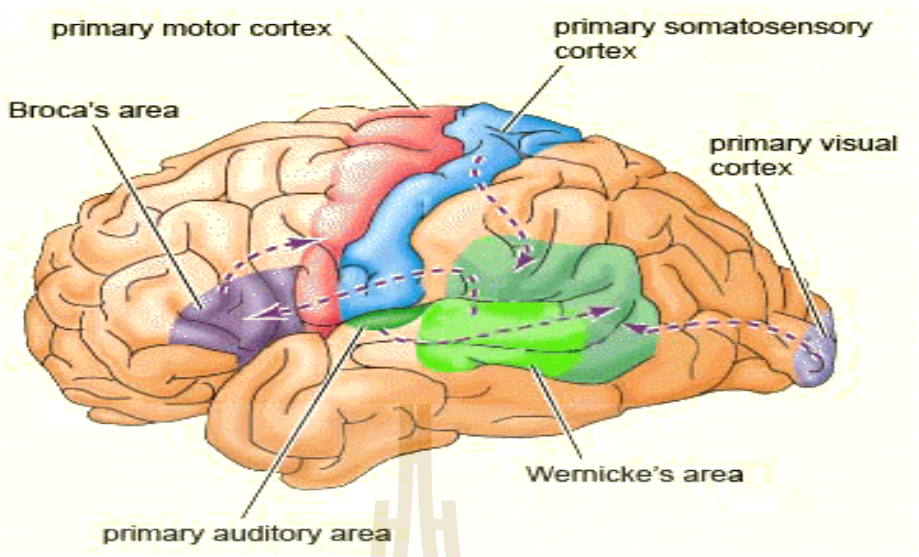


Figure 2.1: Broca's Area, Wernicke's Area, and Other Language-processing Areas in the Brain by The Brain from the Top

The ears: It is undeniable that the ears are the first important organ of hearing. Nevertheless, there are multiple reasons that make people unable to receive, process, and interpret the sounds.

(1) Auditory Process Disorder: APD is a disorder caused the problem with how the human brain processes the information it receives from the ear. People with APD tend to process incoming sounds more slowly than the group of people without it. To simply say that, they cannot hear, process, and perceive a sound within a little fraction of a sound. People with APD seem to a take long time than normal-hearing people. Consequently, it affects when they listen to complex or quick-changing sounds. They are not capable of detecting short gaps in a continuous sound as the normal-hearing people can do.

They can only hear, process, and perceive the sounds in a longer amount of time (Morlet, 2014).

(2) **Hearing loss:** The exposure to the high-level noise for a long time can be a factor causing hearing loss. American Hearing Research Foundation reported that one in ten Americans is unable to apprehend normal speech because of hearing loss (2012). Additionally, reported by The National Institute of Health, the high frequency concerning occupational and leisure activities affected Americans at the aged of 20-69 to have hearing loss. It counted 15 percent of its citizens (as cited in American Hearing Research Foundation, 2012).

(3) **The space of vibration:** Because of a wide range of vibration, the distance from the sound resources to our ears plays a role for our hearing. For example, people can hear the voice from a cell phone more loudly compared to when they pull out it of their ears (Taweesak, 1999). The example above shared similarity with the classroom settings that students sometimes have to listen to the sounds via speakers. For those who sit far away from the speakers, they may get in trouble of hearing.

2.1.4.7 Environmental Factors: In Thailand, people hardly touch upon the English language in their daily life. The expectation of learning English in the classroom is that the students are able to communicate but the focus of teaching relies on two dominant methods (which is what experience tells us that many educational institutes have been doing) are grammar-translation as well as audio-lingual method.

The strengths and weaknesses of these two methods are: (1) in terms of grammar-translation, teachers can ensure that the students can understand the content by requiring the students to express in their native language, but they may not have a chance to practice communication skill, (2) audio-lingual method is related to behaviorism which primarily centers in drill and practice until what they are practicing becomes habit. The students then have the ability to use a language correctly, yet they may not get insight into their utterances. Moreover, it may lead them to over-generalization. They will imitate from what they learned such as utilizing noun after verb according to the learned grammar but in reality, they might say, "I eat a car." which is syntactically correct but pragmatically wrong (Richards and Rodgers, 2001). In addition, spoken discourse is not tested in the national test as written discourse. Therefore, most of the English teachers in Thailand hardly take the importance of speaking and listening into considerations. For this reason, they lack exposure to listen or practice their spoken discourse if the teachers do not provide alternative activities to the students to practice in the classroom. Matsumoto (2008) showed that listening skill was not included in university entrance examination that is the same in Thai educational system, so the listening skill was not brought to teach the students in a high degree as other language skills. In accordance with the finding from the study "English Teaching Methodology in Elementary Schools in the Upper Northern Region of Thailand", the teachers tended to pay more attention to teaching grammar i.e. having students find the meanings of words from a dictionary, explaining grammar rules for doing exercises (Puthong, 1999). However, using English as a medium in class can be noticeable in some big Thai schools in which they have the English Program (EP) or Intensive English Program

(IEP). Therefore, the students in these programs have more exposure to language skills than those who are studying in a regular program.

Thus far, the previous sections provide a brief summary of each feature relating to difficulties in listening. In the following sections, I will review the models that can be applied in order to guide both teachers and students to enhance their listening ability.

2.1.5 Models of Comprehension Processing

Although listening is an important skill to understand the message produced by any sound resources, it is a left-off language skill in the classroom. Communication would be regarded as a failure when learners are unable to understand the message (Jaruteerapan, 2014). According to the occurrence of the difficulty in listening, it is considerably necessary to have knowledge of the principles that could be helpful for assisting teacher and students in listening comprehension. Rost (1990) stated that reading and listening have shared similarities in the form of receptive skill. The differences of both skills are just the forms of their natures i.e. spoken and written discourse. Thus, the way of the comprehension process is not disparate. There are many researchers saying that comprehension processing basically consists of top-down and bottom-up processes (Richard, 2008, 2011). Both concept-driven (top-down) and data-driven (bottom-up) are used as the tools that conduce to comprehension. Apart from this, some added one more process that is a combination of the two processes referred earlier. It is coined as interactive processing (e.g. Gilakjani and Sabouri, 2016).

2.1.5.1 Top-Down

In this processing, Richards (2008, 2011) has informed about comprehension processing by saying that people firstly initiate meaning from their background and then work toward language. It means that people bring their background knowledge, ideas, and information, to lead them to expectations as a primary role in the way of helping them interpret meaning. If people work on a familiar topic, they can immediately motivate their background knowledge related to the topic. People will generate questions and use them to proceed with the information on the given topic. Therefore, top-down processing is principally focused on using background knowledge in processing of comprehension. Listener's role is concerned with reconstruction by matching their background with the meaning derived from the incoming sounds (McKenzie-Brown, 2006). To put it simply, it is a basis of mapping what people know to confirm or argue on what they hear or see. Richards (2008, 2011) stated on the advantage of having the general background and knowing the topic that the more they know about background knowledge and topic, they more top-down process people can make use of (2011). Supposing it had the advantages, it still would not benefit comprehension as much because prioritizing top-down in listening may cause misunderstanding due to automatic generalization. As a result, there is another way used for information processing named bottom-up. The process and its positive impact will be further explained.

2.1.5.2 Bottom-Up

Bottom-up has been seen as a traditional view of comprehension (Richards, 2011). It is normally used when people try to understand either something

in written or spoken form. Bottom-up processing heavily relies on decoding the sounds of a language (McKenzie-Brown, 2006; Richards, 2008). People have to work through language at the level of linguistic units such as phonemes, words, and grammatical structures. Later, people will construct meaning from the phoneme level up to discourse level features (Vandergrift, 2004). In this manner, the process is commenced from the sound, word, until sentence that someone receives and analyzes it by giving a meaning. They will finally arrive at the top of the bottom-up processing which is gaining the meaning. The bottom-up processing shows that the meaning and message are already contained in the word we see or hear. Most importantly, the listeners have to take responsibilities to give the meaning of each unit by themselves. In bottom-up process, one is responsible to take in information, analyze it, and draw conclusions. Listeners do not have high proficiency in dividing and decoding the stream of speech, and as a consequence, they cannot fathom the language. For this reason, bottom-up processing is not enough to succeed in understanding the spoken language. Then, it leads to another method that is a combination of the two processes called interactive processing. It is believed that listeners will understand better when applying both of them during the listening process. The comprehensive information will be offered as follows.

2.1.5.3 Interactive (Combination of Bottom-Up and Top-Down)

Richards (2008) stated that bottom-up and top-down processing collaboratively occur in real-world listening. In any event, the degree of using either bottom-up model or top-down model depends on the listener's familiarity with the topic and content of the text. In case of the shared background or schema, people do not need to go deeper into language. The listeners can apply their background and listen to

register similarities and differences with the speakers. In contrast, when the listeners do not know or share the same background knowledge between the speakers, they must pay more attention and try to get the meaning from the spoken discourse. For instance, when a listener is listening to the spoken discourse, s/he firstly uses top-down processing because of the fact that the topic seems familiar to them. Later, when the listener listens to it for a while and found that the topic is not relevant to the background or expectation, s/he has to reconstruct by focusing on linguistic features. The less the listener knows about the topic, the more language-based processing the listener has to make use. Richards finally mentioned that these two ways of processing function side by side.

Pauk and Owens (2013) also indicated the characteristics of a good listener which seem to get along well with interactive processing, because the methods have shared some similarities of the two processes (bottom-up and top-down). They indicated that the listening processes work collaboratively with the triple "A" known as triple-A listening; attitude, attention, and adjustment.

(1) Attitude: Listeners should be open-minded to what they are listening. Do not let inference hinder themselves from reminiscing about the speaker's key points.

(2) Attention: The listeners must concentrate on their listening tasks, as the ideas will be disappeared when the received words cannot be processed in a short time. The words that enter to the short-term memory will stay ephemerally. Therefore, attentive listening should be taken in the process of listening in order to process the word into ideas in time (bottom-up).

(3) Adjustment: Good listeners should be flexible, as incoming utterance may not fit their background. They have to adjust the background and be willing to change their background, as new information is introduced (top-down).

As I recently discussed, there are principles and characteristics provided to teachers and listeners to utilize in comprehension processing. A consequence of knowing the models of comprehension is an increase in processing skill. As a result, it may result in the blind's listening comprehension improvement that is the main purpose of the present study. They can be applied in teaching and learning process in class because some are related to external factors that teachers may be able to help students to strengthen their listening skill such as giving general background before doing some listening tasks or providing them chances to expose to listening more frequently that may have an impact on their learning improvement. Finally, when referring to top-down and bottom-up processing, it would be necessary to know that they are the two ways of our brain processes and represents information. Lovrich (2006), therefore, made a summary for the two processes: (1) bottom-up processing is stimulus-driven processing so that all the stimuli are converted by the senses before being sent to primary areas of the brain such as the processes of a word, arrangements, and sounds of letters in words; and (2) top-down processing is the way of integrating existing knowledge with the incoming words. As a result, the brain regions that work together with information will be activated during this high-level thinking. There will be a section dealing with learning and the brain in order to know how wonderful it does in the learning process. However, before obtaining information about how people learn with internal factor, also known as the brain, knowing the detailed information about

the blind is considered as a must in this study. Therefore, the following section will inform about People with Disabilities and Types of Disabilities.

2.2 People with Disabilities and Types of Disabilities

In Thailand, there is a variety of agencies that deal with and work for people who have disabilities. It shows that this group of people has always been taken care by the local communities. In keeping with this study, the government agencies that are primarily responsible for supporting the people who have disabilities in Thailand are: (1) Department of Public Welfare, Ministry of Inferior; (2) Ministry of Education; and (3) Ministry of Public Health (Chonlatanon, 1992). The classification of disabilities can vary significantly based on the official endorsement of government agencies of the nation. An assortment of disabilities based on Ministry of Public Health and Ministry of Education, Kingdom of Thailand, is shown as follows.

2.2.1 Types of Disabilities by Ministry of Public Health

In accordance with the Rehabilitation of Disabled Persons Act, B.E. 2534, Ministry of Public Health, Kingdom of Thailand, issued ministerial regulations and distinguished disabilities into five types that are:

1. Visual Impairment
2. Hearing Impairment
3. Physical Disability
4. Intellectual Disability
5. Psychiatric Disability

2.2.2 Types of Disabilities by Ministry of Education

In part of the National Education Act in B.E. 2542, it stated that all disabled have their rights to receive all levels of education. In the case of people with disabilities, Bureau of Special Education Administration arranged the disabled in nine types as shown.

1. Autism
2. Hearing Impairments
3. Mental Impairments
4. Visual Impairments
5. Learning Disabilities (LD)
6. Multiple Disabilities
7. Speech and Language Disorders
8. Emotional and Behavioral Disorders
9. Physical Impairments or Health-related Impairments

Thus far, the assortment of the two ministries described above could lead the researcher to enter into an agreement that the visual impairment is one of the disabilities that has been taken into consideration by many government agencies in Thailand. Thus, people who have visual disabilities should be assisted and served to heighten their learning so that they can live their lives with the highest potential. Regarding the definitions about people with visual disabilities, they are defined differently and many people do not exactly have a clear understanding of the terms. Therefore, the next section provides information about the definitions given by several authorities.

2.3 Definitions of Blindness

It is necessary to clarify here that the term ‘blindness’ has been given multiple definitions. However, it is generally described in two ways that are legal and educational definitions (Hallahan, Kauffman, Pullen, & Hallahan, 2009). According to the National Cancer Institute, this terminology “blindness” means the inability to see or the loss or absence of perception of visual stimuli (n.d.). Similarly, the word “blind person” has a corresponding meaning with the word “blindness”. It is defined as persons with loss of vision such that there is an impact on activities of daily living. The definition mentioned above falls into the legal definition while it is defined as the people who have to use instruments to read because they are unable to see in relevance to the educational definition provided by Hallahan and his colleagues.

As mentioned earlier, the most common ways of describing someone with a visual disability are legal and educational definitions (Telford and Sawrey, 1972; Hallahan and Kauffman, 1980; Cartwright, Cartwright, & Ward, 1995; Hallahan, Kauffman, & Pullen, 2009; Hallahan & Kauffman, 2011). The classifications of ones with visual disabilities based on the Acts of Ministry of Public Health B.E. 2537 and Ministry of Education B.E. 2552 are the same as the common classifications defined by those mentioned. The legal definition is generally concerned with the number (quantitative) whereas the educational definition deals with functions of the eyes (functional). To start with the legal definition, it can be broadly grouped into two types that are blind and low vision. Those who are legally blind have a visual acuity of 20/200 or 6/60 in the better-seeing eye after maximum correction. These measurements mean that the blind people are able to see things within 20 feet or 6 meters, but normal-sighted people can see things within 200 feet or 60 meters. In addition, the legally blind also

means that they have a field restricted or its widest diameter subtends an angular distance with 20 degrees or less or no greater than 30 degrees based on the Ministry of Public Health, Thailand. Those people with a restricted field of vision are not capable of moving around freely. It is normally called “tunnel vision”. Another term that must be clarified is low vision. It means a visual acuity of between 20/70 and 20/200 in the better eye with best convention correction. The next definition is in association with education. They can be distinguished into two groups based on the reading instruction. The first group is individuals whose eyes cannot see clearly and must learn to read braille or use aural method while the others remain a small percentage of vison. The latter group is being able to read print although magnifying devices are needed. Still, it is vital for them to learn to read braille books. Another key thing that needs to be taken into consideration for the students who still have the remaining vision is that when they get accustomed to using the large print book, it may be at a disadvantage for them in a company in which large print books cannot be provided. The teacher then should support, train, and stimulate this group of students to make use of remaining sight to read and the inclusion of braille books are still useful for them (Hallahan and Kauffman, 1980).

These definitions raise importance about the differences between the two camps: (1) legal and (2) educational. Thus, it would be of any use to readers to understand the divergence between the two terminologies. In the section that follows, the researcher will discuss the history of the school for the blind in Thailand so that you can see a broad picture of the establishment. According to the provided definitions, the researcher chooses educational definition to utilize because it is eminently suitable for

the present research study: every blind student at the Khon Kaen School for the Blind mainly learn through braille books and assistive technology.

2.4 History of the School for the Blind in Thailand

In this part, the researcher aimed to give some background of the blind education in Thailand. The following paragraphs would describe the history in a chronological order.

The information about the establishment of the School for the Blind in Thailand was retrieved from the Foundation for the Blind in Thailand under the Royal Patronage of H.M. the Queen. The starting point of the school was when Miss Genevieve Caulfield, who was a blind American woman, firstly came to Thailand and founded the School for the Blind on January 12, 1939. At that moment, the small house located on Korche Road, Saladaeng, in Bangkok was used as the first school for the disabled children in Thailand. It also was the first school for the disabled children established in Southeast Asia. The school started with only one student whose name was Her Serene Highness Princess Puangmaspaga Disagul. She was a daughter of His Royal Highness Prince Damrong Rajanupab. Later around May 10, 1939, the school was helped and supported by a group of people who worked on promoting the welfare of the blind people in the country. Luang Lekha Vijarn was chosen to work for the blind at education foundation as the first president in that year.

In 1947, the Board of Trustees contacted four Salesian sisters to take care of the people who had visual disabilities. Sister Rose Moore took a position as a president of the school. In the meantime, Miss Vatee Arwut was selected to be the first school

principal. Ten years later, in a period of Prime Minister Plaek Phibulsongkram, the school got an approval to rent eight rais (a Thai unit of area; 1 rai = 0.3954 acres) of the royal property at the intersection of Rajavithi Road and Rama VI Road, Phayathai. Since then, the lands have been used for a purpose as the school for the blind. In 1960, the school registered with the Ministry of Education as a special public school for the education of the disabled (Iamla-ong, 2007).

Currently, there are both male and female students in the school for the blind. The students have the ability to choose to be either a boarder or a day student. The school has organized classes starting from kindergarten to grade 12 for supporting the blind. Additionally, the blind high school students have been allowed to study with normal-sighted students in inclusive school since 1997. The school's objectives are not only giving knowledge to the blind as indicated in the curriculum, but also promoting the blind's ability in languages, music, sports, technology, and vocational guidance. In the case of the boarder students, there are accommodation and facilities provided during spending their time in the school. Furthermore, there are student discipline units to take care and teach them on the subject of self-service, in the same time, work collaboratively with other units to succor the students in case of foods, safety, nursing, etc.

In parts of the Khon Kaen School for the Blind, a blind man whose name is Prayat Punong-ong founded it in 1978. He pursued a bachelor degree in English Education. In addition, he had a high passion to help those in needs, for example, children with disabilities who were left behind and despondently stranded at home. Then he and his wife, Bantom, got back to Khon Kaen and opened the school in order

to teach 13 blind students in a rental haft house with the generous financial support around 10,000 baht from Mrs. Rose Lim, a Singaporean and 12 beds given by World Vision Foundation of Thailand. Both of them shared their work in two main parts. Prayat Punong-ong worked for academic and living skill training while Bantom was responsible for guiding, house working, and teaching moral and music. The school was not only supported by Thais but also people from overseas. The school started in 1979 by strong incorporation among people from different organizations e.g. Faculty of Engineering, Khon Kaen University, the Canadian government, and Christoffel Blinden Mission, Germany during the construction process. In the same year after the board of directors was formed, three students were sent to participate in inclusive education for the first time in Khon Kaen Christian School and Sanam Bin School. Christian Foundation for the Blind in Thailand in 1981 received an 8.5-rai land donated by Mr. Burin Burittrakul, a wealthy businessman in Khon Kaen (Super User, 2017). Together, Evangelical Church of Bangkok provided another big amount of money to the school in order to buy additional land sized 3.5 rais. The donations of the land have brought the total to 12 rais. After the school was completely built in August, 1981, both the teachers and blind students moved out of the rental house and promoted a new house as the Khon Kaen School for the Blind. Two years later, the school was registered by Khon Kaen's official on 29 November. According to the royal grace, the school was gracefully bestowed upon the royal patronage of His Majesty King Bhumibol Adulyadej that has brought massive support in expanding the services for the blind across the nation. The significantly remarkable event that represented as a big tragedy for the Khon Kaen School for the Blind was that Prayat with his wife and some school staffs led 40 blind students to Bangkok in 1985 by means of a 450 walkathon due to the

resistance of the management board. Every cloud has a silver lining. This situation could be regarded as a symbolic move that could get attention and financial support from different sections in Thailand to stimulate the development of education for the blind since then (Christian Foundation for the Blind in Thailand, n.d.).

The previous section has shown the establishment of the school for the blind in Thailand from the outset which was manipulated only to those who were in high class. However, the development of education has brought the importance of the blind out to the big societies that all are capable of learning and doing things as sighted people do. It is clearly evident by looking at some current classrooms which comprise the blind and normal-sighted students. The mixture of those two groups of the students may make people (e.g. parents of normal-sighted students) concerned owing to the differences between the two groups of students. Therefore, the concerns, together with the previous findings of the differences about the blind, are further discussed in the next section in order to illustrate the capacities of the blind in various views.

2.5 Psychological Development and Blind Behavior

The issue of the differences between the blind and sighted students has received considerable critical attention. Therefore, the aim of the following part is to establish background information regarding the blind's development and behavior. The brief reviews are given as follows.

2.5.1 Language Development

There were two concepts about visual problems indicated by Hallahan and Kauffman (1988), whether or not blindness affects language usage.

2.5.1.1 Linguistic Understanding and Usage: The first concept was concerned with linguistic understanding and usage. The concept was illustrated that people with a visual disability have a similar ability in understanding and using a language.

2.5.1.2 Language Development: The second concept was about language development. There was an idea that people with visual disabilities develop their language differently compared with sighted people (Cutsforth, 1951). The hidden reason was that people with visual disabilities did not expose to some senses; therefore, it affected their language use. They could not convey their expected messages because they had never experienced in some senses. Moreover, there was a study mentioned that blind basically learn to write and read more slowly than normal-sighted students because of the fact that they could not enhance their learning, concept development, and discrimination. However, the blind do not differ from normal-sighted students in terms of verbal intelligence test. That is to say, there were no differences found between both groups regarding major aspects of language. Still, the significant differences that have been found between them were related to gestures since they habitually use auditory perception (Bateman, 1965; Matsuda, 1984; McGinnis, 1981; Rogow, 1981 as cited in Hallahan and Kauffman 1980). Another camp of researchers disagreed with one mentioned earlier. They stated that blind appeared markedly different in comparison to normal-sighted ones in the ways of thinking. Cutsforth (1951) wrote out

the term “verbalism” or verbal unreality. As we know, the blind mainly explore the world through the auditory channel. What's more, it exerted influences on how to express words or phrases that were considered inconsistent with the sensory experiences. The blind often use words that have visual meanings despite being born with no vision. Cutsforth (1951) exemplified by using the word “Indian” and the blind tend to respond with visual words e.g. red or brown. The reason for applying verbalism is to gain and meet social approval. They ought to represent things like normal-sighted people as nearly as possible. Thus, verbalism has always been an aspect taught, but not experienced on their own. The convincing proof of the verbalism is from the blind writers or talkers who use the same words as the normal-sighted do. Therefore, the language they use may not reflect their thoughts but teachers’. Nolan and Ashcroft (1969) and Suppes (1974) mentioned that verbalism interferes with the child’s cognitive development. Nevertheless, Harley (1963) gave a different account by saying that verbalism was not a problem for personal adjustment. Coupled with Harley (1963) and Dokecki (1966), there was no basis found that verbalism inhabits conceptual development. Most importantly, there was a claim that verbalism is a useful means in an educational context because the blind can use the language properly and effectively within the surrounding cultures: concrete referent is not known or experienced by the blind speakers.

2.5.2 Intellectual Ability

In 1941, Samuel P. Hayes did intelligence testing of the blind individuals by using Hayes-Binet Intelligence Test. The findings showed that people with visual disabilities did not automatically result in lower intelligence as measured by a

standardized verbal intelligence test. However, the test should be formed in a cautious way. The reason for that is the intelligence test for the blind is less valid than for normal-sighted people due to the modifications in the testing procedures. Significantly, their ability would grow correspondingly with normal people if they gained enough knowledge in the same way as sighted did (as cited in Hallahan and Kauffman, 1988).

2.5.2.1 Conceptual Ability: Hallahan and Kauffman (1988, citing Witkin et al., 1968; Stephens and Grube, 1982) pointed out, cognitive abilities in the blind lags behind normal-sighted students, especially in tasks requiring abstract thinking. Besides, there was a study conducted by Nolan and Ashecroft (1969) showed that the blind conceptualized concrete things differently compared with normal-sighted people, whereas it was not significantly different in terms of conceptualizing about the abstract things. The difference was affected by lacking experiences and practicing about classification skills. According to the experiment done by Stephens and Grube, if the blind get more chances in training and practicing the classification skills, they would not be different. Blind children use the sense of touch for the purpose of cognition. Somehow, they can be obstructed owing to the fact that they may want to avoid social disapproval as long as the act is considered as "touch taboo" by parents and educators.

2.5.2.2 Spatial Concept: Hallahan and Kauffman draw on the work of Birns (1986) and Hasthage (1973) who indicated that the blind could not perceive distance; therefore, it affected spatial concept. Nonetheless, they also mentioned there was a research study conducted by Haley (1973) showing that blind people are able to perceive spatial concept when they used other senses in lieu of visual sense. For instance, they could walk in order to know the distance since they were unable to use

their visual ability to measure. For this reason, the time they take to walk is considered as a crucial measurement in terms of distances. Spatial information processing can be distinguished into two types based on authorities (Dodds, Howart, and Carter, 1982; Fletcher, 1981; Herman, Chatman and Roth, 1983; Riesen, Gurth and Hill, 1982, as cited in Hallahan & Kauffman, 1980). The first way is the sequential route while the other is cognitive mapping. For example, there are three points: A, B, and C. The other pattern is when one goes from A to B and then C, it is called a sequential route. It restricts a person movement. In contrast, one with cognitive map points is able to move freely; that person can start the way from A, B to C or get directly to C from A with no stopping by at B. However, these two processes may not be regularly used in case of the blind. Therefore, it brings priority to memorizing that visually impaired people are likely to rely much on (Hollyfield and Foulke, 1983 as cited in Hallahan and Kauffman, 1988).

2.5.2.3 Tactual Visual Experience: Hallahan and Kauffman (1980) reported that people with visual disabilities could perceive spatial concept via touching. According to Lowenfeld (1971), touching can be separated into two types. The first type is the synthetic touch. It means that people with visual disabilities can touch an object by using either one or two hands at a time because the object is not huge while the other type is known as analytic touch. People with visual disabilities have to touch an object little by little due to a big-sized object which cannot be mentally constructed at once. Hallahan and Kauffman (1988) mentioned Davidson's study in their work that teachers should have taught people with visual disabilities to touch so as to stimulate their understanding towards things since it was less time-consuming than trying to touch every part of an object by themselves. On the other hand, normal-sighted people

are capable of perceiving things or parts of an object simultaneously with their visual sense. Thus, it is no doubt why vision benefits them in the process of bridging the information they have obtained from multiple senses. For instance, when they touch an animal and later see it barking, they will use visual information to confirm and combine with their tactual sense and know it as a dog.

2.5.3 Mobility Development

Cartwright, Cartwright, and Ward (1995) demonstrated that people with visual disabilities tended to have an effect on mobility development that leads to slow improvement. To be able to mobilize safely, people with visual disabilities must understand the surroundings, oriented from one place to another, distinguished positions in an empty space, and had a good relationship between artificial and empty space. Moreover, they had to have a good memorizing system about human body e.g. sitting, crawling, and walking skills. Because of the limited experience and stimuli, visually impaired children were able to study with the sighted students when trying to tune themselves with other people, caring of themselves, and learning how to mobilize safely in general places.

Building on the work of Warren and Cocon (1974), Hallahan and Kauffman (1980) pointed out that totally blind were likely to have a problem in mobilizing less than those who were partially sighted. The hidden reason that caused this was that the partially sighted felt constraint on mobility more than the totally blind. The partially sighted could not see things clearly, so they had to count on other people all the time. In contrast, the totally blind would try harder to potentially use other remaining senses due to lacking of vision. For those who were born blind since birth

tended to have problems in mobility less than people who have visual disabilities after being born. To be a proficient traveler does not rely much on residual vision or no vision, it is concerned with motivation and proper instruction provided to the blind that are counted as necessary things in mobilizing.

2.5.4 Academic Achievement

In 1981, Telford and Sawrey stated that there was a test created in 1918 for the purposes for testing the blind academic achievement. Later, it was developed in order to make it more standardized by using Braille (Hayes, 1941, as cited in Telford and Sawrey, 1981). The results showed that the blind did not work differently from the normal-sighted, except in mathematics. Generally, the blind might study more slowly than the normal-sighted around two years backward. That is to say, the blind were likely to be older than the normal-sighted two years even though they were studying in the same class. Beaty (1994) conducted a study entitled *"Psychological Factors and Academic Success of the Blind College Students"*, there were 73 participants starting from the aged of 20.1 – 21.7. The first group consisted of 30 blind students and the other was the group of 43 normal-sighted students. The results regarded with academic success between the two groups were not significantly different relying on their GPAs. The mean GPA of the blind was 3.01, while the normal-sighted got 2.72. Therefore, there was no significant difference between these groups. Besides, many professionals see that direct comparisons are questionable because the two groups must be tested under different conditions lest academic achievement of the blind and the normal-sighted (Hallanhan and Kauffman, 1980). Moreover, reading braille is time-consuming in comparison to reading print (Nolan and Ashcroft, 1969). Consequently, the blind

should have more time on the test. Unless given more time, they may have an academic tendency in falling behind normal-sighted (Marder, 2006; Wagner, Newman, Cameto & Levine, 2006, as cited in Kauffman and Hallahan, 2011). Lack of exposure to braille may be one of the multiple factors leading to low academic achievement. Still, the reason has not been clear; therefore, the standardized assessment provided to the blind must be cautiously accommodated and adapted (Bradley-Johnson, 1994 and Linn, 2002, as cited in Kauffman, Hallahan, and Pullen, 2011). It would be thoughtless of any teacher to design a test for the students with visual disabilities not to be concerned at least reliability and validity (Hannan, 2007, as cited in Kauffman, Hallahan, and Pullen, 2011).

All things considered, it seems reasonable to assume that there were both positive correlation and significant differences between the blind and the normal-sighted about the development and behaviors. The reviews provide insight into how the blind acquire the language and develop their behaviors. Despite being slower in some dimensions, they are probably able to be on the same level when the teacher's assistance and perseverance exist in the learning environment. They are not significantly different in the way they learn. The next section will deal with learning and the brain. Referring back to the models of comprehension, the human's brain is a machine that plays an important role in comprehending a language. Therefore, learning and the brain are also the things to be elaborated in the present study.

2.6 Learning and the Brain

People traditionally surmise that intelligence is inherited from parents. If parents are not intelligent, it will influence unintelligence in kids. Nonetheless, it can be seen that intelligent kids are born and raised in a blue-collar worker family, which may initially be presupposed as a less well-educated group. Conversely, astute parents can probably have an unintelligent kid in their family. From these circumstances, they may expound to us that intelligence does not transfer genetically from the parents as we have assumed. It may have another key factor determining the intelligence in people.

Chiangkun (2005) delineated that being an intelligent person is not only affected by genes, but also influenced by the environments around them. Genetic inheritance from parents is not the dominant of intelligence (England, 2017). Only 40-60 percent of it is considered as the determinant of intelligence, while the remaining influenced by the environment. Schnelle (2010) together described that postnatal growth determined by environments was the other counterpart that should be taken into account in terms of brain architecture. That is, situation-dependent events influenced the pattern of synaptogenesis and synaptic pruning related to the neural network of the brain. Therefore, the growth of networks showed the process metaphorically as a mixture of nature and nurture.

Coupled with the study done by Gu and Kanai (2014), brain architecture is determined by both genetic and environmental influences. The brain is an organ of which talent is known as adaptability: An individual's brain can rewire throughout the life span. Thus, what is believed that the more people get older, the more their brains seem unchangeable may be counted as wrong. The process of growth and rewiring of

the brain cells is known as neuroplasticity. The production of neurons can occur and expand largely when people are learning. Whenever people bump into a new experience or lesson, they are in the process of building a new pathway inside of your brain. Moreover, the newly generated pathway would be smoothened as long as people keep doing the same old things repeatedly. As is commonly known, animals are creatures that are able to learn and adapt their ways of life due to the dynamic changes of the environment (Baars and Gage, 2010; Baars and Gage, 2013).

As mentioned earlier, it is necessary for the animals to be able to make up their minds on the cues whether they bring them satisfaction or pain. The positive events considered as a reward for the brain will cause an individual to repeat and seek for the pleasant situation or thing once again such as food & drink, shelter, sex, and nurturing (Pearce, 2015). When the brain learns, the synapses, a gap between axon and dendrite that functions for signal flowing, will change either in a positive and negative way. Each brain cell can grow more connections among other cells; either with the nearest or the far away ones. Once they are collaboratively used, they will heighten the bonds of their neural patterns. As previously said about repetition, it can negatively affect too when some people probably found a bad event as a good thing for them such as smoking cigarettes, drinking a lot of caffeine, taking drugs, etc. It is similar to one of the learning process. As long as students remember the wrong thing, which may be told by others, they may remember the incorrect thing for so long or forever when no one corrects it. It seems to appear as negative reinforcement in the learning process. Thus, the brain will become addicted to the action. From this, it shows us that the brain can go along significantly with the environmental factors either supportive or not. Moreover, the brain cells can be generated in a strong way when they are used. In the same way, they

may be able to prune and die out when not being used as often. The previous discussion might have given a critical point to the teacher and students to bear in mind. The first time of learning a new thing, students might see it hard to comprehend or catch a little gist out of each new lesson. It is because there is no pathway for that attribute. To put it simply by giving a concrete comparison, there is no road to send the product of your hometown to the neighboring towns. Therefore, it is necessary for you to build a road in order to deliver your product. The first time seems energy consuming due to new construction but later on, you can easily send your product. In the same way, if you want to export to neighboring countries that are farther, you can also build a road or expand from the old one to make a connection among them. It can be assumed here that putting some challenges to students may not sound so nice since most of the teachers and students tend to expect to get good results from the first time. However, if a challenging situation is never given to students, it seems like a new path is not generated. In that condition, as a teacher or not, we have to provide students chances to do challenging activities in order to build or carve a pathway and let them try again and again until they think they have had it enough which means that road is smoother to send the current easily and effectively.

Furthermore, there was a research study done concerning with parents' economic background. Keerativibool (2015) demonstrated the results relevant to the participants' family income. The researcher collected the data from 455 participants who were studying at Thaksin University, Academic Year 2013. The participants were classified into five groups in the range of their family income per month; (1) less than 10,000 baht, (2) 10,001-15,000 baht, (3) 15,001-20,000 baht, (4) 20,001-25,000 baht, and (5) 25,001-30,000. The participants whose families earn money more 25,001 and

more than 30,000 baht per month had better GPAX compared to other groups. The researcher also showed the assumption that income may not directly have affected the achievement of the group of the highest income, but in another way, their parents had more potential than the other groups to support their kids in the schools full of facilities and competent persons.

However, the brain at least still determines the intelligence of people according to individually physical difference. No matter they are twins who were born from the same mother; the brains are distinct (Seth and Bekinschtein, 2014). From what had been described above, there were research studies conducted to Figure out how to use the brain properly to increase learning ability. Parents and teachers, however, cannot overlook the ability of the brain because it is the one telling about the intellectual that we can see in neuroscience articles. There are many medical devices used in clinical laboratory e.g. EGG, MEG, or fMRI that makes the researchers not need to cleave skull into twain to study the neurotransmission and study the brain of posthumous people at autopsy. The brain architecture would be the one of the factors that controls cognitive processes. Diffusion profiles of the brain white-matter fibers as known as intermediate phenotypes can be connected to a variety of things related to basic biological measures and high-order cognitive processes e.g. intellectual performance (Chiang MC. et al., 2008). In addition, those who are born with a disease e.g. anemia and heart disease, the diseases will make an impact on blood circulation. Therefore, it can decrease the process of delivering oxygen to cells. In addition, it then affects the growth of individual brains (Chatkhup, 1999). It is clear that human development comprises two main factors working interdependently which are biological and socio-cultural factors (Motschnig-Pitrik & Lux, 2007).

As previously mentioned, to develop students' learning ability, teachers had better give heed to the smallest things i.e. the way of teaching because it can exert an impact on the students' attitudes toward the teacher. Lian (1996) suggested that the teachers should find ways of getting students to know, accept, and understand the psychological level to destroy blockages that are known as language anxiety. Some also said that classroom sites resulted in learning achievements such as comfortable chairs and good decoration as suggested in suggestopedia (Richards and Rodgers, 2001). Whenever students are satisfied, it may influence the physical changes by secreting hormones associated with learning. Being able to learn and remember things for a long time, the two brains are recognized as necessary regions: (1) Amygdala— working about emotions, moods, depression, and anxiety; and (2) Hippocampus— dealing with memory (Khaejornbut, 2015). Sandwiched these two brain regions in the collaborative interaction, it can easily be seen that someone is capable of remembering the events longer in which they have a strong positive or negative feeling toward compared with the neutral ones (Warren, Miller, & Heller, 2008). The other natural chemicals made by human bodies, too, show the relations of the emotions and cognitive functions. Dopamine is about learning, memory, and emotion. Acetylcholine revolves around muscle action, cognitive functioning, memory, and emotion. Serotonin is concerned with mood. Norepinephrine increases heart rate and the slowing of intestinal activity during stress, learning, memory, dreaming, waking from sleep, and emotion (Kotchabhakdi, 2016). Because glucose is a power of the brain, if the students are fatigued or stressed, it will significantly reduce learning ability since cortisol, generally released in response to stress, will pull out an excessive amount of glucose to be used. Consequently, we can notice from our lives that the more we are stressed, the more we

cannot learn effectively (Chiangkun, 2005). From the studies about the brain, it may be hypothesized that humans are not totally born stupid even if the brain has played some partial roles in cognitive functions, except the ones who have mental disabilities. The environmental dominants also exert influences on the brain structure and functions when either friendly or supportive environments exist in the learning context. As explained earlier, people are very flexible. The developed brains are the brains that are really used. Intelligence and learning are things that need to team up together with external factors. Owing to the fact that we cannot control the DNA of each person, it will be of use to us; teachers, parents, and any other groups to support and help someone to learn better by providing external factors such as people and the environment in order to strengthen the inside architecture called brain (Chatkhup, 1999).

Referring back to the first chapter that the researcher has mentioned about the problems that the blind have encountered, they seldom have any opportunities to practice their listening skill because of the time constraints and appropriate materials for learning. The researcher then attempts to find a way to support the blind to learn and expose more to the listening and to troubleshoot the aforementioned problems. As a result, the flipped classroom model is implemented in this present study because it simultaneously remedies the problems and gives the blind ample of opportunity to learn in a supportive learning environment that the blind students are free from control. It may remove worries, stress, and comparison by comparison to the traditional classroom that the teacher is the one who fully controls all the learning process Unless the students can keep up the content or exercise, they would feel frustrated or disconsolate. Therefore, the following section will discuss the flipped classroom that is administered as the learning model in this study.

2.7. Flipped Classroom

2.7.1 Overview of Flipped Classroom

People now are living in the digital age as we can see from everyday development of technological devices and innovations. We can dig down to the ground for miles and fly out of space by innovative technologies. Technology, therefore, raises the benefits for many different organizations as well as in education. Because there are new technological devices and applications developed for people to seek for knowledge, it is undoubtedly why we have to be up-to-date all the time in order to keep up with new information. Therefore, technological devices may influence the change in a learning model that students can learn from multiple resources. The real crux of the current educational situation is that people are motivated to learn by themselves with their own pace. Furthermore, they can simply access the newest resources via using technological devices such as mobiles, tablets, computers, etc. One of the approaches that make use of technology for learning and teaching students for years by letting them learn the contents on their own via technology and teacher's assistance named blended learning. Blended learning is educational integration between online learning and face-to-face learning. Staker and Horn (2012) defined that it is a formal education program in which individual students gain knowledge at least in part through online delivery of content and instruction with some element of students control over time, place, path, and/or pace. Blended learning offers a variety of learning models as shown in Figure 2.2. However, it is necessary to make it clear in the study that the researcher mainly focuses on the flipped classroom that is regarded as a kind of blended learning (Başal, 2015). In the flipped classroom, students are given an opportunity to learn more freely compared to traditional classroom that the teacher plays a vital role in giving instant

packages of knowledge. Therefore, the in-depth reviews of learning and significance of the flipped classroom will be further explained.

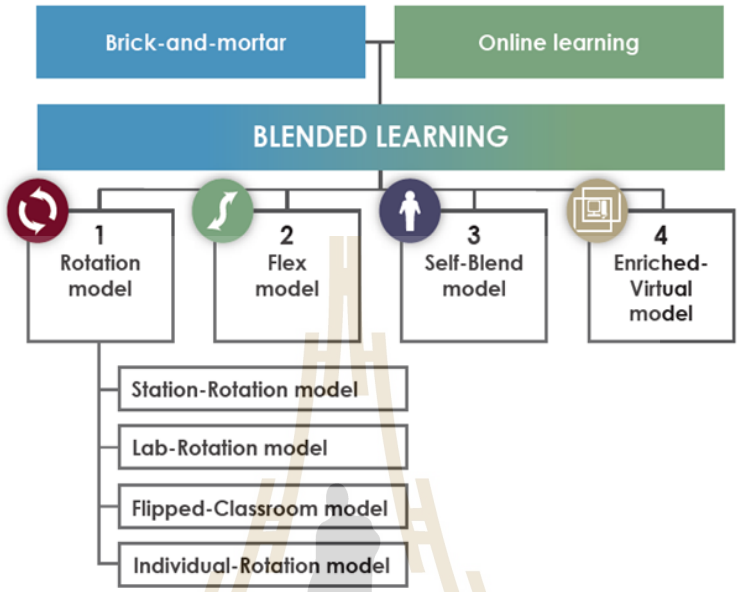


Figure 2.2: Blended Learning Models by Staker and Horn (2012)

Strayer mentioned that the term "Flipped Classroom" is also called "Inverted Classroom" (2007). It was originally created by the two chemistry teachers whose names are Jonathan Bergmann and Aaron Sams (Bergmann and Sams, n.d.). They initiated the flipped classroom concept to help the students who are busy doing extracurricular activities. The pedagogical approach then moves the traditional lecture to be learned before students go to the class. To make it simple, the flipped classroom is a way of learning that students first expose to the given topics outside of the classroom, generally via reading books or watching videos. The class time is reversed to do the hard work by means of putting their factual knowledge into activities such as debate, discussion, and experiment. The flipped classroom is not only beneficial for teachers and students who use it but it is also advantageous for parents and general people since the instructional materials are mostly uploaded online. For this point, it

could help teachers in terms of content conformity when the former teacher has stepped down from the school but already handed down the materials on the Internet. Therefore, it may help the teacher as the problems have mentioned in the first chapter of this study. In order to better gain the concept of the flipped classroom, Figure 2.3. provides the information regarding the aforementioned approach.

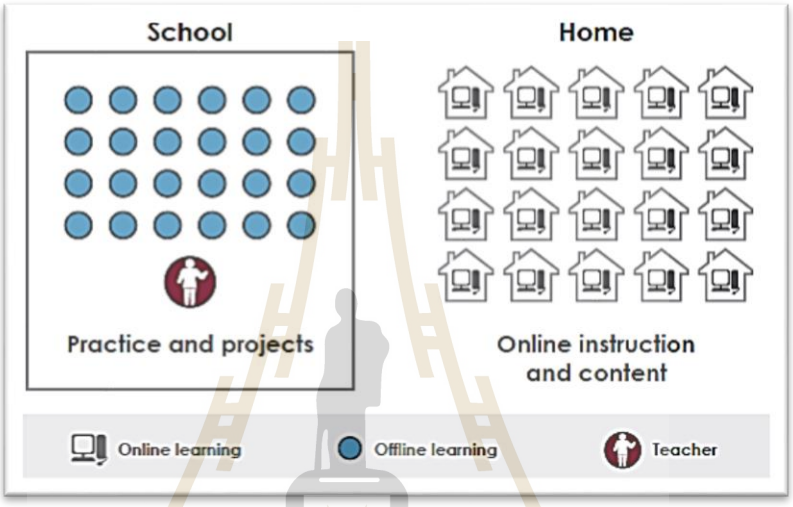


Figure 2.3: The Flipped Classroom by Staker and Horn (2012)

Primarily, the teachers should take into consideration that flipped classroom is an approach that makes use of technology in learning. It is a way that students learn in collaboration with technology, not purely digital learning. The materials do not have to be high-tech but teachers more or less possess technology skills (Shimamoto, 2012). Therefore, teachers have to prepare the materials that will be assigned students to study outside of class and they have to closely study the contents that will be implemented in the classroom. Teachers should not let students learn only through an online program because the flipped classroom is an approach integrating face-to-face instruction with web-based instruction (Thaichay and Sitthitikul, 2016). Besides preparing the contents, teachers can set up a group for students to communicate

with one another such as Facebook, Chat room, etc. According to environment theories, classroom communities cause positive perceptions; therefore, it may be associated with learning quality, too. However, students still do not like to post their questions on the website because they needed simultaneous feedback from teachers. From this point, it tended to be the disadvantage of the flipped classroom (Thaichay and Sitthitikul, 2016). Having looked at several disadvantages that may take place in the flipped classroom, the advantages now need to be considered. Table 2.3 displays an overview of the advantages of the flipped classroom for multiple groups of people that they can be categorized into three groups. The detailed table is illustrated as follows.

Table 2.3: The Advantages of Flipped Classroom for Groups of People

The Advantages of the Flipped Classroom
A. Students
1. Students can review the lessons before examination. 2. It is helpful for those who miss the class and participate in school activities e.g. playing sports. 3. It benefits slow learners because the contents can be played back, paused, and the speed can be increased and reduced.
B. Teachers
1. Teachers do not have to repeat the lessons. 2. They can prove themselves because they could prepare from the uploaded contents.
C. Others
1. Parents know on what their kids are studying. 2. Parents can assist and learn with their kids simultaneously while their kids are learning at home. 3. General people can access to the uploaded lessons.

Quintessentially, the flipped classroom would be an effective model that leads to the development of cognition because of a hierarchical ordering of cognitive skills as shown in Figure 2.4 Bloom's revised taxonomy. Students could do the lower levels of cognitive work at home by attempting to remember and understand the contents. Later, they can utilize their factual knowledge in class (Brame, 2013). The teacher may assign, incentive, or give a topic to them to adapt their knowledge with a task. Therefore, it could help the students to get insight into the contents better because of practical activities in class. It seems like double learning that students first take responsibility for learning on their own and put an effort into understanding the contents. They then come to the sharpening process of using factual knowledge during class time. Even though the flipped classroom provides more time for students to gain knowledge from the provided resources at their own pace, the opponents stated that it might cause difficulties because individuals possess different degrees of learning. Before moving to another section, there is a Figure of Bloom's Taxonomy (revised) illustrating the educational theory that is organized in the shape of a pyramid— starting from remembering the facts to creating which is considered the highest degree of learning based on Bloom's Taxonomy (revised).

Figure 2.4: Bloom's Taxonomy (Revised) by Marquish (2012)

Out of class activities emphasizes on content preparation. Students will learn the contents by reading books or watching videos contributed to them. In this process, the students can also seek for more information if they want to overcome the struggles with the assignments or when they would like to know beyond the provided materials. At this time, the students can learn as much as they want and wherever they would like to do: this is so-called ubiquity. To ensure that students have prepared for class, teachers have the ability to assign them homework such as completing the worksheet, writing a summary, online quizzes or listing problems to be further discussed in class. Assignments can also pinpoint to them on what difficulty they are facing and the questions answered incorrectly. Importantly, the worries keep coming up to teacher's minds of using flipped classroom is that their students have not well-prepared prior class. Moreover, when the flipped classroom is not carefully portioned, students may think that learning with technological devices is a massive barrier that puts a lot of pressure on them. To play safe that students are willingly prepared, teachers have to deliberately plan and choose the instructional materials, and by the same token, teachers should play a psychological trick by firstly telling them that their homework will be periodically scored without any informs (Brame, 2013). This view is supported by Edutopia (2014), that teachers are capable of playing the material once again in class before going to the next activity when noticing that students have not prepared for the lessons. Significantly, teachers' responsibility is not just to stand in front of the class and give a lecture. Teachers become facilitators who can walk around or sit side by side with a small group of students. Due to this, teachers can assist students more effectively in light of the fact that they can spend time with individuals who have difficulties in the learning process.

Moving to the class time, since the students already obtain knowledge prior to the class, they will have more time to do class activities in comparison to the traditional approach. Factual knowledge would be applied in doing activities such as group discussion, task-based learning, problem-solving, and experiment as previously mentioned. It gives priority to students to learn through doing. The role of a teacher in the classroom is shifted to be a facilitator who walks around to spur, correct, and observe the students' learning process. It, too, affects a stronger relationship between the teacher and students. From this act, students and teachers can interact reciprocally at all time. Furthermore, this approach can reduce the number of sleeping students because they have to work collaboratively with other friends in lieu of listening to a lecture. In the same way, Başal (2012) conducted a study entitled *"The Use of Flipped Classroom in Foreign Language Teaching"* and resulted that the participants had a positive attitude toward flipped classroom since it was comfortable and motivating. To check whether or not students apprehend the contents, teachers used a clicker to check their students by asking questions to the whole class, unlike in the traditional way in which teachers tends to ask only one student at a time. The statistic results would tell the teacher if the students fathom. When most of them do not, teachers will explain, correct, assign, or have them discuss in a mini group. Essentially, a number of authors have recognized the advantages of the flipped classroom approach. The flipped classroom is not only implemented in the field of English language teaching, but it is also applied in other fields such as mathematics, science, and engineering, both in Thailand and in other countries. Despite being widespread in other subject areas, the flipped classroom is needed to be conducted in the field of foreign language (Mehring, 2016). In the section that follows, the researcher will present some brief research

reviews of the implementation of the flipped classroom model in collaboration with the foreign language.

Saban (2013) aimed to study the implementation of a flipped teaching instructional module developed by using Google Sites named “The Flipped Classroom Instructional Module”. The study was done on middle school teachers from St. Andrew’s Priory School. However, the module was later opened to participants across North America in order for the researcher to reach an adequate number of subjects, 15 participants in total. In this study, the participants were required to learn through an online series of chapters with a combination of text, images, videos, external links, and embedded test questions in order to measure the learning progress of participants. The aim was that the researcher wanted the participants to create flipped teaching lesson plans of their own. The data were collected both qualitatively and quantitatively i.e. Likert scale, multiple choice and open-ended questions were employed to determine the participants’ previous experience and understanding of flipped teaching before the experiment and feelings toward the module at the end of the study. The results shown after analyzing the data were that the content made the students follow with ease and they enjoyed learning the module. In contrast, suggestions about improving and revising were given to the researcher in order to make the content better for the future use because the participants encountered the technical difficulties that make them unable to upload their work.

Turning now to review another study conducted by Evseeva and Solozhenko (2015), the researchers tried to give the overview of the flipped classroom technology and seek for its potential for both teachers and students during learning

process entitled "*Use of Flipped Classroom Technology in Language Learning*". In order to be able to evaluate the efficiency of the flipped classroom technology, the researchers implemented these following methods in the study: the analysis of the scientific literature review, the study of the flipped classroom technology utilized in the educational process, a reflection of the authors' own pedagogical experience and data analysis. Accordingly, the objectives were divided into three main points: (1) to evaluate the efficiency of the flipped classroom; (2) to overview the concept of the flipped classroom technology; and (3) to focus on the advantages that the flipped classroom provides. In the case of data collection in the study, the survey was a method applied to find out the students' opinions on the flipped classroom technology use for learning English. The result showed that 85 percent of the students felt inspired by the integral pedagogy that the flipped classroom technology was brought into their learning process whereas the other 15 percent did not. Moreover, what the students found difficult to them was the Internet access, the inadequacy of time for finishing online assignments, as well as difficulty with self-discipline to organize their work properly. Fortunately, the flipped classroom technology seems to be beneficial to the students in many ways such as the flexible timetable, the involvement of students in the learning process, and increase of students' academic performance. Some of the students also mentioned that the flipped classroom technology provided them chances to work in terms of collaboration and communication through the e-learning environment.

Soliman (2016) investigated the efficiency of the application of the Flipped Classroom pedagogy in an English for Academic Purposes class. The methods used to investigate the efficiency were that the researcher analyzed the literature review of the flipped classroom pedagogy, examined the benefits, and reflected qualitatively

on personal pedagogical experience. In this study, the students needed to study in the form of a three-step module that comprised pre-class tasks, in-class tasks, and after-class tasks. After that, the students were required to answer the questions regarding their feeling toward the flipped classroom and the results showed that it offered many advantages to them in the learning process. Some of them indicated that (1) the online classes provided them more skills and experience that improve the face to face classes; (2) it was an active and motivated teaching methods; (3) Online classes seemed better since quizzes can be completed at any time students were available; (4) students could prepare before coming to class which was considered a good way to learn; (5) online classes made the learning process more enjoyable; and (6) students could check whether what they had done was correct. On the other hand, the flipped classroom still possessed some troubles. It did not guarantee that individual students would learn by themselves in the flipped classroom. Moreover, the Internet access has been a trouble for any online courses. The researcher also mentioned that some students preferred to work alone to work in-group and course tools and materials would bring some problems if they are not sufficient.

To examine the use of a flipped classroom in the English language subject, Yang (2017) carried out a set of research questions in order to know if the flipped classroom pedagogy could help her students gain knowledge of a lesson topic. The research questions addressed were: (1) What are teachers' perceptions towards the flipped classroom pedagogy?; (2) How can teachers transfer their flipped classroom experiences to teaching other classes/subjects?; (3) What are students' perceptions towards the flipped classroom pedagogy?; (4) How can students transfer their flipped classroom experiences to studying other subjects?; and (5) Will students have a

significant gain in the knowledge of the lesson topic trialed in this study? In terms of participants of the study, it comprised 57 students from two Secondary 2 classes, a Band 3 school in Hong Kong, thought as the lowest achievers, and two novice English teachers who greatly desired to know new teaching approaches. In parts of data analysis, the results obtained from the students and teachers showed that the students had a positive view toward the flipped classroom model while the two teachers thought that it could only assist the students to learn better in terms of English grammar.

In the following section, the researcher will attempt to explore the models for a flipped classroom. Significantly, it will illustrate some of the differences between the models implemented for teaching and learning a foreign language.

2.7.2 Models for a Flipped Classroom

A number of research studies have identified common concepts of the flipped classroom. A key aspect of the flipped classroom is that the focus of the class time is dedicated to learning while knowledge teaching happens outside of the class. In spite of having a mutual agreement under the concept of the flipped classroom, some researchers endeavored to identify various flipped classroom models. Working on the models implemented in a flipped classroom has given the researcher a great chance to know multiple effective methods. Thus, the reviews of some research studies under the concept of the flipped classroom will be further explained.

2.7.2.1 Active Students Learning

Karlsson and Janson (2016) proposed a model for active student learning. The course may be divided into learning modules. As a result, students will learn through a series of modules that mainly comprise two learning parts as shown in

Figure 2.5. The first part is preparation while the other is concerned with in-class activities.

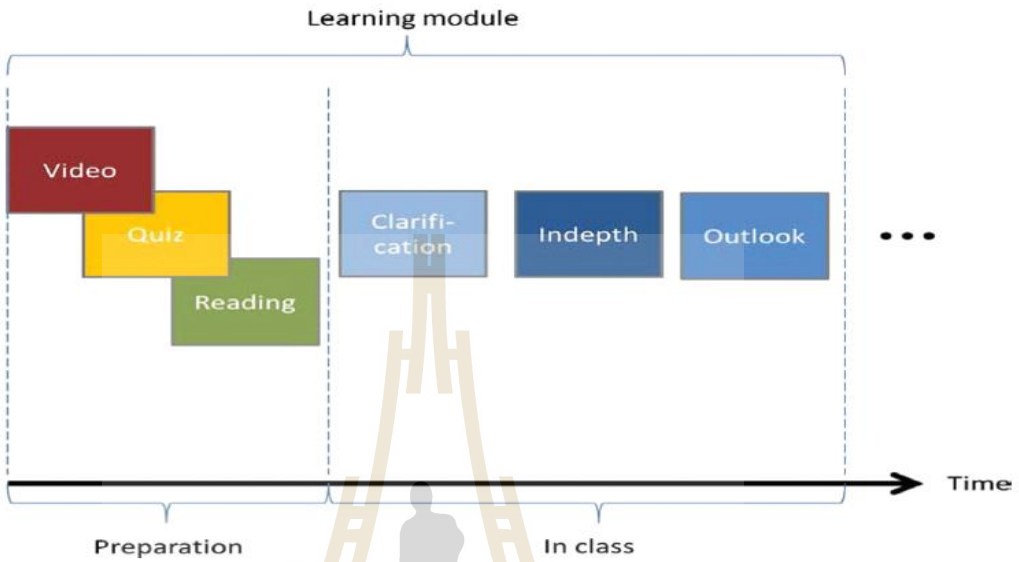


Figure 2.5: Illustration of a Flipped Classroom Learning Module by Karlsson and Janson (2012)

As previously stated about the modules, the researcher will describe each part in detail. In the first part, teachers are responsible to design the online preparatory materials such as video, quiz, and reading. The learning tools will be useful for both teachers and students. Thus, the tools can provide convenience to both of them such as quizzes with instant feedback for students and data of each student's interactions with the system reported to teachers. That is, teachers are able to know when and how video presentations are watched, as well as the results for quizzes made by their students. Moreover, teachers can make use of the obtained information to use or plan for activities during class time.

Moving to the second part, the class time will be used effectively after the students have prepared before being present in class. Generally, a class tends to begin by clarifying the questions asked during preparation. The methods suggested for active learning are peer instruction, problem-solving, and discussion. To start with the peer instruction, teachers use the basic technique that is to pose a question and let students answer individually before discussing with peers in order to answer the question once again. What is normally seen from this technique is that the second time answering is likely to be correct more frequently in comparison with the first time answering. This technique provides an invaluable insight into that learning tends to occur when students convene a topic or idea to discuss. For a better understanding of peer instruction, Figure 2.6 provides the process of peer reviewing.

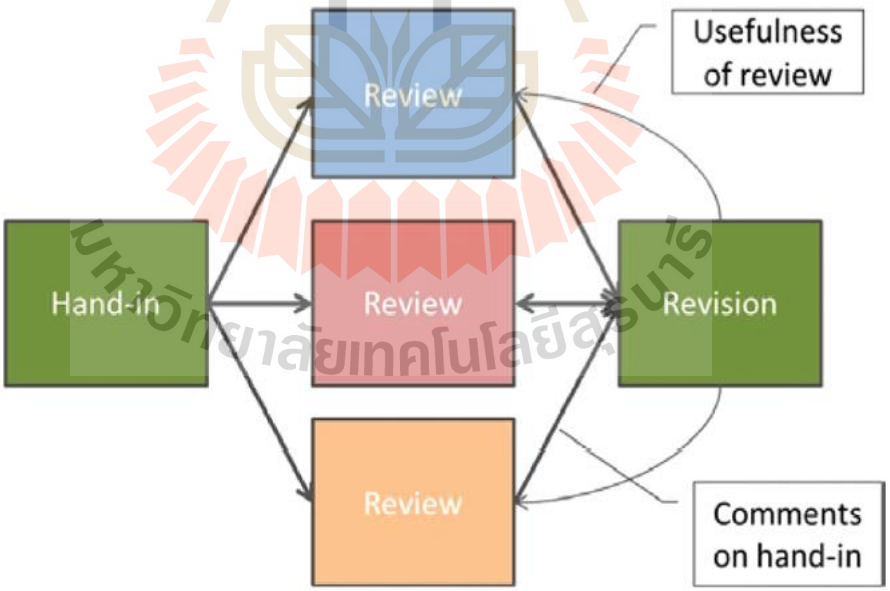


Figure 2.6: The Process of Peer Reviewing by Karlsson and Janson (2012)

With regard to Shuhui's research study, it illustrated that problem solving and discussion in small groups followed by whole-class discussion could be implemented. Socratic questioning and the disputation are the techniques based on the time-tested method. Pacomo (2014) stated that the time-tested method is an indirect, guided, and exploratory approach to instruction. The procedure of it is to start with questions, problems, and details. After that, students will come up with answers, generalizations, and/or conclusions. Another aspect to mention is that it requires more time to do although students are more engaged in the teaching and learning process. Later, teachers inform students to look and learn the next module in order to prepare themselves for the following class. Shuhui also advised alternative activities to be done outside of the class time such as seminar, recitations, study visits and fieldwork, and projects. Therefore, the model for active learning allows students to seek information individually through modules and apply a set of knowledge they have learned to be involved in activities with peers. Consequently, it concludes that the learning process takes place by the reciprocal exchange. In the following section, the researcher will present another model of the flipped classroom with active learning

The aim of this section is to introduce another implementation of the flipped classroom model in a foreign language class. Shuhui (2016) tried to explore a teaching mode with remarkable effectiveness, the mixture of the model comprises the characteristics of flipped classroom teaching and the strategies of cooperative learning. In this model, Shuhui also determined the two compositions occurred in the implementation of cooperative learning through the flipped classroom, that are preparation before class and classroom activities, see Figure 2.7. Another importance to mention here is that cooperative learning is a systematic strategy employed by

teachers to make a group of students whose ability is different to be engaged in activities and complete the learning objectives by mutual assistance.

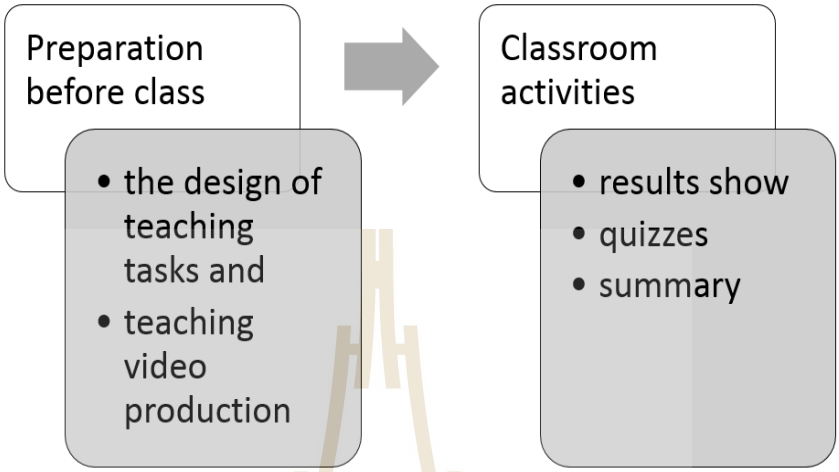


Figure 2.7: Learning Modes of the Flipped Cooperative Classroom (own photo)

In the following section, the details of each mode will be explained. In preparations for the class, this process aims to make sure that teachers are well-prepared before running activities during class time. The design of teaching tasks and video production is also included in this process. Instructional videos are regarded as necessary objects; therefore, teachers should pay much attention to many different things such as theme, appropriateness of form and materials, and the contents.

Moving to the second mode that deals with classroom activities, they include results show, quizzes, and classroom summary.

- Results show is concerned with collaboration. Activities i.e. listening, speaking, reading, and writing of English words, phrases, sentences, grammar, as well as dialogues can be done in order by individual responsibilities and positions in the group.

- Quizzes are then provided to students to practice what they have learned and guarantee comprehensiveness of knowledge. Moreover, they are used to enable students to work on theoretical knowledge during practice.
- Moreover, teachers have to be able to apply principles that students can adhere to in this process. Students can summarize knowledge in a variety of ways such as summing up the language points, writing the important and hard points on the blackboard while others can also replenish. Thus, individual students can join in the summary of learning results.

2.7.2.2 Flipped Mastery Classroom

Bergmann and Sams (2012) are the researchers who originally devised flipped Mastery Classroom. Students are able to work at their own pace to master required objectives. Firstly, students learn by themselves through online learning or note taking. According to the model, teachers may establish the criteria for passing i.e. greater than or equal to 80 percent on summative assessment is considered as a satisfactory passing grade. However, for those who cannot score 80 percent, they are required to participate in the processes called reteach and retest. It is necessary for students to master the content; therefore, they are given flextime to learn when they are perplexed. It is designed to permit students to learn inside of the class when they cannot reach the criteria or show mastery. They are capable of using their personal or classroom devices to learn more on contents during the class time with classroom regulations such as no social media while learning in flextime. After doing so and get 80 percent of the score to show mastery, students are allowed to move to the next topic by watching videos or taking notes. The sequence is illustrated in Figure 2.8. The most

obvious distinction to emerge from this model is that students cannot learn another topic if they do not show their mastery to prove that they fathom the current content. However, they are given chances to learn and test again to show the teacher that they master the assigned content.

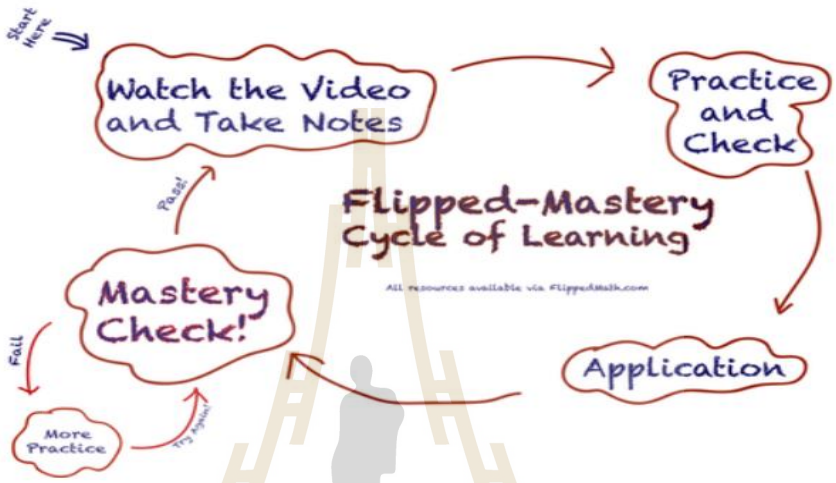


Figure 2.8: Flipped Mastery Sequence by Algebra (2013)

The critical importance of this model is that teachers can look at how students have improved if they cannot pass the summative assessment for the first time. It ensures that students are not neglected since they are able to reteach and retest. They will definitely carry knowledge after finishing the content. Furthermore, students become informed students who are ready to learn the following content with ease. Most importantly, they will be allowed to continue learning only when they already display mastery of the content.

This section set out to explore the impact, know the views and experiences, and better understand the ways in which the flipped classroom is employed and made use for those who can and cannot come to class owing to different uncontrolled conditions. According to the previous mention, the flipped classroom is

also used to minimize the problems concerning teaching and learning time since a set of new factual knowledge is not obtained from learning inside of the class time, but outside. Furthermore, it gives a clear picture of teachers' and students' roles under the concept of it. The previously aforementioned section describes how teachers and students play on their roles in teaching and learning process. It is obviously discussed that teachers act as though they were facilitators of the class whereas students are set free to learn with their own pace with the given topic for each class. For this reason, their roles of two groups of people in the present study, the teachers and the blind students at the Khon Kaen School for the Blind, fall into the well-known learning theory that one performs as a facilitator and the other has to do things by themselves with some facilitation or assistance: it is called constructivism. Consequently, the researcher will attempt to provide a pivotal aspect of constructivism in detail.

2.8 Constructivism

As just mentioned recently about one of the learning theories: constructivism. What follows is a review of the anecdotes of influential elites interested in it. Constructivism is basically a theory which focuses on constructing knowledge instead of studying directly through teachers. Under the theory of constructivism, there are many different hidden dimensions illustrated by the well-known founders of each e.g. Dewey, Piaget, Vygotsky, and Bruner. Although the theories proposed by them are not totally the same, they are at least intertwined in some dimensions i.e. knowledge is constructed or interpreted differently depending on individual's experiences or cultural

factors (Ozer, 2004). The concepts of each founder would be further explained as follows.

The first two theories to be elaborated under the theory of constructivism are established by John Dewey and Jerome Bruner and both theories would be elucidated in details, respectively. Dewey is the one who rejected the concept of education in a school that primarily focuses on rote memorization and repetition. He replaced the directed living concept into the old notion in an educational system that is the school should provide more opportunities to the students for learning to occur. Due to having the opportunities to expose to the real-world situations at any moment (UCD of Teaching and Learning, n.d.), those students are supposed to collaboratively learn and be engaged with the authenticity and practicality in order to assist themselves to think and express their thoughts. The other theory is from Bruner that pertains to the concept that learning is an active process and students should be encouraged in order to construct new ideas based on their current and/or past knowledge, also known as Discovery Approach (Culatta, 2015). He indicated that in order for learning to occur, students should have chances to expose to the environment which may lead to problem-solving. Since Bruner believed that teachers are able to assist students to learn at any moment, he proposed the principle for instruction to be applied in class to facilitate students to develop their learning. The principles were classified into three types: (1) instruction should go along well with students' experiences to make them willing to learn, (2) instruction should be well-structured, and (3) instruction should facilitate students' extrapolation.

While Dewey accentuated on the authenticity and practicality and Bruner emphasized on discovering, Piaget, in contrast, thought that learning is genuinely the learning process driven by schemas, specifically called Cognitive Constructivism. This theory is in relevance to how people learn new things around them. It is also specified to the process of thinking and learning new knowledge around them through experiencing and reflecting on those experiences. There are three main words coined in Piaget's theory— assimilation, accommodation, and equilibration (Profkelly, 2012; McLeod, 2009). Both assimilation and accommodation are concerning with the adaptation, yet each way functions differently. Assimilation is to learn new knowledge and place it into existing schemas. On the other hand, if people cannot fit the new information with the previously existing schema, they have to create a new box of schema in order to fit the new information properly and give a name to it due to recently received attribute. People create a new box of the schema, called accommodation. Most importantly, the critical situation may be happening anytime when learners encounter something new in their lives and sure makes them perplexed or frustrated. The cognitive conflict takes place; and thus, it affects people to experience on disequilibrium. They then need helps in order to restore their equilibrium or maintain themselves balanced by receiving affirmation or reinforcement. When they are reinforced or affirmed by others, they finally become balanced or equilibrium again.

In the section that follows, the researcher will present an influential theory of Lev Vygotsky. He proposed the theory concerning social constructivism which is so-called Sociocultural (S-C) Theory (Saville-Troike, 2005). Vygotsky's idea on constructivism is that learning and development work collaboratively to assist the learners to develop their cognition in the context of socialization and education.

Socialization defined by Vygotsky means to have communicative events or situations which take place at least between two people. One of the most marked differences between cognitive constructivism and social constructivism is that learning cannot be separated from socialization in terms of social constructivism. Vygotsky emphasized that interaction can cause acquisition by providing activities, involvement, and factors outside of the learners themselves such as conversing, discussing, and playing. Additionally, the key concept that brought fame to him was that the force of collaborative work into higher order mental activities could transform simple innate mental activities. The link between the two ends is named "Zone of Proximal Development or ZPD". This is, mental functions beyond learners' current ability must be performed collaboratively with some facilitators before they are being left to learn independently. Figure 2.9 as shown as follows is combined with two different sized circles. The small circle locating inside refers to what students can learn without assistance whereas the big circle outside means what students are able to learn with help and ZPD is the area where learning occurs.

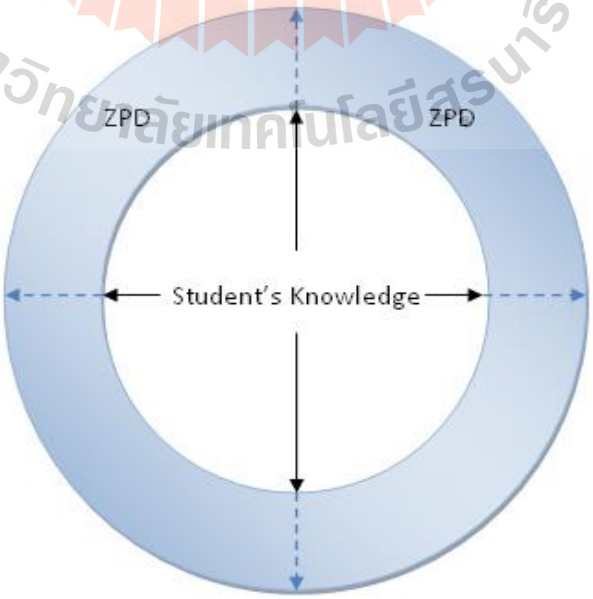


Figure 2.9: Zone of Proximal Development (ZPD) by University College Dublin

The summation of the Constructivism in accordance with the explanations could be grouped into two groups related to their noticeable attributes. The first group is concerned with an individual's cognition (Piaget) while the other group is about social interaction such as Dewey (real-world collaboration), Bruner (environment), and Vygotsky (socialization). It is noticeable that people are active especially in categorizing in order to find similarities and differences that were the nature of humans' thinking process (Mahoney and Granvold, 2005). Accordingly, humans are agents to act upon and experience the world that leads them to self-efficacy and knowing.

According to the flipped classroom, the students have to construct and give the meaning of what they have learned by themselves, yet they still have facilitators to support them when encountering with difficulties. However, it is interesting how the students know they are facing difficulties. The answer is to check their ability based on the current task being done whether or not they can do. As long as students perceive their level of self-efficacy while studying; high or low, they are capable of judging on how much they could work for it. As a result, it causes them to be patient and laborious to achieve their goals (Evans, 1989, as cited in Iamsupasit, 2013). Furthermore, Akhtar (2008) also referred to the work of Bandura which falls under four headings concerning with development of self-efficacy which seem to be useful in the flipped classroom: (1) mastery experiences; (2) modeling; (3) verbal persuasion, and (4) emotional arousal. Teacher's responsibility is to provide chances for students to try tasks in order to make them experience success (mastery experiences) altogether with using verbal persuasion, for instance, "Well-done", "Don't give up" or "You can do it" to increase their self-efficacy with learning at the same time. From doing so, it could heighten a friendly environment that makes students prefer to learn (emotion arousal). On account of the

nature of the flipped classroom that constructivism is embedded, students are free to learn at their own speed or their own pace (Wilson, 2017; Başal, 2015), so it seems to be positive for them. Finally, modeling is also a factor that can develop self-efficacy because when the students see a successful model to follow, they will try to act and be like their role model. In this context, either it could be live models, namely teacher/facilitator or symbolic model e.g. radio, TV, cartoon, and novels (Fischer and Gochros as cited in Iamsupasit, 2013).

At this point, the researcher would like to raise some implementations of constructivism that occurs in learning and teaching inside and outside of the class. Based on constructivism, special emphases are concerned with learning activities and learning environments (Khlaisang, 2017). Students should be able to apply their knowledge for solving the problems. In contrast, teachers are responsible for managing the class in order to stimulate students' cognition e.g. asking questions. Moreover, teachers must provide sufficient materials to assist students to construct a new set of knowledge. When students construct a new set of knowledge by themselves, it is regarded as cognitive constructivism. To put it simply, students will individually learn outside of the class time under the concept of the flipped classroom. On the other hand, collaborative learning and cooperative learning could be the incentive methods that support the ideation process during class time. The interaction could lead to higher order learning and generate learning community. Although they sound similar, these two methods are different. Collaborative learning is more flexible and suitable for those who are disciplined and responsible for working on their own such as university students while cooperative learning is likely to be appropriate for primary and secondary school students who still need facilitation and assistance. In the integral sense

between the flipped classroom and constructivism, teachers are able to walk around when students are assigned to complete hands-on activities. Teachers change their roles from sage on the stage to guide on the side in order to either facilitate low advanced students or challenge advanced students. Olsen and Kagan (1992) and Dachakupt (2010) suggested the examples of cooperative activities that can be applied in the classroom as can be seen in Table 2.4 (as cited in Khlaisang, 2017).

Table 2.4: The Examples of Cooperative Activities

The Cooperative Activities	
Think Pair Share	Numbered head together
Round Robin	Pair Discussion
Round Table	Team-pair-solo
Rally Robin	Line-ups
Rally Table	Showdown
Corners	Three-step interview
Pair Check	Solve-pair-share
Jigsaw	Brainstorming
Co-op co-op	Telephone
Team Games Tournament	Group Investigation

Cooperative learning is a method used to strengthen proficiency and improve the quality of learning. Students are engaged more constructively with their classmates because they are required to work in groups. Moreover, they are able to create a piece of work or finish a task together when teachers create a supportive environment for students to learn with the members in their group or interact with other groups. They

can exchange ideas or learning materials between groups. Most importantly, each member should be responsible for completing the assigned task. It appears to be markedly different from the traditional classroom because the students are the focal point. They are taught less but learn more through practice that brings benefits to students in terms of high order thinking. The important point to mention here is that the brain that is fully developed is the brains of those who actually work. In this study, the teacher may apply collaborative learning and cooperative learning for the blind students in the classroom that they can apply and transfer their factual knowledge that they receive outside the classroom.

In summary, cognitive constructivism, social constructivism, and self-efficacy are the three key terms that should not be missed because students can grow academically by themselves. In this aspect, they can put a piece of new knowledge into existing schemas (assimilation) or create a new path of knowledge (accommodation) to make themselves in equilibration. On the other hand, their knowledge can be reinforced by having a part in real-world collaboration, environment, and socialization. As a matter of constructivism, students must learn and solve the problem by themselves. They will know their levels whether or not they highly understand. In case of being unable to solve the problems, they would be helped by means of asking the teacher or seeking symbolic models as previously mentioned.

Since the researcher assumed that the change in learning, especially learning through self-learning practice would be beneficial for the blind students. In this study, the researcher would design activities, lesson plans, and the instructor-designed instructional materials based on one of the learning theories, namely constructivism.

Consequently, the blind students could their English listening comprehension through mental and social activities in constructing knowledge. They would be assigned to learn factual outside of class by themselves according to cognitive constructivism whereas they tend to be socializing among their friends inside of class through group/pair activities. However, they can also socialize with their peers outside of class or excogitate by themselves toward the contents or tasks inside of the classroom. In addition, the instructor-designed instructional materials would be created deliberately so that the blind students could gradually learn through scaffolding, starting from learning vocabulary words/grammar, doing online exercise in order to check understanding, writing a summary, until completing the tasks or producing outcomes during the classroom.

Whilst the review of constructivism that is considered as a learning theory in the flipped classroom context has been carried out, no single section has attempted to report about appropriate instructional materials used for teaching and learning in the classroom for the blind. This is so worth noting here that instructional materials are crucial instructional tools for students with or without visual disabilities in terms of listening practice nowadays. Consequently, the following section is about to give a brief discussion of the materials development in the educational context.

2.9 Materials Development

In the process of creating an effective learning material, there are suggestions provided to teachers so that they can develop materials effectively. The blind students have to use different instructional materials because of their biological constraints.

They cannot see all of the semiotic representations around them. Therefore, it is considerably necessary for the teacher to know about factors in order to design or develop appropriate instructional materials that can serve the blind's needs. The term "language learning materials" is defined as "the subsequent stage of gaining the ability to use the language successfully in a wide variety of media and genre for a wide variety of purposes" (Tomlinson, 2007, p. 2). Materials are resources used for a diverse way in language teaching and learning. They can serve as (1) a resource for presentation materials and self-directed learning; (2) a source of activities for learner practice and communicative interaction; (3) a support for inexperienced teachers; (4) a syllabus; (5) a reference source for learners on grammar, vocabulary, pronunciation, etc.; and (6) a source of stimulation and ideas for classroom activities (Cunningsworth, 1995). Moving on now to consider the characteristics of language learning materials that have been used, the researcher will describe them into two main themes: (1) the materials that facilitate language acquisition and development and (2) the materials that inhibit language acquisition and development

Tomlinson (2008) demonstrated that language learning materials could facilitate and promote learners' language acquisition and development if they are designed in order to:

1. Help the learners to make some discoveries for themselves

2. Give considerable experience of different genres and text types

3. Help the learners to become independent learners of the language

4. Help the learners to personalize and localize their language learning experience

5. Make use of multimedia resources to provide a great and diverse experience of language learning

6. Provide an aesthetically positive experience by attractive illustration, design, and illustration

7. Provide supplementary materials that offer the learners with experience of extensive listening and/or extensive reading

However, materials do not only give learners advantages, but they also have considerable disadvantages. As a result, what follows is a brief outline of language learning materials that prevent or inhibit learners' language acquisition and development. The design of language learning materials is likely to:

1. Underestimate learners in terms of language level and cognitive ability

2. Handle linguistically low-level learners as intellectually low-level learners

3. Impoverish the learning experience in a misguided attempt to make learning easier by simplifying the way of presenting the language

4. Provide an illusion by utilizing a Presentation/Practice/Production approach that is designed to simplify language use and results in shallow processing

5. Give learners an illusion ensuring that most activities are easily completed as a result of involving little more than memorization, repetition of a script or simple substitution or transformation

6. Make learners perplexed with language learning and skills development by attempting to teach language features during listening and reading activities

7. Offer a typical example of language to learners with far too much de-contextualized experience and not completely enough experience of language in fully contextualized use

Based on the present study, the researcher will develop the instructional materials for the blind in order to serve the teachers' needs and the blind students' learning style. It seems to be necessary to address here that why the instructor-designed instructional materials are important to be developed instead of using commercially produced materials. Consequently, further reviews on significant advantages and disadvantages of the instructor-designed instructional materials are required to mention in this study because it can provide a better understanding of the impacts and risks associated with the instructor-designed instructional materials, see Figure 2.10. Howard and Major (2004) presented six factors that teachers need to consider when they consider designing their own materials.

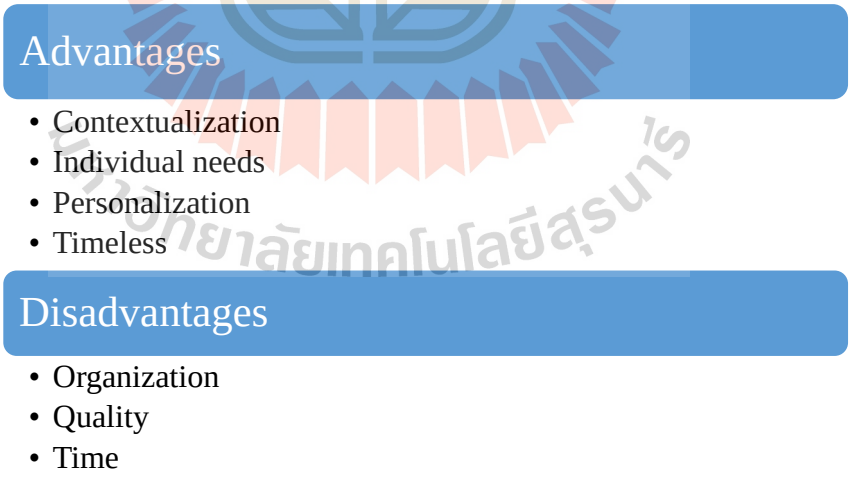


Figure 2.10: Advantages and Disadvantages of the Instructor-designed Materials (own photo)

The detailed information concerning the advantages and disadvantages of the instructor-designed instructional materials is provided as follows.

Advantages

- **Contextualization:** It fits teaching context because the design of teacher-produced materials can overcome the lack of "fit" of the course book. Moreover, it serves a particular learning environment.
- **Individual Needs:** Teacher-produced materials can be designed alongside the learner's first language and cultures, learning needs as well as learning experiences.
- **Personalization:** learners will appreciate teachers' devotion since teachers themselves design the materials. As a result, learners tend to be more motivated and engaged in learning.
- **Timeless:** Teacher-produced materials can be designed right at the moment when teachers want. Thus, they respond to current situations both nationally and internationally. They seem to be more readily captured.

Disadvantages

- **Organization:** Course books are generally organized around an identifiable principle and follow a clear discernible trace throughout whereas teacher-produced materials seem to lack an obvious progressing and coherence. In addition, the storage of teacher-produced materials is not well organized. Then, some teacher-produced materials tend to end up missing or damaged.
- **Quality:** Teachers-produced materials may look ragged and unprofessional in comparison to the commercially produced ones at the surface level.

- **Time:** despite passionate teachers who believe the advantages of teacher-produced materials, in reality for many teachers, it does not work as intended—not always.

In the following section, the researcher is about to deal with the six key factors that teachers must take into account when they plan to design instructional materials for their learners. The key factors for the design of materials are of particular relevance to some of the advantages and disadvantages are shown previously in Figure 2.10. The basic information on each factor is provided as follows.

1. Learners: Teacher should know their students well in order to produce materials that are relevant, interesting, motivating, and meeting specific individual needs. Teacher, therefore, should start by doing a needs analysis.

2. Curriculum and Context: This factor is regarded as a big impact on deciding about learning materials. The reasons are that most of the teachers must follow a mandated curriculum that defines necessary content, skill, and values to be taught. Furthermore, the context also influences the types of materials implemented for teaching and learning.

3. Resources and Facilities: Teachers must show acceptance of the facts of a situation such as limitations of available resources and facilities. The reason for this is that it probably shows the achievement of materials design and production whether or not teachers can actually do based on the limitations and availability.

4. Personal Confidence and Competence: These two factors can exactly determine an individual teacher's willingness to develop learning materials. The

aforementioned factors seem to be influenced by teaching experience, perceived creativity, artistic skills, and understanding of the principles of materials design and production.

5. Copyright Compliance: Teachers should have awareness of the restrictions because the process of copying authentic, published, and downloaded materials is ruled illegal according to the copyright laws.

6. Time: Since the design of learning materials takes time, it is very important to consider and manage things i.e. time and workload. There is some practical advice provided to teachers in order to lighten the workload and reduce working time, that is teachers are able to share materials with other teachers or work collaboratively in a team.

As previously explained about the design of teacher-produced materials, the use of the materials and characteristics are considered as useful guidelines that help the researcher or teachers in the process of creating an instructional medium that facilitates learners to learn and teachers to teach most effectively. The reviews form the basis for effective and successful language learning materials. Furthermore, the reviews provide insight into factors when teachers want to design their own materials. In the present study, the instructor-designed instructional materials for the blind will be designed based on the previous explanations. As a result, the blind will be in with a chance of improving knowledge retention and having more supportive learning experiences.

To conclude, previous sections have demonstrated a link between one another. The first point to be mentioned is about the English language itself that brings difficulties to the blind. They cannot learn in the same way as the normal-sighted do.

Thus, it may not be a workable system when they learn from the government-adopted instructional materials. Teachers do not have the ability to produce the instructional materials due to educational background. Coupled with the facts that teachers already have considerable workload, it then affects teachers to marginalize the process of instructional material production. Despite realizing the importance of appropriate materials that could help and enhance students' ability, many teachers still do not prepare them for teaching. Having investigated the schools for the blind in Khon Kaen and Nakhon Ratchasima province, the blind hardly ever have chances to expose and experience listening skills that are considered as the most useful perception for them to learn and the teachers from both schools do agree with this point. The class time is one of the factors causing the learning process. It is not spent on academic practice as supposed to be. Moreover, in Thailand, the blind must be able to write and read braille before other language skills owing to the policy expectation. There was a surprise for the researcher that the blind have to take the same national examinations as the normal-sighted have. Consequently, the flipped classroom is one of many approaches implemented in this study to offer the blind more opportunities i.e. appropriate materials and supportive learning time to learn and experience the same contents that the normal-sighted students learn. Using technology, the blind can learn when they are desired by themselves. They are capable of studying with their needs and interests toward the contents with their own pace that at least lead them to feel satisfied while learning. Furthermore, happiness caused by independent condition would reshape and rewire the brain which is considered as a reward for the brain. It is well known that when people have a strong emotion toward something either positive or negative, they are likely to remember things longer by comparison with neutral stimuli since the

hippocampus and amygdala that function for memorizing and emotions work collaboratively well under these circumstances. It would also be a great idea for teachers to challenge the blind students by giving intriguing activities. Everyone tends to remember things much better when doing or taking part in activities by himself or herself. As long as students are unable to understand and they know themselves that they should try harder to get rid of curiosities or ignorance, they then could learn back-and-forth on their pace. From this aspect, it may exert influence on carving a new pathway or smoothing neural network. That is, the more the students learn in one topic, the more easily they will understand it since the pathways have been recently smoothened. Moreover, having the rights to learn what makes them happy also increases the neural connectivity that benefits in language processing. Teachers should not underestimate students' ability in learning a new thing since no one can conquer at the first try, for instance, the blind may find the flipped classroom particularly difficult for them because their learning process is reversed. Importantly, teachers should make a supportive and pleasant environment to students to grow academically and happily when they realize that what they are doing is worth spending their time for: to make them believe that improvement is good if action will pay them back. The bottom line is that several factors are involved in the listening comprehension for the blind students. Knowing the problems regarding listening difficulties and knowing how to minimize them could shift the blind students to live in a higher and better position in terms of the English education. It could be successfully done by guiding, facilitating, and providing instructional materials to them in order to overcome the listening difficulties. This chapter covered theories related to the present study e.g. flipped classroom, constructivism, materials development, difficulties and models of listening

comprehension, and other things related to the blind's background and language learning. Furthermore, the previous studies about flipped classroom in an educational context were reviewed.

CHAPTER 3

METHODOLOGY

As it is indicated in the title, this chapter presents methods and procedures used to investigate the effectiveness of the instructor-designed instructional materials for the blind in the flipped classroom context. Furthermore, the present study would like to explore if the instructor-designed instructional materials could enhance the blind in terms of listening comprehension in the flipped classroom. The research setting, research design, participants, and the instructor-designed instructional materials are described in this chapter. Moreover, the instruments used to collect data are presented.

3.1 Conceptual Framework of the Study

In this section, the discussion is concerned with the procedures and theories purposed in the research study. It depicts the context and output. In the following paragraphs, the researcher will show influential theories in the framework

The conceptual framework of the present study that appears to show in Figure 3.1 illustrates the development process of the instructor-designed instructional materials for the blind to learn in the flipped classroom. The materials are primarily engaged in two steps that are development and administration, respectively.

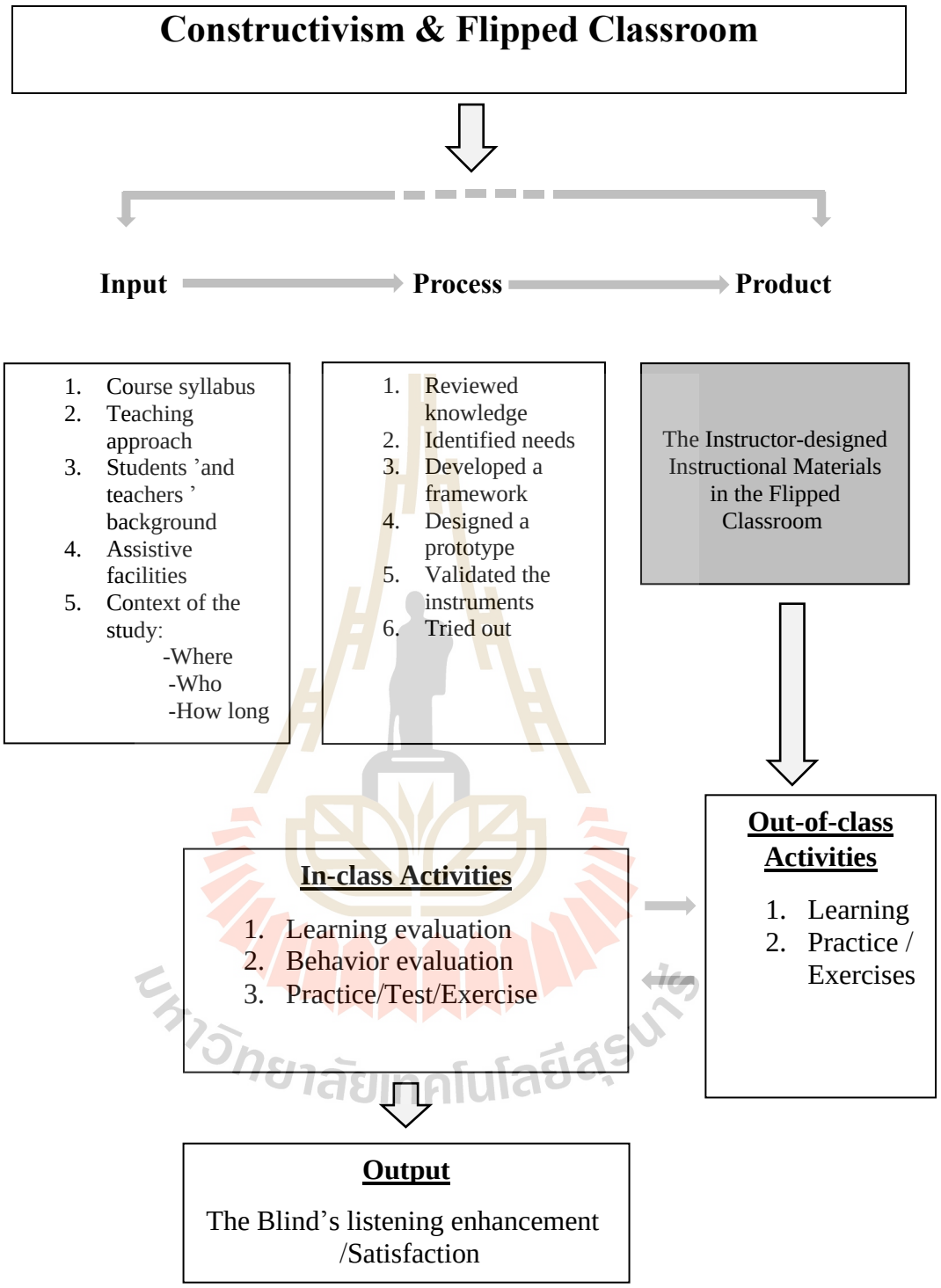


Figure 3.1: The Conceptual Framework

The first stage, the researcher had an intention to develop the instructor-designed instructional materials implemented in the flipped classroom context; therefore, it was necessary to set the research conceptual framework to direct the researcher to the materials producing process. Since several variables having an effect on one another during this process, they could be identified as course syllabus, teaching approach, students' and teachers' background information, and assistive facilities in the school for the blind. These identified variables could perform as useful input data to be analyzed and processed to the researcher to develop the instructor-designed instructional materials for the blind. In this process, the theoretical concepts should be set as a focus to be translated into work since it was crucial in the developing process of the instructor-designed instructional materials. The theoretical concepts applied in the current study include Constructivism and Flipped Classroom. The products of this stage were the instructor-designed instructional materials used to enhance the blind's listening comprehension through the flipped classroom context and the lessons produced under the conceptual framework.

Moving to the experimental stage, the focus was to investigate the effectiveness of the instructor-designed instructional materials in the flipped classroom context. The instructor-designed instructional materials and the activities provided to the blind in the study were in direct relevance to the reliability and validity. Besides, this stage involved various variables such as research context (where), participants (who), and timeframes (how long) which have been mentioned in the first stage. After the official launch of the products, the blind learned through the instructor-designed instructional materials in the flipped classroom context that was considered as resources and later in the traditional classroom that aimed to enhance the blind's listening comprehension by

transferring the factual knowledge they have learned outside the classroom to perform classroom activities. Moreover, they were able to replay the lesson when they realized that they did not totally understand after practicing in class. The study was conducted with the blind who were studying in grade 7 to 9 at the Khon Kaen School for the Blind for a 12-week period.

3.2 Research Design

The Single Group Pretest/Posttest Design is implemented as shown in Figure 3.2. The blind students were assessed for their English listening proficiency by a pretest. After the experiment was performed, a posttest was provided to all of the blind students.

Experimental		
O1	**X**	**O2**
(Pretest)	(Treatment)	(Posttest)

Figure 3.2: The Single Group Pretest/Posttest Design

As aforementioned earlier, the study was a Pre-experimental research study employing the Single Group Pretest/Posttest design. Figure 3.3 illustrated the implementation, assessment, and evaluation in the current study. The blind students took a pretest before the experiment in order to show their proficiency. During the experiment, they did exercises for their learning both outside the classroom and inside the classroom. Together, the classroom was attended by observers to see the blind

students, classroom scenes, and other things in real time. After the experiment was completed, the researcher had them do posttest, questionnaire, and semi-structured interview, respectively.

Once the researcher has completed gathering data in the Single Group Pretest/Posttest Design, two research instruments (questionnaire & semi-structured interview) have utility in exploring the blind's satisfaction level toward the instructor-designed instructional materials. Another data collection procedure that needs to be completed during the experiment is class observation. The teacher and the blind students at the Khon Kaen School for the Blind would be observed so that the researcher could obtain information from the real setting. Since there are a few research studies conducted with the blind in Thailand, four research instruments are implemented to gain thick and rich detailed information for those who would like to conduct a research study concerning people with visual disabilities. Therefore, the major purpose of this present study is to enhance the blind students' English listening comprehension and to explore the blind's satisfaction level after the implementation of the instructor-designed instructional materials in the flipped classroom context.

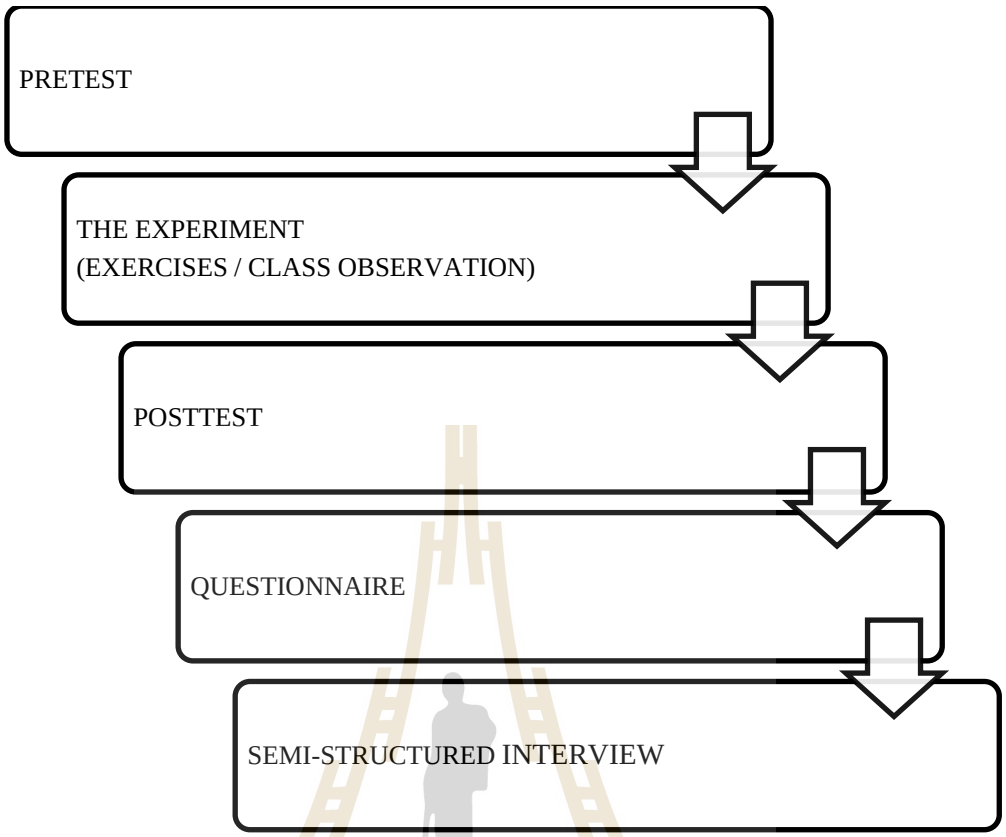


Figure 3.3: The Implementation, Assessment, and Evaluation of the Study

After the existence of the implementation, assessment, and evaluation of the study has recently shown, the following section displays the Figure concerning the research procedures. As can be seen in Figure 3.4, the seven phases and fifteen steps of the research procedures. The detailed information will be further described.

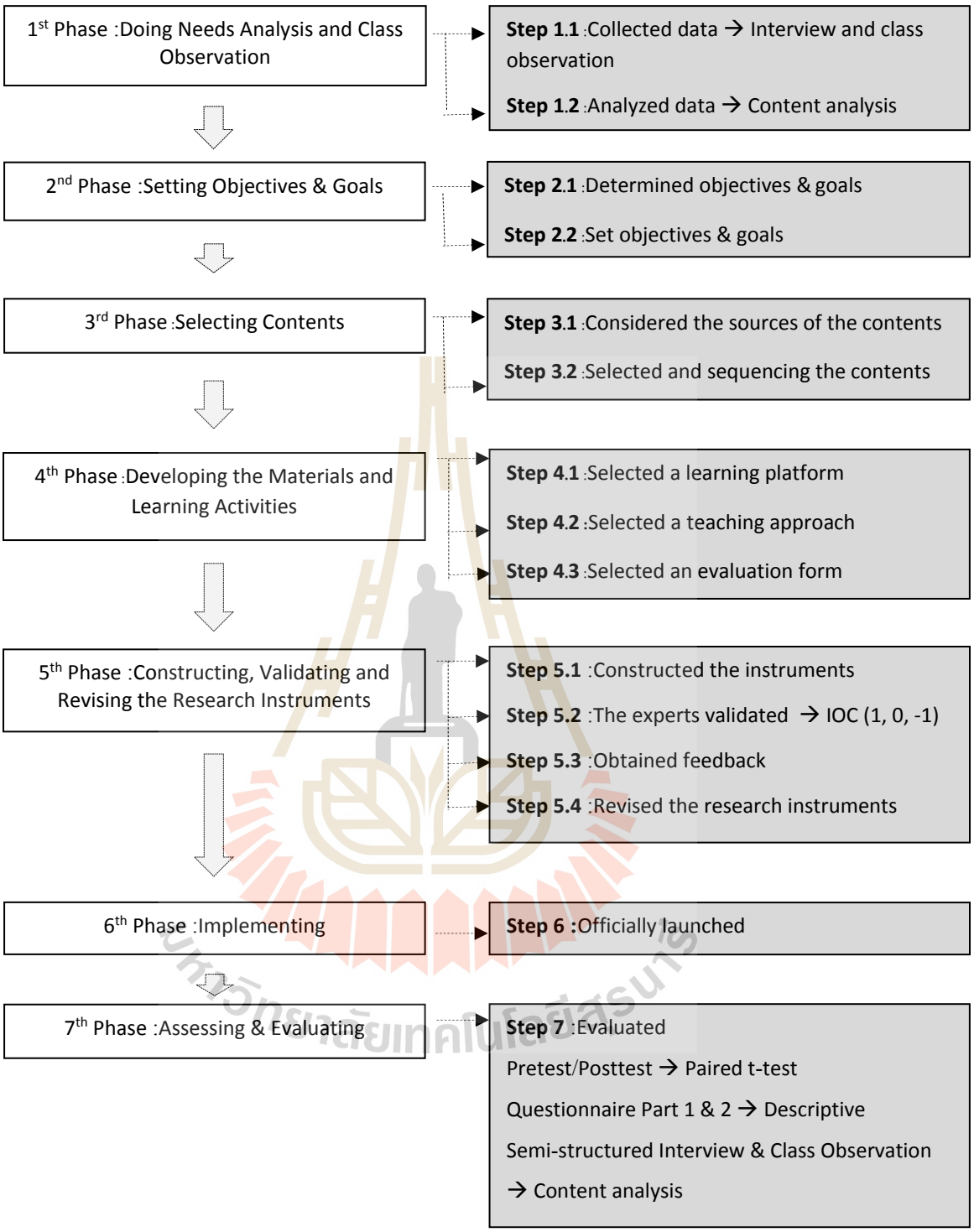


Figure 3.4: The Research Procedures

The detailed information of each phase will be elaborated as follows.

Phase 1: Doing Needs Analysis and Class Observation

Step 1.1: Collecting data

The purpose of the present study was to help those who have visual disabilities after the researcher sought information about the education of the blind in Thailand (data were collected mainly in Nakhon Ratchasima and Khon Kaen province) and in an international context through reviews. The researcher found that the two schools for the blind as aforementioned earlier have encountered the problems in many ways e.g. teachers, instructional materials, and learning time. The researcher went to Education Service Centre for the Blind which is located in Nakhon Ratchasima and Khon Kaen province in order to identify the problems and needs analysis of the teachers by using of an interview and questionnaire to collect data regarding the teachers' personal information, the students' information, school background, the technological devices, learning constraints, learning conditions, and teaching-learning materials (TLM). The survey and interview questions were created before getting to the school in order to obtain the overall information. The class observation was also used in the needs analysis process after interviewing in light of the fact that the researcher could check whether the obtained information was in relevance to reality.

Step 1.2: Analyzing data

The data obtained seven informants were analyzed to give in-depth information in the previous step. The cohort was divided into two groups based on the school locations. The first group of the informants in Nakhon Ratchasima School for the Blind consisted of an English teacher, a representative of the school committee members, and

the principal. Therefore, there were three people in total for this group. Together, four informants held the position of the English language teacher in the Khon Kaen School for the Blind. The analysis helped the researcher fathom more about teaching and learning the English language and general views in both schools. Because of this, the researcher could know more about what aspects the teachers wanted to receive help and how to design the study in order to advance the school education and fulfill the teachers' needs. The received data in this phase exerted influence on other phases and steps in the research procedures. With respect to the results obtained from the questionnaire, interview, and class observation at the two schools for the blind, they showed that the readiness of the Khon Kaen School for the Blind is better than the Nakhon Ratchasima School for the Blind in terms of the number of population, teacher, and facilities. The study could be conducted on weekends with 10 participants. Thus, it could show the statistical impact of the instructor-designed instructional materials compared with the number of students in Nakhon Ratchasima School for the Blind.

Phase 2: Setting Objectives and Goals

Step 2.1: Determining objectives and goals

Learning objectives and goals were set after the data in the previous phase were analyzed. What stood out from the data was that the teachers expected the blind students to enhance listening skills because the blind students were still young. The highest level of the students who were studying in the preparatory education program in the Khon Kaen School for the Blind is grade 6 students, whereas the highest level of the students in Nakhon Ratchasima School for the Blind is grade 4. Therefore, it would be beneficial to design the materials which both schools could make use of after the research is

completely conducted in the Khon Kaen School for the Blind due to the mentioned factors in Step 1.2: Analyzing data. Moreover, listening could strengthen other skills after the students exposed and fathomed the listening according to the teachers' advice. Additionally, the researcher noticed that the students have not had many opportunities to practice their listening skills due to time limitation and decent instructional materials. Fortunately, it was apparent that the teachers' ideas from the two schools went along well together with the researcher's thought toward the class observation. Consequently, the present aims to help the blind students to promote their listening comprehension.

Step 2.2: Setting objectives and goals

The researcher in this step set the objectives and goals for the entire experiment and learning lessons. The advantage of setting the objectives and goals is that it can direct the researcher to design the lesson plans, the instructional materials, learning contents, activities, and assessments without getting lost in the direction. Realistic goals, measurable performance, and suitable objectives that the teachers agree with the researcher would enable the blind students to enhance and get engaged with the experiment in order to achieve their academic performance that satisfies the blind students when they can see the enhancement.

Phase 3: Selecting Contents

Step 3.1: Considering the sources of the contents

The researcher should keep in mind the factors for causing the students to perform well and happily with the learning process. Therefore, the contents that would be contributed had to be associated with the blind students' background knowledge. For instance, when the teacher asks the students to complete the task, the teacher at least

should give the students a factual basis e.g. vocabulary items related to the current lesson or sentence structures before distributing the task. Furthermore, the contents should enhance the students to be in a higher position. According to the agreement between the teacher and researcher to enhance the blind students' listening skills, the researcher should offer chances to the students to disclose to spoken language to enhance them. However, the researcher needed to take into consideration that the level of the tasks should not go beyond the blind students' ability as much. The familiarity of the context seems to be useful for the foreign language learners who hardly touch it in daily life because they can predict or guess the meaning to enhance their comprehension. More importantly, the contents must not cause difficulties to the lower-proficiency group because the participants were combined with the blind students from different levels.

Step 3.2: Selecting and sequencing the contents

The researcher must keep in mind about the ranges of the blind students' levels because it could make them considerably struggle if the selected contents do not support all groups. The researcher needs to be capable of analyzing the contents from the textbooks used in grade 7 to 9, worksheets, braille book, and the large print books of every grade and finding the relationship of the books that the researcher can elicit the similar contents to be redesigned for them to learn without causing many problems. In addition, the researcher has to decide after obtaining the contents whether the sequence should be organized hierarchically or procedurally. In this present study, the contents chosen compose of five lessons. Being done selecting, the contents would be later sent to the teachers to ask for agreement whether the contents were appropriate. The

researcher was responsible for adapting or changing in accordance with the teachers' feedback or suggestions if there were any of them.

Phase 4: Developing the Instructor-Designed Instructional Materials and Learning Activities

Step 4.1: Selecting a learning platform

The vital process for the researcher to focus was that the blind students were self-centered in their learning. Therefore, selecting and constructing the instructor-designed instructional materials and activities should be taken into consideration in terms of the blind students' technology skills and their learning constraints. The materials that were contributed to them in the current study remained new and some of the blind students might not know how to deal with the instructor-designed instructional materials by themselves at the beginning, so assistance is necessary. In this study, the criteria for selecting the platform were established on the basis of user-friendliness, accessibility, and consistency. The researcher was capable of determining the complexities of the platform based on the obtained data in the needs analysis phase.

Step 4.2: Selecting a teaching approach

It is indispensable to mention here that a suitable teaching approach should go along together with the objectives and goals of the current experiment. The appearance of the lessons was the same but the content and provided activities of each class were altered. In this study, the instructor-designed instructional materials aimed to enhance the blind's listening comprehension in order for them to make use of the obtained information or factual knowledge with other language production skills such as speaking and writing. To accomplish the objectives and goals of each lesson, once the

students received adequate vocabulary, phrases, and grammar, they were required to construct knowledge based on what they had learned. Consequently, the teaching approach used throughout the experiment involves receptive and productive skills administered for the blind students to receive input and produce output. Furthermore, the instructor-designed instructional materials also employed learning strategies such as giving examples and repetition for making the materials and lessons more comprehensible.

Step 4.3: Selecting an evaluation form

In order to investigate if the designed instructional materials and lessons were effective, the researcher had to construct a criterion in order to measure the blind students' learning performance after participating in the present experiment. The evaluation selected to measure the performance was based upon the paired sample t-test score in which it was derived from the statistical calculation of pretest and posttest scores of the blind students. Therefore, it was important for the researcher to design a valid pretest and posttest.

Phase 5: Constructing, Validating, and Revising the Research Instruments

Step 5.1: Constructing the research instruments

In order for the researcher to easily conduct and collect data of a research study, it was vital to construct all the instruments that were related to each step and types of data. The research instruments administered in this study comprised the instructor-designed instructional materials, learning activities, pretest and posttest, questionnaire, semi-structured interview, and class observation form. Thus, it is a required process for the researcher to gain knowledge of how to produce suitable, comprehensible,

accessible, and effective the instructor-designed instructional materials and research data collection instruments for the blind students.

Step 5.2: Validating by the experts

After constructing the instruments, they were submitted to the three experts to validate whether or not the instruments were reliable. In this step, the experts used the Index of item Objective Congruence (IOC) in test development for evaluating content validity at the item development stage. The experts validated by scoring +1, 0, -1 for each attribute or item. The meanings of the scores are as shown.

+1	=	Fully agree
0	=	Uncertain
-1	=	Fully disagree

The research instruments, therefore, had to be rated with caution because all of the instruments would be employed to the blind students in the Khon Kaen School for the Blind. The research instruments were sent to the three experts, including, an English university educator, a teacher at Nakhon Ratchasima School for the Blind, a teacher at the Khon Kaen School for the Blind. In the process of rating the instruments, they were sent either in the form of hard copies or email. The significant reason for mailing the research instruments was that it was convenient for the teachers, especially the blind teachers because there is a screen-reading program named JAWS (Job Access With Speech) to help them. It was also less time-consuming since there was no need to transform the hard copies into print-braille hard copies. It was pivotal to bear in mind that the complex layouts might create trouble i.e. a small table embedded inside of another big table, suggested by the blind teachers at the Khon Kaen School for the Blind.

Experts' Qualifications

The Criteria for selecting the experts were as follows and they at least need to meet two qualifications.

(1) The expert's professional experience has to do with special education at least five years.

(2) The expert must be the one who teaches English at school or university at least five years.

(3) The expert has experience in teaching English at least five years at the school for the blind.

Step 5.3: Obtaining feedback

Then, the researcher received feedback concerning with the reliability of individual items if they were validated. The researcher analyzed and processed the obtained feedback in order to know which parts of the research instruments should be either retained or revised.

Step 5.4: Revising the research instruments

The final step of this phase gave an account of the revision of research instruments that were not validated. For the ones that are uncertain and disagreed, they were developed for rising reliability. The process of constructing, validating, and revising the research instruments are further explained in detail in 3.5 Research Instruments.

Phase 6: Implementing

Step 6: Launching the instructor-designed instructional materials

After the revisions, redesign, and validation of the research instruments, they later were administered in the experiment. In this study, a group of 10 female blind students studying in the Khon Kaen School for the Blind participated in the experiment. Prior to data collection, the participants received an explanation regarding the objectives and goals of the study. Besides, they were informed on how to have access to the instructor-designed instructional materials. The researcher explained to them what they would learn over a ten-week period and they could ask the researcher on clearance if they had some problems. Before the official launch, the blind students were required to complete the pretest.

Phase 7: Evaluation

Step 7: Assessing and evaluating the students

At the end of the experiment, the aim of it was to evaluate the blind students' listening comprehension enhancement and satisfaction level in order to examine whether or not the instructor-designed instructional materials had an effect on helping the blind students enhance their English listening comprehension in the flipped classroom context. The evaluation was employed to the blind after the completion of the experiment. All of the blind students and the teachers would be observed by the observers to collect the data about interaction, teaching and learning process, and other external factors during learning. After finishing studying through the instructor-designed instructional materials, the last attempt was that the blind students were required to answer the questionnaire and respond orally for the semi-structured

interview questions in order to know the effectiveness and their satisfaction level toward the instructor-designed instructional materials in the flipped classroom context.

3.3 Setting of the Study

The present study was conducted at the school for the blind that is in Khon Kaen province, Thailand. The province is geographically at the center of the northeast region (Hudson, 2017). It is described as one of the four major cities of the Northeastern Thailand, including Nakhon Ratchasima, Udon Thani, Ubon Ratchathani, and Khon Kaen (Isan, 2018). There are a large number of students living around the city due to the presence of educational centers such as Khon Kaen University, Northeastern University, Rajamongol Technical College, and other smaller technical schools. That is the reason that Khon Kaen is renowned as an educational hub. Furthermore, it acts as a focal point for financial institutions, government offices, transportation, and financial institutions in the region (Mekong Institute, n.d.). However, it has one of the lowest per capita incomes in the country (Hudson, 2017). Moving to the detail of the Khon Kaen School for the Blind, it is located in 214 Moo 10, Maliwan Road, Mueng District, Khon Kaen province 40000. The school was founded to help the blind in many dimensions such as quality of life development, job assistance, training and services on assistive technology, scholarship, production of braille and talking books, information resources, academic foundation, and organizing some activities for the blind.

3.4 Population and Sample

3.4.1 Population

The population in this study was a group of the blind who are under the control of the Khon Kaen School for the Blind. The school has provided educational opportunities to the blind from grade 1 to grade 12. However, only students from 1st to 6th grade blind students study in the school because the remaining, grade 7th to 12th blind students, participates their learning with the normal-sighted students in Inclusive Education Program (IEP).

The Khon Kaen School for the Blind supported 106 blind students in the 2017 academic year calendar, including 61 females and 45 males. The blind broadly participated in two programs. The first program is called “Preparatory Education Program”, consisting of 52 students while the second “Inclusive Education Program” composes 54 students. An individual student must learn in the first program in order to receive an academic foundation before being allowed to learn collaboratively with normal-sighted students in the IE program. They regularly learn all the compulsory subjects e.g. mathematics, English, Thai, the basis for reading and writing braille, assistive technology, as well as essential skills for everyday living. When the levels of readiness and ability are acceptably adequate to high, the blind are sent to study in the schools the names of which are further listed. In this case, they are normally sent to study with normal-sighted students when they finish grade 12. Yet, they could be delivered earlier when their ability seems similar to normal-sighted students and not problematic to themselves i.e. some students may be sent out of the school to learn in inclusive education program even if they are studying in grade 4. Every student in School for the blind are boarder students, so the school will bus them to the inclusive

schools in the morning and take them back again in the evening. Significantly, when the blind are assessed as non-highly skilled students in terms of academics after completing grade 12, they will be transferred and supported to learn in the vocational school under the same foundation.

The name lists of the schools that have collaboratively worked with the Khon Kaen School for the Blind are mentioned as follows.

For the elementary blind students, there are four schools as shown below.

1. Sanambin School
2. Kham Hai School
3. Srithan Municipal School
4. Anuban Khon Kaen School

Whereas, there are five schools supporting the secondary school blind students as following shown.

1. Kanlayanawat School
2. Nakorn Khon Kaen School
3. Khon Kaen Wittayayon School
4. Kaen Nakhon Wittayalai School
5. Kaen Nakhon Wittayalai 2 School

3.4.2 Sample for the Experiment

The sample in this study comprised 10 blind students who were studying in a different school from the tryout group. In addition, out of initial cohort of ten blind students, they were all female. They studied in grade 7 to 9 at the time of conducting research. The experiment was limited concerning the number and gender of the blind students with regard to the research methodology now that the Khon Kaen School for the Blind is responsible for accommodating only females in secondary school.

Moreover, single group pretest/posttest design was implemented because of the number of the blind students and readiness of facilities. The number of the sample can be distinguished into three groups. Five of whom belonged to 7th grade group while 8th and 9th grade groups consisted of four and one students, respectively as can be seen in Table 3.1. The school aimed to enhance the blind students in the English language and the group of seventh graders to ninth graders was mature to associate with the study according to the principal's, school committee's and English teachers' views.

Table 3.1: Sample Demographics of the Students in the Khon Kaen School for the Blind

Demographic Variables	No. of Participants (N = 10)
A. Gender	
Male	-
Female	10
B. Education	
Grade 7	
Male	-
Female	5
Grade 8	
Male	-
Female	4
Grade 9	
Male	-
Female	1

3.5 Variables

This study can best be treated under two variables:

3.5.1 Independent Variable

The independent variable in this study is learning through the instructor-designed instructional materials in the flipped classroom context.

3.5.2 Dependent Variable

The dependent variables are distinguished into two variables: (1) listening comprehension enhancement after learning with the instructor-designed instructional materials in the flipped classroom context was measured by the pretest and posttest scores and (2) their satisfaction level toward the instructor-designed instructional materials in the flipped classroom context will be sought by questionnaire, semi-structured interview questions and class observation.

3.6 Research Instruments

Due to the research design of this study, both quantitative and qualitative data were then collected.

3.6.1 The Instructor-designed Instructional Materials

The major instructor-designed instructional materials for this experiment are braille or large-print book, and online instructor-designed instructional materials. The process of developing the instructor-designed instructional materials can be categorized into sound producing, sound converting, sound editing, and website

creating. The details of the tools that are utilized to create the instructor-designed instructional materials will be further elaborated.

Before moving to the details of each tool that the researcher used, it is necessary to inform that all of the computers at the Khon Kaen School for the Blind used are the same as the computers that the normal-sighted people also use. However, there is a screen reader program installed to ease learning for the blind named JAWS (Job Access With Speech). The screen reader makes the learning process less difficult for those who are blind to have access to the computer because they do not need to use a mouse to navigate the screen. It benefits the blind in multiple aspects. For instance, it works with Microsoft Office and any famous Internet browsers. In addition, it has multi-lingual synthesizers, possesses voices for over 30 languages. Despite having the scanned images, JAWS can report them as empty documents. These are the reasons why the blind people are able to seek available information, browse the web, read, and write email messages, or access data in a database (FreedomScientific, n.d.).

In this section, the first two tools that were used in the process of sound producing will be explained: (1) www.fromtexttospeech.com, an English sound producing website; and (2) Audacity, a sound recording program. The former tool is an online program that can be used for producing foreign languages audio files such as Spanish, French, and English. Users can take control of the sounds in different ways such as rate, male/female, and the sound of the automated speakers. For the latter, it functioned as the Thai translation of vocabulary items in the instructor-designed instructional materials. In this, the researcher's voice was employed because of the fact that the researcher is a Thai native speaker.

Next, there was a website utilized in the sound converting process which its name is www.onlinevideoconverter.com/mp3-converter. It was used as a video converter that changed the YouTube videos into the MP3 files. As we generally know, YouTube is a very big video sharing website; therefore, it has a varied role to play in an online community such as entertainment, education, business, etc. In terms of education, it assists both teachers and students in multiple ways such as free courses from top-tier Ivy League institutions (Schirner, n.d.).

After the preparation of the sound, the program named Audacity was employed in the sound editing process. Audacity is free, open source, cross-platform audio software for multi-track recording and editing distributed under the GNU General Public License (GPL). It is available for many renowned operating systems such as Windows, Mac, and GNU/Linux. It is a successful program used to deal with sounds because the source code is open for anyone to study or use (Audacity, n.d.). The program also possesses a number of interesting features that will be further explained (Audacity, n.d. and Khlaisang, 2017). The users of the program are able to:

- Record live audio
- Cut, copy, splice or mix sounds together
- Change the speed or pitch of a recording
- Write your own plug-in effects with Nyquist
- Convert tapes and records into digital recordings or CDs
- Edit WAV, AIFF, FLAC, MP2, MP3 or Ogg Vorbis sound files
- Record computer playback on any Windows Vista or later machine

- AC3, M4A/M4R (AAC), WMA and other formats supported using optional libraries

The last step of website developing is to host the HTML files created by Adobe Captivate to be viewed on the Internet. The researcher exploited Adobe Captivate in the process of website creating (Adobe, n.d). Adobe Captivate is similar to PowerPoint, but uploaded online. The students, thereby, can access courses anytime, anywhere, and any device because it enables learning across devices, including laptops, computers, and iOS or Android phones. Since its presence is similar to PowerPoint, it is not difficult and complicated. Therefore, it makes the program more friendly-user to the blind. Significantly, it meets the quality of WCAG (Web Content Accessibility Guidelines) 2.0 that has been developed to help and support four groups of exceptional people: (1) the blind; (2) the deft; (3) other disabilities; and (4) the elder. Still, intellectual disability is ineligible for inclusion in the exceptional groups. Another crucial aspect of the program is concerned with the four pillar principles of WCAG 2.0, which are later described (Cooper, Kirkpatrick & Connor, 2016). Firstly, it must be perceivable such as increasing the lightness of the screen for the partially sighted to see the text more clearly and having the text in the video for the deft. Secondly, it is operable which means that users are capable of controlling by the keyboard. Another pillar is understandable. The design should be user-centered design; users know the pattern of the web, goal, and objective. Finally, it is known as robust. Generally speaking, it can apply with any device, also assistive technology devices for people who have disabilities. It is currently called XML (Extensible Markup Language), that the program can be further adapted sooner in the future.

3.6.2 Lesson Plans

The lesson plans included learning objectives, exercises, tests, and the instructor-designed instructional materials on the vocabulary, phrases, and grammar usages that were collaboratively designed with each particular topic. The lesson plans stand in need of teaching because they give the teachers to think upon their class deliberately in terms of the activities and sequences, objectives, and the materials (Jensen, 2001). With the help of lesson plans, teachers to able to evaluate and know their abilities before teaching in class. Providing there are some misunderstandings or hurdles while writing the lesson plans, they are capable of searching for more information. According to its importance and benefits, lesson plans are required to give a clear picture for teachers during class in order to comply with the plans (Reed and Michaud, 2010). Lave and Wenger stated that a lesson study is an approach that the teachers could use to reflect on their teaching practices (as cited in Anfara Jr., Lenski, & Caskey, 2009). Using the lesson plans for this study, the researcher could enhance the blind's listening comprehension by employing the specific activities that were embedded within a particular learning theory and learning context (Constructivism and Flipped Classroom).

The lesson plans on this study comprised five lessons in each of which took two weeks for accomplishment. In this study, an adaptation of the lesson plan was from the book titled *"The Differentiated Flipped Classroom"* (Carbaugh and Doubet, 2016). The authors suggested the components and the steps for the two modes of learning based on the flipped classroom approach as follows in Table 3.2. For the present study, employing a learning theory namely constructivism—cognitive and social—was mainly used in designing activities for the blind students to learn alone by

themselves or do group activities. The teacher is responsible for facilitating the blind students to think, causing them to produce learning outcomes, and providing interaction between student & student or student & teacher, etc. based on the ideas of cognitive constructivism and social constructivism that aim to assist the blind to construct knowledge within the brain and among people.

Table 3.2: The Components and the Steps for the Two Modes of Learning

At-Home Learning	At-School Learning
Steps may consist • Contents to be viewed • Active processing • Meaningful online interaction with peers or the teacher • Formative assessment to confirm students 'understanding • Summative checks for grasp of content and/or skills	**Steps may consist** • Activities responding to at-home learning • Grouping and/or Meaningful interactions with peers or teacher • What is the production of during task(s) • Formative assessment to confirm students 'understanding • Summative checks for grasp of content and/or skills

The following procedures were the steps of producing lesson plans:

1. The researcher thoroughly scrutinized the contents in order to gather the ideas for exchanging with the teachers at schools for the blind but firstly researched for achievements that grade 9 graduates must know and be able to perform as the minimum after finishing. The information was obtained from the Basic Education Core Curriculum B.E. 2551 (A.D. 2008). Not only finding the expected learners' quality was done in this process, but also collecting books from different publishers that the students from grade 7 to 9 have been using was necessary. The reason for seeking for multiple

books was that the researcher would like to know the contents and topics that students in these grades actually learn in order to design the proper instructor-designed instructional materials that go along well with the list of the collected books; (1) Your Space, (2) Team Up, (3) Messages, (4) Just Speak Up, (5) Listening Advantage, (6) Mega Goal, (7) Access, and (8) Sky. In addition, there were many overlapping contents found on these three levels. Therefore, the lessons will benefit all of the blind such as reviewing for grade 9, and giving an extra chance to some of the blind who were studying at grade 7 or 8 to learn before attending to a regular class. Importantly, it could help and support them to use factual knowledge more frequently, which may cause strong memorization due to practicing several times.

2. The researcher wrote the lesson plans by arranging the contents combining vocabulary, phrases, grammar usages, learning activities, assessment, and evaluation. Furthermore, all vocabulary, phrases, and grammar usages were developed based upon the objectives of the Basic Education Core Curriculum B.E. 2551 (A.D. 2008). However, the books utilized in many different secondary schools at the grade levels of 7 to 9 were still necessary to elicit or realistically model on writing and designing classes.

3. The lesson plans were examined and validated in apropos of the objectives, contents, exercises, tests, and instructor-designed the instructor-designed instructional materials by the experts in the field of English Language Teaching.

4. The lesson plans were revised if having any mistakes and later applied as guidance for the teacher during the class time.

3.6.3 Quantitative Research Instruments

The three instruments that were used to collect quantitative data are displayed in the list: (1) pretest; (2) posttest; and (3) questionnaire: Part 1: demographic profile and Part 2: the blind's satisfaction level toward the instructor-designed instructional materials in the flipped classroom context.

3.6.3.1 Pretest

Before the blind students were required to take the pretest/posttest, there was a process of writing test items that should be referred to. The researcher had to write 90 test items (the number here has resulted from the portion of each lesson which is illustrated in test specification (see Appendix A) After being completed, the test was submitted to the three experts to rate. The test was later separated into two parts: odd number and even number. The reason for separation was that each part of the test would be measured by using Split-half method. The items employed in the pretest were taken from odd number questions. The topics brought to design the test were concerned with the lessons in the experiment. The pretest was composed of 20 four-option multiple-choice questions (see Appendix B). During taking the pretest, the blind students raise their hand and show the fingers in order to symbolize the answers as the blind students generally do when they take a test.

One finger = A **Two fingers = B**

Three fingers = C **Four fingers = D**

During the tests, the teacher played the audio files and had the blind students listen to each question twice before answering. The individual tests combined with three main parts which were (1) ten items of listening responses, (2) five items of listening comprehension, and (3) five items of vocabulary recognition.

(1) Listening responses is the test that the blind students are required to listen to the questions that are formed by using the interrogative structure and they have to give the best response that is in relevance to the question.

(2) Listening comprehension is the test that the blind students are required to listen to the short stories. They have to choose the correct answer based on the stories they have just listened.

(3) Vocabulary recognition is the test that the blind students are required to listen to the questions either in an affirmative form or in an interrogative form. The question is correctly matched with one vocabulary item for each question.

3.6.3.2 Posttest

The posttest was offered to the blind students as a requirement of the experiment in the week after the last class. The format is the same as the pretest but the questions were chosen from even number questions (see Appendix B). The process of answering the questions was similar to what was mentioned in 3.6.3.1 Pretest.

In the process of writing test items, the researcher used the Split-half method in the present study in order to test the internal consistency of the items administered as pretest and posttest. In order for the researcher to ensure and save time if the test designed was reliable to be deployed in the experiment, the researcher

therefore produced the extra items even if there would be only 20 questions used in each test. The procedures for designing the pretest and posttest are shown as follows.

1. The researcher learned how to test the reliability of the test items.

2. The researcher wrote the test based on the test specifications.

3. The researcher asked the experts to test the reliability of each multiple-choice item if it was related to the provided test specification. The experts validated and scored for each item whether it was reliable, neutral, or unreliable by relying on +1, 0, -1 format.

4. The researcher divided the test questions into two parts. In this study, the researcher separated even questions from odd questions.

5. The researcher scored half of the test for each expert.

6. The researcher found the correlation coefficient for the two halves by applying the Pearson Correlation Coefficient formula and later applied the Spearman-Brown formula to adjust the half-test. The formulas are shown in the following section.

7. The researcher revised and improved the test based on the obtained feedback from the experts.

The formulas utilized for finding reliability are shown.

1 .Applying Pearson Correlation Coefficient Formula

$$r_{1/2} = \frac{N\sum XY - \sum X \sum Y}{\sqrt{\{N\sum X^2 - (\sum X)^2\}\{N\sum Y^2 - (\sum Y)^2\}}}$$

where,

$r\,1/2$ = self-correlation of half test (Reliability coefficient of the half test)

$\sum XY$ = sum of the products of paired scores

$\sum X$ = sum of the X scores (odd number questions)

$\sum Y$ = sum of Y scores (even number questions)

$\sum X^2$ = sum of squared X scores

$\sum Y^2$ = sum of squared Y scores

N = number of pairs of scores

2. And then applying the Spearman-Brown Prophecy formula

$$r_{tt} = \frac{2r\,1/2}{1 + r\frac{1}{2}}$$

where,

r_{tt} = reliability of the whole scale

$r\,1/2$ = self-correlation of half test (Reliability coefficient of the half test)

3.6.3.3 Questionnaire

The questionnaire was employed to investigate the blind students' satisfaction level toward the instructor-designed instructional materials in the flipped classroom context. This questionnaire used in the study comprises two parts (see Appendix E). The purpose of the questionnaire was to collect (1) demographic

profile and (2) the blind's satisfaction level toward the statements regarding the instructor-designed instructional materials in the flipped classroom context (14 items). To collect the data regarding the satisfaction level, the standard five-point Likert rating scale was used by categorizing from "Very satisfied" to "Very unsatisfied". To make it simple for the blind as the inclusion teachers suggested, the blind students would be asked individually in order to give their demographic profiles. The questionnaire Part 2, in contrast, the researcher would read each question to the blind students as a whole and had them show their fingers to represent their scores i.e. one finger equals one score and five fingers equals five scores. The Likert rating scale is shown after the procedures.

In order to make the questionnaire most appropriate and effective, the researcher followed the procedures:

1. The researcher studied how to design a questionnaire.

2. The researcher set the objectives of the questionnaire and wrote question items for each part collaboratively with the objectives in the Thai language.

3. The questionnaire was validated by experts in the field of English Language Teaching.

4. The researcher revised and improved the questionnaire based on the obtained feedback from the experts.

5. The researcher tried out the questionnaire with the sample in the tryout steps to make sure that the questionnaire was accessible by the blind students.

The following section is to show the Likert rating scale.

5 = Very satisfied
4 = Satisfied
3 = Neutral
2 = Unsatisfied
1 = Very unsatisfied

3.6.4 Qualitative Research Instruments

The qualitative research instruments were used to explore the deep data, including semi-structured interview and class observation. The reasons for triangulation were to know the information of the blind students toward the flipped classroom context and the instructor-designed instructional materials used in the experiment. Since there have been a few research studies conducted about the blind and the instructional materials for them, the obtained data will be a knowledge hub for the next studies if there are either negative points to be resolved or positive points to be strengthened or remained.

3.6.4.1 Semi-structured Interview

After exploring the satisfaction level of the blind students toward the instructor-designed instructional materials in the flipped classroom context via the questionnaire, the following method of inquiry used in this study to gain pertinent detail was a semi-structured interview. It comprised six questions (see Appendix F). The researcher interviewed the blind students for more detail about their satisfaction level toward the instructor-designed instructional materials in the flipped classroom context. In the process, the semi-structured interview was conducted in the form of a face-to-face semi-structured interview around 15 minutes. The set of written questions were

checked and validated by the experts before they would be used to collect the data. The blind students were required to record the sounds in order to ensure that the given information was fully kept during the interviewing process; however, the recording depended critically on the blind's satisfaction and permission.

1. The researcher learned how to create questions for the semi-structured interview.

2. The researcher pinpointed the scope and objectives of creating the interview.

3. The researcher writes a pre-determined set of questions and then asked the experts in the fields of English Language Teaching to check validity.

4. The researcher modified the pre-determined question items based on the experts' feedback and suggestions.

3.6.4.2 Class Observation

While the teacher was teaching and/or facilitating the blind students either attending the class to do activities or learning on their own outside of the classroom, the observers were responsible for using all together senses so as to examine the blind students in a natural setting or naturally occurring situation. In the study, the researcher would ask the observers to keep track of many different factors such as teaching, learning, the blind student-teacher interaction, the student-material interaction, the language used in class, and physical factors e.g. weather on those days in pursuance of developing a holistic understanding of the experiment (see Appendix H). The average time spent on observing was in the same amount as the time for learning in each class. Likewise, the times spent for collecting data had an equal amount

as the numbers of the studying periods. However, it was acceptable to stop collecting the data if the researcher thought that the obtained data already reached a saturation point. With regard to the observation, Observer as Participant was an observational approach operated to collect the qualitative data because the observers would be recognized by the participants and in many cases: They might know the objectives of the observers. Another point was that interaction between the observers and participants could happen with the limiting of interaction since the observers had to play a neutral role as much as possible. The techniques that will be used to collect the data comprising categorical and narrative recording. In the categorical recording, the researcher first listed the possible answers. The other recording focuses on detail seen in class. The researcher would describe, summarize, or write the keywords in the data collecting form.

1. The researcher studied the ways to collect the data for class observation and learned how to create it.

2. The researcher determined the scope and objectives of class observation.

3. The researcher wrote a possible set of situations and focused themes of observing. The researcher asked the experts in the field of English Language Teaching to check validity.

4. The researcher revised the possible set of situations and focused themes based on the experts' feedback and suggestions.

Criteria for Selecting the Observers

The Criteria for selecting the experts were as follows.

(1) Teaching experience: Have previous experience of teaching and/or other relevant experience at least two years

(2) Language Skills: Have ability in the English language so that the observer can keep track of the teacher's English teaching

(3) Research Experience: Have an experience in conducting a research study in English or teaching

(4) Class Observation Experience: May have the opportunity to observe teachers in school and/or relevant experience in observing a class

3.7 Data Collection

To measure the learning achievements after the experiment, the data were collected and evaluated in order to know about the quality and effectiveness of the instructor-designed instructional materials. The data of this study were evaluated both quantitatively and qualitatively in order to answer the research questions.

3.7.1 Listening Pretest and Posttest

The blind students participating in the study were required to do pretest in listening comprehension before engaging in the experimental process. One of the benefits of pretest/posttest designs that the researcher could receive after the implementation is that the associated repeated-measures statistical analyses seem to be more powerful, and thereby require smaller sample sizes, compared to other types of

analyses (David, n.d.). They were asked to respond to the given questions by choosing the correct answer of four-option multiple choices. The following week after the last lesson was completed, they were once again asked to do posttest in listening comprehension. The test items were designed based on the split-half methodology in order to have a pair of each test specification as mentioned in 3.5.3.1 Pretest.

Data Collection Procedures

In this section, the researcher will elaborate on the data collection procedures. Most importantly, the same blind students are measured at multiple points in time. The process of collecting data was the same but the test items were different.

1. The first process was that the researcher informed the blind students about objectives, direction, test components, and scores of the test.

2. Before administration, the researcher asked the blind students whether they understood how to conduct the test.

3. Next, the researcher played the test audio files for the blind students. Each item of the test audio file questions was played twice to the blind students.

4. Once the question was completely done, the blind students had 30 seconds to think and answers.

5. The bind students were then required to show their fingers to represent their answers.

6. While the blind students were showing their fingers, the researcher was writing down the answer on the paper.

7. Finally, the answers of the blind students would be reorganized and typed in Microsoft Excel.

3.7.2 Questionnaire

The questionnaire was completed in the same day after the posttest was finished. It was made up of two sections with 14 items. Additionally, the arrangement and the amounts of items of the questionnaire will be described, respectively. The first part was provided to gather demographic profile, consisting of four items. The second part included 14 items asking about satisfaction level toward the instructor-designed instructional materials used in the flipped classroom. The second part of the questionnaire was composed of three themes that were related to content, media, and usefulness.

Data Collection Procedures

This section will attempt to describe the procedures that the researcher used to collect data.

1. To collect the questionnaire data, the process was scheduled to be completed after the blind students had done their posttest.

2. The following stage of collecting the data of the questionnaire Part 1, the researcher asked the individual blind students about their names, last names, grades, ages, and years of English studying.

3. Before collecting the data of the questionnaire Part 2, the researcher explained the reasons for rating their scores.

4. During this process, the researcher read each item of the questionnaire to the blind students and let them raise their fingers that represented the scores. Each item was read twice or more based on the blind's desire until they understood to rate the scores.

3.7.3 Semi-structured Interview

All of the blind students participating in this experiment were selected to give responses in this session to give alternative comments, feedback, and suggestions. It might last around 15 minutes for individual blind students since the questionnaire was already covered all the necessary information for the study. The semi-structured interview was composed of six questions that were developed differently from the questionnaire. Moreover, the emergent questions would be intriguing to ask the participants for gathering thick, new, and rich information.

Data Collection Procedures

The aim of this part is to introduce data collection procedures.

1. To begin this process, the researcher began the semi-structured interview by arranging the time table for individual blind students so that they did not need to wait for this process.

2. Prior to semi-structured interview data collection, the blind students were asked for permission to record audio. The researcher also informed the blind students that all information is confidential and would not be disclosed without permission.

3. At the time of interviewing, the researcher provided the objectives and introduced the interviewing process.

4. During the data collection, the researcher wrote the responses. Moreover, the researcher asked for clarification and follow-up questions when needed. The researcher was also responsible for clarifying confusion, encouraging the participants, and simplifying questions in case the blind students could not understand. The semi-structured interview questions did not need to be asked in that order as listed in the question list.

5. Once the data were completely collected from the blind students, the researcher summarized and verified if there were some unclear responses.

6. Finally, calling the participants would be needed when the researcher found unclear responses during the time of transcribing data.

3.7.4 Class Observation

The class observation was implemented in the present study because it could give a clear picture of the uncontrolled situations. This present study used two observers to collect data. In order for the researcher to gather the data, the scope of the class observation was pinpointed so that it could lead the observers to make a careful observation. The class observation format was combined of two techniques which were categorical and narrative recording. The categorical items were utilized for listing the possible answers. In addition, it could prevent the mess and make it consistent for the entire experiment i.e. the observers have to observe the class for several times and gain similar answers, they will not write down their observed features variously. Before

going to observe the class, the observers were trained, given the clear objectives of the observation, and explained the general formats or unclear points.

Data Collection Procedures

This part highlights the procedures that the researcher employed for data collection.

1. Prior to commencing the data collection procedures, the observers received an explanation of the research study.

2. Later, the observers were trained on how to observe the class and checked their understanding of the class observation process.

3. After training and checking their understanding, the observers were asked to check for clearance of the class observation forms if the objective of each class observation aspect was obvious. The forms consisted of checking the attributes and narrating what the observers have seen. Following this step, the correction would be given when there was an unclear aspect or an error.

4. Once the former process was completed, the observers were informed and provided the schedule of the experiment. The observers were then required to come according to the schedule.

5. When the observers arrived at the school on the day they were supposed to collect the data, they were briefly informed the objectives and procedures again.

6. After the completion of the data collection, inviting the observers was necessary in order to request them for summarizing the process orally once again for more in-depth information and clearance of their data in the data collecting forms.

7. Finally, the summary of the findings was submitted to the observers as to the role of the researcher to recheck because it would have some effects on data analysis if the findings were not equivalent to what the observers had narrated or checked.

This section concludes the research instruments, including pretest/posttest, class observation, questionnaire, and semi-structured interview used to collect data. The next part will deal with the data analysis of the present research study.

3.8 Data Analysis

The data obtained from the study were grouped in the relevance of their attributes. The procedures of data analysis could be broadly themed based on the research instruments as follows.

(1) Pretest/Posttest and Questionnaire Findings

The scores on the multiple-choice pre/posttest were numerically calculated, and the data acquired from the questionnaire were interpreted in a quantitative format by using the Statistical Package of Social Sciences (SPSS).

(2) Semi-structured Interview and Class Observation Findings

The semi-structured interview and the class observation, in contrast, were analyzed by using content analysis. The data were transcribed, coded, and condensed the codes and later presented in a discussion (Creswell, 2007). Content analysis is generally known as the procedure for the categorization of verbal or behavioral data for the purpose of classification, summarization, and tabulation (Hancock, 1998; Hancock,

Ockleford, & Windridge 2007). By utilization of the content analysis, the obtained data might "lead to themes or theoretical criteria that are grounded in the data" (Lincohn and Guba, 1985 as cited in Teddlie and Tashakkori, 2009). Yevale (2018) and Hancock, Ockleford, & Windridge (2007) addressed that content analysis could vary and be implemented on two levels. The first one is descriptive (What is the data?) and the other is interpretative (What was meant by the data?). The previous section has gone some way toward analyzing data in the current study of enhancing the blind listening comprehension through the flipped classroom context with the implementation of the instructor-designed instructional materials in general. Thus, the analysis of each finding will be further explained.

3.8.1 Quantitative Data Analysis

The quantitative data analysis comprised the data gained from the first and second part of the questionnaire as well as pretest/posttest. The data, in this method, were coded and analyzed by applying the Statistical Package for the Social Sciences (SPSS) for descriptive statistics e.g. frequency, percentages, mean scores, standard deviations, and the paired sample t-test.

The personal information results obtained from the first part of the questionnaire were calculated, analyzed, and interpreted by using descriptive statistics, e.g. mean scores. The blind students' satisfaction level toward the instructor-designed instructional materials learned through the flipped classroom context was also assessed, analyzed, and interpreted using the criteria of mean scores and standard deviation. Table 3.3 presents the criteria for interpreting the data according to the five-point Likert scale for individual items for each subpart of the second part of the questionnaire.

Table 3.3: Criteria for Interpreting Five-Point Likert Scales for Individual Items

Ranges	Statements
4.50 – 5.00	Very satisfied
3.50 - 4.49	Satisfied
2.50 - 3.49	Neutral
1.50 - 2.49	Unsatisfied
1.00 – 1.49	Very unsatisfied

3.8.2 Qualitative Data Analysis

The qualitative data obtained from the third part of the questionnaire, the semi-structured interview questions, and class observation data were later transcribed, coded, and condensed the codes and presented in a discussion by means of content analysis (Creswell, 2007). Qualitative data analysis is also known as the deductive approach (Sunday, n.d.). Researchers will group the data and seek for similarities of differences to answer the research question. Content Analysis is one of the approaches used in order to analyze qualitative materials. It normally works with verbal materials; however, it can be utilized with nonverbal material, too (Smith, 2000).

This part will deal with the data analysis procedure which is content analysis. In this study, the researcher followed the steps provided by Sunday (n.d.)

1. After collecting the data, the researcher organized the data by transcribing the semi-structured interview data and labeling the class observation data (structuring and familiarizing).

2. The researcher then identified the framework. To put it simply, it was done by the implementation of the coding plan.

3. On completion of framework identification, the researcher organized the data into the framework. The data were coded and modified based on the coding plan.

4. When coding and modifying of the data were completed, the researcher administered the framework in the analysis. The researcher arranged and organized the responses in categories and identified the emerged themes.

3.9 Pilot Study

This pilot study was designed to collect both quantitative and qualitative data. It was conducted to evaluate its accessibility, feasibility, and appropriateness of the measures. Moreover, it was used as a small-scale experiment to refine the intervention. Prior to a large experiment of the utilization of listening instructional materials in the flipped classroom context, a pilot study was implemented in testing and refining the intervention. The pilot study was planned to conduct with grade 7 to 9 blind students in the Nakhon Ratchasima School for the Blind, with an average of eight years English studying. In contrast to the blind participants at the Khon Kaen School for the blind, the blind students at the Nakhon Ratchasima School for the Blind were all boys because the school directly supports only male blind students at the secondary school level. Due to the nature of the schools for the blind, it also imposed the limitation on the number of the bind students in the pilot study: only eight male blind students were recruited to participate in the pilot study. Following that, all the pilot data would be collected around

one month. In addition, this pilot study was expected to provide significant data in order to measure and confirm the accessibility in the instruments being implemented such as the learning website used in the flipped classroom, questionnaire, pretest, posttest, and braille or large-print books. Insofar as possible, a pilot study should be done under the same conditions that would be employed in the main experiment. Conducting a pilot study was one of many necessary steps that the researcher should take into consideration. Therefore, the steps of piloting were set as follows in order to make the process effective and go directly to the points.

1. The researcher learned how to conduct a pilot study.

2. The researcher defined the objectives of conducting a pilot study and in what way the data will be used.

3. The researcher consulted with an expert about what will be observed, judged, and also created the evaluation instruments.

4. The researcher specified a group of participants, timeline, evaluation approach, analysis evaluation, criteria for making a judgment about program and process, and needed evidence which will be necessarily used in a pilot study.

5. The researcher accomplished the evaluation in a pilot study.

6. The researcher later responded to feedback, comments, and recommendation for changes.

Pilot Results Report

Regarding the present study, the major purpose of the piloting of this study is to validate the instructor-designed instructional materials in the flipped classroom context

and the four research instruments in five aspects: (1) pretest/posttest, (2) questionnaire, (3) semi-structured interview, (4) class observation, and (5) discussion.

(1) Pretest/Posttest

The first week of the experiment in the pilot started by informing the purposes. Following that, the blind students were required to do pretest concerning listening comprehension within an hour. It consists 20 multiple-choice questions. There were three parts of the test which were: 1) ten items of listening responses, 2) five items of listening comprehension, and 3) five items of vocabulary recognition. During taking the pretest, the blind students listen to the audio files and raise their hands and show the fingers in order to represent the answers as the blind students generally do. After the learning was finished, they were tested once again for their listening comprehension enhancement using the posttest. The numbers and the parts of the posttest were the same as the pretest. In the case of time given for doing a test, they revealed that an hour was reasonably fair for them to finish and it did not cause them to become exhausted. Then, the problem with the amount of time spent for the test did not occur. Thus, the same test format can be used in the actual experiment.

Table 3.4: The Results of Paired Samples Statistics in the Pilot

Variables	Mean	N	Std. Deviation	Std. Error Mean
Posttest	12.75	8	3.882	1.373
Pretest	9.88	8	4.121	1.457

With regard to the results, a paired t-test was run on a sample of eight blind students at the Nakhon Ratchasima School for the Blind. As shown in Table 3.4, the

results revealed the difference between average pretest scores ($\bar{x}$= 9.88) and average posttest scores ($\bar{x}$=12.75).

Table 3.5: The Results of Paired Sample Test in the Pilot

Variables	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		T	df	Sig. (2-tailed)
				Lower	Upper			
Posttest-Pretest	2.875	1.458	.515	1.656	4.094	5.578	7	.001

In the pilot, a significant difference between the pretest and posttest was evident since there was an increase of the blind's listening comprehension enhancement associated with the instructor-designed instructional materials in the flipped classroom context. As illustrated in Table 3.5, it shows a statistically significant increase of 2.88 (95% CI, 4.09 to 1.66) points, t(7) = 5.578, p = 0.001.

(2) Questionnaire

The purpose of the questionnaire in the pilot was to collect (1) demographic profile and (2) the blind's satisfaction level toward the statements regarding the instructor-designed instructional materials in the flipped classroom context (14 items). The results are shown as follows.

Table 3.6: The Results of the blind's Demographic Profile in the Pilot

Number of students	Gender		Age (13-16)	Grade			Years of English study
	M	F		7	8	9	
8	8	-	14.16	3	3	2	7.9

Data from Table 3.6 shows the blind's demographic profile in the pilot, there were eight male blind students. Their ages ranged from 13-16. Their average year of English learning was 7.9 years at Nakhon Ratchasima School for the Blind.

Table 3.7: The Results of the Questionnaire Part 2 in the Pilot

No.	Statements	$\bar{x}$	SD.	Satisfaction level
A. Content				
1.	The objectives are clear for the blind students to learn.	4.63	0.52	Very satisfied
2.	The contents start from the easy to the difficult one.	5.00	0.00	Very satisfied
3.	The contents are clear with explanations and full with examples.	4.63	0.52	Very satisfied
B. Media				
4.	The computer is easily used to learn. (computer & facilities readiness)	3.13	0.64	Neutral
5.	The audio files are clear and interesting.	4.25	0.46	Satisfied
6.	The instructor-designed instructional materials are good and help the blind students learn better. (online material and student book)	4.63	0.52	Very satisfied
7.	The student book goes along well with the lessons the blind students learn with computer.	4.38	0.52	Satisfied
C. Usefulness				
8.	The blind students can list the questions or problems from learning through the flipped classroom to ask the teacher in the classroom.	4.63	0.52	Very Satisfied
9.	Time spent for learning through the flipped classroom is enough for the blind students to finish each lesson in time.	3.75	0.71	Satisfied
10.	The instructor-designed instructional materials increase the blind's confidence in terms of the English listening.	4.75	0.46	Very satisfied
11.	The blind students think the instructor-designed instructional materials are good for the beginners to enhance listening comprehension.	4.75	0.46	Very satisfied
12.	The blind students can further search information from other resources.	4.63	0.52	Very satisfied
13.	Learning through the computer makes the blind students understand the contents better when they learn in the classroom.	4.00	0.76	Satisfied
14.	The instructional materials such as the student book decrease the difficulties concerning with the nature of listening while blind students learn via computer.	4.63	0.52	Very satisfied
	Total	4.41	0.51	Satisfied

Table 3.7 displays the results of the blind's satisfaction level in the pilot. Overall, the ten blind students felt satisfied ($\bar{x}$ = 4.41, SD. = 0.51) toward the instructor-designed instructional materials in the flipped classroom context due to the satisfaction level. It can be seen that the greatest satisfaction level regarding the content, media, and usefulness are (2) The contents start from the easy to the difficult one ($\bar{x}$ = 5.00, SD. = 0.00), followed by (10) The instructor-designed instructional materials increase the blind's confidence in terms of the English listening and (11) The blind students think the instructor-designed instructional materials are good for the beginners to enhance listening comprehension, which scored X = 4.75 while SD. = 0.46. In contrast, the mean lowest score for the questionnaire Part 2 was X = 3.13 and SD. = 0.64 as can be seen in (4) The computer is easily used to learn. (computer & facilities readiness). It means that the blind students felt neutral.

(3) Semi-structured Interview

Because of the time limitation and the purpose of the interview in the pilot was to receive a holistic picture of the experiment whether the blind students encountered difficulties when learning through the instructor-designed instructional materials in the flipped classroom context, the group semi-structured interview was conducted in lieu of an individual semi-structured interview. The Thai language was used in this process in order to receive direct and accurate responses from the blind students. In terms of the online instructor-designed instructional materials and the braille and large-print books, the researcher did the piloting to inspect the accessibility of the instructor-designed instructional materials. Suggestions and feedback were provided to the researcher in order to improve the instructor-designed instructional

materials; during the pilot, the blind students in the pilot study offered feedback that the online instructor-designed instructional materials in the flipped classroom were appropriate in terms of the text clarity and the voice clearance. In the case of accessibility, there was still a problem in key functions of the online instructor designed instructional materials used in the flipped classroom context. Finally, for the in-class activities such as pair or group activities, the blind students expressed that they felt satisfied with the provided activities, but some activities would be better deleted out owing to the blind's biological constraints and appropriateness of the braille book production.

They also informed about the test that it would be better if there are changes:

1. The audio files were unclear, especially for those that were created with the sound of a deep tone male voice. Thus, female voices would be more easily understood.

2. Pausing between the choices made the blind students in the present study confused.

3. The test for listening comprehension, the stories seemed so long until they made them feel like they were tested memorization, not comprehension.

(4) Class Observation

The class observation is implemented in the pilot in order to observe the blind students in a real setting and in a real situation. They would be observed multiple factors such as teaching, learning, the blind student-teacher interaction, the student-material interaction, the language used in class, and physical factors. The results were

that the blind students themselves interacted with their peers for completing activities both inside and outside the classroom through explanation, clarification, or physical assistance such as accessing the online instructional materials for friends, checking the computer or other technological devices (headphones), etc. In terms of in-class activities, there were numerous roles happening in the pilot. The blind students got actively involved with friends when doing pair or group activities. Also, they asked the teacher directly on the tasks or lessons that they could not fathom. Additionally, the teacher was the one who interacted with the blind students by asking questions while walking around the classroom. Sometimes the blind students asked for a short leave because they would like to participate in school activities with their friends. Therefore, it influenced their learning: they may not have paid much attention to the tasks based on the observers' concerns. Generally, the time that was scheduled for them to learn was short because learning could start after dinner. Moreover, the evening section was normally spared for the inclusion teacher to help them to do homework. The teacher thereupon had to let the inclusion teacher spend that time for assisting the blind students to finish the homework assignments instead. Many a time, the scheduled class time was canceled because of the teacher's and the blind's time availability.

(5) Discussion

The discussion consists of four themes based on the research instruments. Each theme covers essential detail of the problems, suggestions, and modifications.

Pretest/Posttest

Pretest and posttest could be conducted smoothly within the class that the teacher asked them to answer by raising their hand to represent the answers and the teacher was the one who wrote down on the paper. Therefore, the process did not indicate that reorganizing the procedures is needed. Time provision to complete both tests was sufficient for a twenty-multiple-choice-item test. Closer inspection to the results of the paired t-test score, the blind's listening comprehension significantly increased in the pilot. Thus, the results address no revision for the test and classroom management.

Questionnaire

With regard to the modification of the questionnaire, the implementation process was not considered problematic that leads to an adjustment. However, it would be finer to collect the data of the questionnaire Part 1 at the first class in the actual experiment because it could also provide the teacher opportunities to know the blind students and keep the demographic profile for the in-class and out-of-class activities.

Semi-structured Interview

In association with class observation, the researcher found that scheduling or arranging a time for the individual semi-structured interview could ensure the blind's

time availability because there are school events and private errands to complete during the weekend. Therefore, it could solve the problem involving time. Moreover, the simplification of the questions is needed because it would help the blind students to understand the questions more easily.

Class Observation

In the actual experiment, once the data were completely collected by the observers, the reflecting process in that day between the researcher and the observers would be helpful for interpretation and analysis of the data. The researcher could have chances of discussion and reflecting back on the data with the observer to get accurate and correct information. Other processes concerning the class observation were fine such as setting up the objectives, having a brief discussion on the objective, training before conducting of class observation. Therefore, the modification that should be added in the oral reflecting process at the end of each class observation so that the researcher could ask for an unclear point with the fresh information of the observers.

Overall, there was substantial progress in the educational adoption of the guidance over the results of the pilot. The researcher also received comments or other information concerning the recommendations and feelings toward the test. Adoption of the obtained necessary information was implemented for the improvement of the quality of the test. This useful and helpful advice was the beginning for the researcher to adjust or alter in order to minimize the problems and maximize the quality of the instructor-designed instructional materials in the flipped classroom context. When the results were successfully collected, the researcher further explored more on the causes of the problems of the instructor-designed instructional materials as well as the research

instruments and methods to make progress toward them by having a meeting with programmers, inclusion teachers, and technicians at the Nakhon Ratchasima School for the Blind and the Khon Kaen School for the Blind. The results indicated that some adjustments are necessary in order to improve the research instruments. First, the revision of the audio files of the tests needs to be made by using a female or higher voice. Second, separation in the data collection procedures of the questionnaire, especially Part 1, would benefit the researcher and observers in classroom management and class observation because they could know the blind students' background and to specify individual students' behaviors when collecting data in class observation. Third, the simplification of the language in the question items for the blind could help them understand what the researcher wants to explore more easily. Fourth, the reflecting process among the researcher and observers could help the researcher in establishing accurate and correct data.

To sum up, the chapter also shows the deliberate steps for the development and efficiency testing of the scoring for the pretest and posttest, the class observation formats, the questionnaire, and the interview questions. The focus of this chapter is to enhance the blind students' English listening comprehension ability and close the gaps of time limitation which causes them not to learn effectively. Thus, this study aims to develop, adopt, and construct the instructor-designed instructional materials for the blind to enhance the blind's listening comprehension. The instructor-designed instructional materials were conducted, validated, and redesigned for feasibility in order to ensure that they were efficient without any disruption. The participants were required to take the pretest and posttest before and after learning with the instructor-designed instructional materials in the flipped classroom to investigate if they could enhance the

blind's listening comprehension. Moreover, the data regarding the satisfaction level of the blind students toward the instructor-designed instructional materials in the flipped classroom context were gathered by using class observation, questionnaire, and semi-structured interview. All the data were analyzed quantitatively or qualitatively. Since the necessity of conducting a good piece of research should be apparently done in systematic planning. Therefore, the research methodology requires collecting data from the specified research instruments and then analyzing them. This chapter defined and provided descriptions in detail concerning with the theoretical framework, research design, setting and population of the study, research instruments, data collection procedures, data analysis procedures as well as the pilot study. The following chapter will present the results of the current study after the implementation of the instructor-designed instructional materials in the flipped classroom context.

CHAPTER 4

RESULTS AND DISCUSSION

The purpose of this chapter is to present the results and discussion in a systematic and detailed way. The first part of this chapter is in regards to the results generated by the implementation of the instructor-designed instructional materials in the flipped classroom context for the blind students in the Khon Kaen School for the Blind. The first reports on the data analysis regarding two parts namely, the blind's listening comprehension enhancement and the blind's satisfaction level. The second part deals with the discussion. All the gathered results will be applied to answer the two research questions of the study as follows:

1. To what extent do the instructor-designed instructional materials in the flipped classroom context enhance the blind's listening comprehension in the Khon Kaen School for the Blind?

2. What is the blind students' satisfaction level toward the instructor-designed instructional materials in the flipped classroom context whether they can enhance the blind's listening comprehension?

4.1 Results

In the sections that follow, the results will be explained in a detailed account. They are composed of two themed sections. Firstly, it is concerned with the blind's listening comprehension enhancement. Secondly, it describes the results regarding the blind's satisfaction level. This section reports on the data analysis (quantitative and qualitative data analysis). The obtained data were from the pretest and posttest, the questionnaire, the semi-structured interview, as well as the class observation.

4.1.1 The Blind's Listening Comprehension Enhancement

To answer the first research question, the scores of pretest and posttest were used. The former administered at the beginning of the experiment whereas the latter was done at the end of the experiment. Both of the tests consisted of three parts (1) response evaluation, (2) listening comprehension, and (3) vocabulary recognition.

In lieu of the traditional classroom, this experiment shifted by rethinking about time and space for learning. The researcher would like to know whether the instructor-designed instructional materials in the flipped classroom context could lead to a significant difference in listening comprehension. Therefore, pretest and posttest were administered to determine enhancement resulting from the instructor-designed instructional materials implemented in learning through the flipped classroom context. They were utilized to evaluate the blind's listening comprehension proficiency and compare the scores of the blind's listening comprehension proficiency before and after initial implementation. The findings are shown as follows.

Table 4.1: The Results of Paired Samples Statistics

Variables	Mean	N	Std. Deviation	Std. Error Mean
Posttest	10.90	10	2.601	.823
Pretest	9.20	10	1.476	.467

A paired t-test was done to compare the blind's listening comprehension enhancement in the flipped classroom environment. As can be seen in table 4.1, a paired t-test was run on a sample of 10 blind students. The results showed the difference between average pretest scores ($\bar{x}$= 9.20) and average posttest scores ($\bar{x}$=10.90). That means the mean posttest score is higher than the mean pretest score (10.90 versus 9.20): the sample dataset has full test scores out of 20 points. The blind students did better when implementing the instructor-designed instructional materials in the flipped classroom context (10.90 ± 2.60) as opposed to the pretest that they did not yet learn (9.20 ± 1.48).

Table 4.2: The Results of Paired Sample Test

Variables	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Posttest-Pretest	1.700	1.829	.578	.392	3.008	2.940	9	.016

As can be seen in Table 4.2, it shows a statistically significant increase of 1.70 (95% CI, 3.01 to 0.39) points, t(9) = 2.940, p = 0.016.

These results reveal that learning through the flipped classroom context really does enhance the blind's listening comprehension. Specifically, the results suggest that when the blind students could have more time to learn the factual knowledge by themselves before doing activities in class, their listening comprehension proficiency significantly rose. Thus, the flipped classroom environment was considered successful, as they were capable of enhancing the blind's listening comprehension.

4.1.2 The Blind's Satisfaction Level

To answer the second research question regarding the blind's satisfaction level toward the instructor-designed instructional materials in the flipped classroom context, the data obtained for the questionnaire, semi-structured interview, and class observation are used to address the satisfaction level of the blind students. In the following section, the findings of each research instrument are used to triangulate in order to determine and establish validity in the study by analyzing a research question from different perspectives. Furthermore, the prime goal of triangulation is achieving consistency across data sources.

The following sections aim to provide detailed results as mentioned in Chapter 3. The three research instruments implemented to elicit information are: (1) questionnaire, (2) semi-structured interview, and (3) class observation. Furthermore, the last part of this section will discuss trouble spots and possible causes of the "neutral" and "unsatisfied" interpretations of the questionnaire Part 2.

4.1.2.1 The Results of Questionnaire

In this present study, Part 1 of the questionnaire was developed for the blind students to respond to the questions concerning demographic profile. Table 4.3 provides the descriptive statistic of the participants in the present study that was from part one of the questionnaire.

Table 4.3 The Results of the blind's Demographic Profile

Number of students	Gender		Age (12-17)	Grade			Years of English study
	M	F		7	8	9	
10	-	10	14.6	5	4	1	7.6

As can be seen from Table 4.3, there were ten female blind students in this current study. Their ages ranged from 12-17. Half of the participants were seventh graders while only 10 percent of the participants were ninth graders. Their average year of English learning was 7.6 years at the Khon Kaen School for the Blind.

Part 2 of the questionnaire was used in order to ask the blind students to rate their satisfaction level toward the instructor-designed instructional materials in the flipped classroom context in three different themes that were content, media, and usefulness. Table 4.4 shows the findings of the questionnaire that was distributed to the blind students. The questionnaire was designed based on the Five-point Likert scale.

Table 4.4 The Results of the Questionnaire Part 2

No.	Statements	$\bar{x}$	SD.	Satisfaction level
A. Content				
1.	The objectives are clear for the blind students to learn.	4.50	0.53	Very satisfied
2.	The contents start from the easy to the difficult one.	5.00	0.00	Very satisfied
3.	The contents are clear with explanations and full with examples.	5.00	0.00	Very satisfied
B. Media				
4.	The computer is easily used to learn. (computer & facilities readiness)	2.30	0.67	Unsatisfied
5.	The audio files are clear and interesting.	3.70	1.16	Satisfied
6.	The instructor-designed instructional materials are good and help the blind students learn better. (online material and student book)	4.80	0.42	Very satisfied
7.	The student book goes along well with the lessons the blind students learn with computer.	4.10	0.57	Satisfied
C. Usefulness				
8.	The blind students can list the questions or problems from learning through the flipped classroom to ask the teacher in the classroom.	3.70	0.48	Satisfied
9.	Time spent for learning through the flipped classroom is enough for the blind students to finish each lesson in time.	2.60	0.84	Neutral
10.	The instructor-designed instructional materials increase the blind's confidence in terms of the English listening.	4.70	0.48	Very satisfied
11.	The blind students think the instructor-designed instructional materials are good for the beginners to enhance listening comprehension.	5.00	0.00	Very satisfied
12.	The blind students can further search information from other resources.	4.50	0.71	Very satisfied
13.	Learning through the computer makes the blind students understand the contents better when they learn in the classroom.	3.10	1.10	Neutral
14.	The instructional materials such as the student book decrease the difficulties concerning with the nature of listening while blind students learn via computer.	4.60	0.52	Very satisfied
	Total	4.11	0.53	Satisfied

From Table 4.4, it shows the summary statistics of the ten blind students toward the instructor-designed instructional materials in the flipped classroom context. It can be seen that the greatest satisfaction level regarding the content, media, and usefulness are: (2) The content starts from the easy to the difficult one, (3) The contents are clear with explanations and full with examples, and (11) The blind students

think the instructor-designed instructional materials are good for the beginners to enhance listening comprehension, which scored $\bar{x}$ = 5.00, SD. = 0.00. It means that the blind participant felt very satisfied. In contrast, the lowest satisfaction level under the three themes are shown as follows: (4) The computer is easily used to learn due to computer & facility readiness ($\bar{x}$ = 2.30, SD. = 0.67), (9) Time spent for learning through the flipped classroom is enough for blind students to finish each lesson in time ($\bar{x}$ = 2.60, SD. = 0.84), and (13) Learning through the computer makes the blind students understand the contents better when they learn in the classroom ($\bar{x}$ = 3.10, SD. = 1.10). It, furthermore, is apparent from this table that the blind students felt satisfied with the study which can be seen in the total score ($\bar{x}$ = 4.11, SD. = 0.53). Because of the implementation of a point value from 1 to 5, the average score of the questionnaire Part 2 fell into the "satisfied" interpretation, which is between 3.50 - 4.49. The following section will deal with the data that the blind students gave about their satisfaction level toward the instructor-designed instructional materials in the flipped classroom context. In the present study, all ten of the blind students were called for the semi-structured interview.

4.1.2.2 The Findings of Semi-structured Interview

The implementation of the semi-structured interview was to obtain in-depth information. The findings will be presented in four themes: (1) satisfaction toward the instructor-designed instructional materials, (2) satisfaction toward the flipped classroom, (3) problems, and (4) suggestions.

(1) Satisfaction toward the Instructor-designed Instructional Materials

Ten female blind students reported that all of them satisfied with the instructor-designed instructional materials. The reasons provided by the ten female blind students were grouped and named by the similarities and differences between the data. A list of codes of the semi-structured interview appeared from the data collection. Two categories emerged as the reasons behind the blind's satisfaction toward the instructor-designed instructional materials as follows.

a) Comprehensible Input

b) Impact of Visual, Auditory, and Kinesthetic Materials

c) Applicability in Inclusive Education Program

d) Ubiquity

a) Comprehensible Input

In terms of the contents, the blind students claimed that they did not find any of the contents were too difficult or easy to comprehend due to their school levels. The contents were comprehensible. Some examples of the comments are illustrated as follows.

STD1: *'I don't see anything difficult because they are basic things.'*

STD3: *'No. Nothing is easy. They are doable.'*

STD5: *'I think all contents… I think they are okay because they are related to the contents that 7 to 9 graders learn.'*

STD7: *'No. They all are average. Not difficult. Not that easy. Not very difficult.'*

The blind students in this study did not find any of the contents too difficult for them. Despite keeping asking the list of possible themes for the participants, they still firmly insisted on having no problems and difficulties:

STD10: *'For me, nothing is a problem.'*

STD5: *'Yes, I don't have any problems at all.'*

b) Impact of Visual, Auditory, and Kinesthetic Materials

The same ten female blind students who were required to respond to the semi-structured interview provided the reasons causing them to gain satisfaction toward the instructor-designed instructional materials (online and braille or large-print books). The two main reasons were thoroughly examined and compared for similarities and differences. There are three main themes emerges as reasons behind their responses.

- Visual and Kinesthetic
- Auditory

Visual and Kinesthetic

Since the blind students generally receive spoken representation, being able to read could be the factor causing them to feel satisfied. The appropriate design of the instructional materials about instructional material readability (braille and large print books) led to satisfaction. They were more accessible by comparison to what they normally used in IEP (print worksheet). Additionally, they could track dots on the braille book or read the large-print book while they could listen to the sounds

simultaneously. Thus, the blind expressed their satisfaction toward the instructor-designed instructional materials.

STD1: *'We normally listen more than we read.'* She added more information, *'Sometimes reading causes me to feel better.'*

STD4: *'Like when it says a word… we can track together.'*

The braille or large-print books also helped them to strengthen reading ability as can be seen from the examples.

STD1: *'Make me be able to read more.'* She also addressed, *'It's useful because some who cannot read can practice and it could make them be able to read more.'*

STD2: *'They help me to read better.'*

STD9: *'Yes, it also makes me know more vocabulary at the same time like what the meaning of the word is, how to read and spell.'*

Especially for the students with low vision, commenting on readability, the bigger font size of the large-print book or raised dots of the braille book supported the blind students to read better and more easily.

STD8: *'Well! The font is proper to my eyesight that I am able to see.'*

STD9: *'For me, it's okay. It's readable.'*

Auditory

With the auditory supports of the instructor-designed instructional materials in the flipped classroom context, the blind students felt satisfied as they worked well to facilitate correct pronunciation. The sounds were clear. After learning

to listen to the correct pronunciation, it also affected the blind students to read written text resources correctly.

STD3: *'Usefulness? For example, sounds are useful because we can't see, right? When we listen, we understand.'* She added, *'And we don't know, we can go and read. Then, we will memorize and store it in the brain. Haha. In our brains.'*

c) Applicability in Inclusive Education Program

Even more amazing about the satisfaction of the instructor-designed instructional materials is to apply the knowledge learned in this experiment in the Inclusive Education Program with their normal-sighted peers. The participant emphasized that 60 percent of knowledge gained in this study was applicable inside the classroom in the inclusive education program. The experiment made them more equipped in knowledge so that they could do an examination or learn with normal-sighted friends. Furthermore, the knowledge learned could be adapted in daily life. The instructor-designed instructional materials, too, helped the blind students to be confident when having a conversation.

STD5: '*Well, the materials can be brought to use in daily life.'* She added, *'Such as conversation.'* She also said, *'It's like if we learn here, right? For example, if we learn here, when we are in class the teacher will ask… like my additional English course, I am learning about my family.'*

STD6: *'We can talk with people.'* She also talked about another benefit, *'For dictation, we can memorize these words, such this.'*

STD9: *'For example like I was in the classroom with the sighted people, if it is a braille book, it makes me know what the word is, how to do and read it. I then can make myself understand.'*

d) Ubiquity

Another response obtained from the semi-structured interview showed satisfaction toward the books is that they could be carried. The blind students had the instructional materials in hand to learn.

STD5: *'It's like I can read it anytime. I can try to understand the braille, whenever. It… it makes us understand English more too.'*

STD10: *'The braille book you gave me is portable to the classroom when we forget the vocabulary words. Be portable to the classroom.'* She added, *'Yes, it can be brought for reading. It's used for supplementing.'*

(2) Satisfaction toward the Flipped Classroom

The blind students were required to answer the question in order to establish rapport whether or not they liked learning in the flipped classroom context. Comment from the blind students regarding the dislike toward the flipped classroom context did not appear from the interviewing process. The evidence to support this fact is that the interview was remarkable in that ten-tenths of the blind students liked to learn in the flipped classroom context.

To elaborate, a number of the blind students' comments can be themed into four sections as in order to demonstrate the great satisfaction they derived from the flipped classroom context.

a) Content Preparation

b) Ability in Answering and Questioning in Class

c) Content reviewing

d) Knowledge Evaluation

a) Content Preparation

According to the semi-structured interview, preparation accounts for forty percent of the total. Because the blind students were asked to learn the factual knowledge outside the classroom, the satisfaction was then expected to appear in case of the readiness before doing in-class activities.

STD3: *'Because if we prepare before class, right? We will be like… if we prepare before, we will have… how is it called? If we prepare before class, we won't need to read inside the classroom. It's like we don't need to… don't need to review once again in the classroom.'*

STD5: *'Yes, I like because I can have time to prepare before learning.'*

STD7: *'Because it's… how can I say? It makes us… err… learn before coming to class.'*

STD10: *'Well, I like it. It's like… like it makes us… prepared before.'*

b) Content Reviewing

Precisely thirty percent of those responded commented their satisfaction on it. This is another key point that led the blind students to be satisfied. Due to extra time provision, the blind students could review the lessons before class

when they did not understand. In addition, after in-class activities, they could spend their time outside of class to emphasize the contents they had recently learned.

STD1: *'Because we would know what we don't know and come back to do.'*

STD8: *'Well! I like it because umm! We learn outside and when we don't understand something, we can keep it and ask you inside of the class.'*

STD9: *'Well… I like it because I can learn and seek by myself and time for doing other activities is okay. I understand some of them. What I don't understand, I will know inside of class and later read more by myself. I know a lot more.'*

c) Ability in Asking and Questioning in Class

It makes up twenty percent of the satisfaction toward the flipped classroom. Commenting on the ability to answer the questions asked by the teacher, the blind students stated:

STD2: *'I like because when I'm in class, I can answer your questions.'*

STD4: *'Because I can read the contents before and ask you later. Then I can answer.'* She added, *'Because if we prepare before coming to learn… umm… it's like… we're more ready in class.'*

d) Knowledge Evaluation

It makes a very small percentage of the total at ten percent according to the semi-structured interview. The blind students liked to participate in the flipped classroom due to the capacity to evaluate the knowledge:

STD6: *'I like it because we will know how much knowledge, more or less, we have.'*

The blind students, therefore, could receive the benefit in thinking of their knowledge levels toward the contents so that they could find more opportunities in learning. The flipped classroom allows the blind student to put an effort to excogitate novel learning contents.

(3) Problems

The last theme that the researcher will describe concerning the problems of the instructor-designed instructional materials in the flipped classroom context. There are two main themes emerges as reasons behind their responses as follows.

a) Schemata on Linguistics and Linguistic Competence

b) Online Instructor-designed Instructional Materials

a) Schemata on Linguistics and Linguistic Competence

Although the contents were comprehensible, their schemata on linguistics and linguistic competence caused the blind students to face difficulties and led them not to be fluent when they did activities. The problematic aspects are: Morphology (e.g. addition of -s and -es in simple present and -ed (past participle) in present perfect) and syntax (grammatical structure of sentences). Linguistic features then made the contents abstruse and that caused confusion and incomprehension. Being unable to memorize and recognize vocabulary words influenced difficulties in learning contents.

STD2: *'What is difficult is… sentence arrangement.'* She added, *'I don't know which word should be the first in the sentence.'*

STD8: *'It is hard with the change of words and verb tense conjugation.'*

STD9: *'Like adding words such as verbs. What should be added after verbs?'* She put more information, *'Yes… such as adding –s and –es. How to read words. It is how to add things after words, how to answer each of questions.'*

STD3: *'It's like when I memorizing… I still can't remember some of them.'*

Regarding the ease of the contents, the reasons the blind students gave were explanations and already learned contents in IEP. Moreover, Lesson One (Home Sweet Home), Lesson Two (Daily Routines), and Lesson Three (Life at School) seemed easy.

STD2: *'No, because you explained.'*

STD6: *'Because some of them I already learned but it's good because I could review.'*

b) Online Instructor-designed Instructional Materials

The problems are divided depending on the online instructor-designed instructional materials into unfamiliar accents and website inaccessibility. The unfamiliar accents caused confusion and incomprehension. In addition, the issue about website inaccessibility was another hindrance for the audio aid.

STD1: *'Inaccessible, computer, sometimes I couldn't access.'*

STD4: *'The sounds were understandable, but I couldn't understand.'* She added, *'Because I don't get used to the accent.'*

STD10: *'But the only thing that is not good is the computer, it couldn't be used.'*

(4) Suggestions

The suggestions given by the blind students based on the semi-structured interview process can be broadly categorized into three groups that are:

a) Additional Instructional Materials

b) Additional Time for Learning

c) Exposure to Practice in a Foreign Context

a) Additional Instructional Materials

The first suggestion obtained from some of the blind students is concerned with the materials. The materials would be needed in some reasons as the students addressed that they wanted to have additional materials, a further study with more focus on materials e.g. phonics, vocabulary with Thai translation, and grammar worksheet is therefore suggested. The blind students asked for a variety of instructional materials because they would like to learn other language skills too.

STD5: *'I wanna have more braille materials about the English language.'*

STD6: *'Literally, I want vocabulary.'* She elaborated, *'I want it for reading.'*

Moreover, the blind students wanted braille materials for reading, learning vocabulary and grammar, or phonics. When the researcher put another question in order to know why books are more preferable. The reason was that many websites are made of the English language:

STD6: *'Yes, I have but… err… it's… it's English. It is in English spoken form. I don't understand.'*

b) Additional Time for Learning

In the case of learning time, exactly half of the blind students wanted the class to be longer in terms of whole course duration and each class learning time. They felt that they could learn a lot more if they have more time during doing activities:

STD2: *'I understood some of them but they may not be deep enough.'*

STD3: *'Well. I want you to extend the time. It's okay. I don't sleep that late.'*

The researcher then asked them whether it would be tiring for them to have a longer time, the participant said:

STD3: *'No. If it's on Saturday and Sunday, it isn't that tiring. If there are no events, learning on Saturday and Sunday is not tiring.'*

c) Exposure to Practice in a Foreign Context

An insignificant minority of the blind students also desired to have a foreigner inside of the classroom so that the authentic practice could occur. When a question was thrown to her about a Thai teacher who can speak both English and Thai, she mentioned that she preferred to study with a Thai teacher in the way that a Thai teacher could make her understand more on the contents compared to a foreign teacher. The reason was that having a foreigner in class was an authentic practicing

STD6: *'I wanna have a teacher that… that… that speaks English. The one who doesn't speak Thai to come to class too because… we can practice right away'*

Surprisingly, the blind's reaction during and after participation in this study was remarkable. It may be that they wanted to have more time and opportunities in learning. They may have found the real value of learning in this experiment since

they kept saying and asking for more classes. They gained benefits from the instructor-designed instructional materials provided for them in the flipped classroom. The blind students addressed that they actually love to learn the English language but they could not comprehend that much because of the limitations of the Inclusive Education Program (biological constraints and instructional materials).

4.1.2.3 The Findings of Class Observation

Class observation data were conducted during the experiment with the purpose of collecting data in a real situation within a real setting. It was utilized to collect data concerning the blind's behavioral, verbal, and nonverbal feedback. In this study, the class observation was principally done to explore the interactions among people or between people and the instructor-designed instructional materials in the flipped classroom context. Three categories of the interaction purposively observed and they are presented as follows.

a) Interaction between Student and Student
b) Interaction between Student and Teacher
c) Interaction between Student and Instructional Materials

a) Interaction between Student and Student

Some activities could be performed as a pair or group work. The teacher used group activities to run the classroom by separating the students with low vision to sit with the blind students to make a group. It means there was a student with low vision for any activities at any time that group activities happened. Observing the interaction between the blind students and students with low vision, it seems satisfying because they could do activities without frustration even though some blind students

were slower writers. However, there was a case when some members within a team did not feel satisfied with each other and were about to start the quarrel while they were doing activities. For instance, one student with low vision seemed to get angry when one blind student in the same group could not write the answer quickly as she wanted. The blind students spent more time in writing because they had to raise dots while the students with low vision just normally used their pen to write. Therefore, there was a suggestion given by the observer that is to count the numbers for making groups because it could minimize some problems due to random, not the teacher.

b) Interaction between Student and Teacher

Another main aspect of the flipped classroom is concerned with the roles between students and the teacher. In this research study, the teacher worked as a facilitator to support the learning process while the blind student needed to perform and take actions in their learning based on the theoretical framework. The detailed information of the student & teacher engagement will be further elaborated in several interesting aspects as follows.

Teaching Strategies

- **Explanation:** Strong evidence of explanation was found when the blind students did not fathom the contents. They asked the teacher for assistance and clarification by raising their hands or shouting the teacher's name for coming to them. The teacher would add details or explanations to all the blind students at once or in each group when the blind students were doing in-class activities.

- **Idea Contribution:** When the blind students produced some errors, the facilitation was used to reduce them i.e. the teacher stimulated or facilitated the blind students to ruminate over various possibilities by giving clues or advice.
- **Explicit Teaching:** Many times, the teacher explained to the blind students as a whole at a time. The useful grammar points were raised to elucidate and teach the blind students explicitly.
- **Example Illustration:** The teacher told stories to illustrate examples in order to make the blind students focus on what they were supposed to perform when the teacher was explaining or clarifying the difficult points.
- **Class Circulation:** An important theme that also emerged from class observation was concerned with the teacher's presence in the classroom. The teacher walked around the classroom in order to check the blind students' worksheets. Furthermore, the teacher took this process of walking to explain some contents to the blind students as seen from the class observation. Monitoring if the blind students really worked on the task also happened while the teacher walked. The teacher, too, took part interactively in discussions and explanations when stopping by each group.

Teacher's Use of Language

At the time of completing in-class activities, the teacher gave feedback, comments, etc. while the blind students were making a poor choice (academically and behaviorally) in order to:

- Encourage positive motivation
- Evaluate the blind students; corrective feedback

- Provide feedback on behavior factors e.g. when the students played, slept, and talk much during class
- Provide guidance, suggestions, and information to the blind for performance improvement and development

Another point to be highlighted here about the teacher's use of the language to deal with the blind's learning process. During the experiment, the observers found that the teacher asked the blind students questions for various reasons:

- Evaluating
- Arousing interests
- Recalling data/fact
- Summarizing the lesson
- Increasing the blind's involvement
- establishing the student's background

However, what needs to mention here is some comments about the wrap-up activities that the observers gave, the teacher once did a problem by having all of the students, both blind and low vision, compete against one another. Later, the students with low vision tended to win because they could scan through the contents in order to get the answers from the book more rapidly. This made the blind students feel unfair based on the blind students' comments and gestures.

During doing or learning outside the classroom, the teacher was always in the computer room with the blind students in order to support them when they were using the computer and another reason is the blind students were not allowed to get to the computer room by themselves without the teacher. However, the teacher would not

take any control even if the blind students played other websites and did not look like the blind students were learning.

c) Interaction between Student and Instructional Materials

With regard to equality in learning, the individual blind students had to complete the activities by themselves. Even though some activities must have been performed as a class activity, each blind student needed to be responsible in doing duties i.e. the individual blind students took turn asking questions one person at a time or they needed to answer or ask the questions to the teacher at the beginning of the class. The activities of the present study consisted of reading, pronunciation, listening, and vocabulary. Additionally, they were assigned to work in groups. During the process of completing tasks, they shared their roles equally in answering the questions that they had to do.

Some of the blind students forgot how to access the computer but the students with low vision could help them when they learned outside of class. Interestingly, there was a moment when one of the students with low vision put off her headphones and used the speakers to learn with a blind student together, instead of learning alone by herself. The blind students turned on the speakers while they were learning because they could learn with their peers who sat beside them. During the class observation, one observer described on the class observation form of the out-of-class activity that the blind students read after the online instructor-designed instructional material and they were given corrections by the student with low vision.

4.1.2.4 Trouble Spots and Possible Causes of the "Neutral" and "Unsatisfied" Interpretations

It has been noted that the blind students felt neutral and unsatisfied with the instructor-designed instructional materials in the flipped classroom. To help clarify the findings of the questionnaire Part 2 that shows "neutral" and "unsatisfied" interpretations. It provides likely trouble spots altogether with possible causes.

a) Insufficient Time
b) Use of the Materials

a) Insufficient Time

First, activities started a little bit late because there were special activities for the blind from different authorities such as the museum, the university, and the private donors. Following that, they could not leave the activities for attending the experiment. Many times, the teacher had to start the class at 6 p.m. and finish class at 8 p.m.

Second, some blind students came to class late because they waited for their friends or they went out of the school before the class started. When the teacher asked for the reason, the one who showed up late said that she went out to the convenience store. It was a dilatory action since the distance between the school and the convenience store altogether with their biological constraints.

b) Use of the Materials

First, it was concerned with the availability of the computer rooms. Due to the fixed building opening and closing times, it caused the blind students not to be able to use the computer for learning when there was a school event. The researcher then submitted the audio files to the blind students to learn through the Line application that one of them created.

Second, some computers did not have web browsers. The readiness of computers and facilities caused some blind students to encounter difficulties in learning on their own with the computer. Exasperation, thus, occurred due to ineffective computers.

Third, some blind students used the computer quite slowly because they could not remember the shortcut. They tended to spend more time to recognize or ask their friends. Thus, it caused them to call other friends or shout in order to ask their friends to help them access to the websites or the online instructional-designed instructional materials.

Fourth, non-function computers did not make them feel satisfied in learning online. When the blind students were asked for the reasons that made them declare themselves unsatisfied with the learning process, they commented that the computer did not work in good condition. With respect to the difficulties the blind students gave, they reported that the book would be replaced when the computer was not functioning.

On the whole, the questionnaire, semi-structured interview, and class observation have already given some positive and negative findings concerning the

instructor-designed instructional materials in the flipped classroom context that were implemented in the current study in order to enhance the blind's listening comprehension. All of the research instruments were utilized to reduce bias and strengthen the research findings. The following section, the researcher will deal with the discussion of the present study.

4.2 Discussion

What follows is an account of a discussion on the effectiveness of the instructor-designed instructional materials in the flipped classroom context for the blind at the Khon Kaen School for the Blind. The discussion is based on the two research objectives as shown as follows.

4.2.1 The Blind Listening Comprehension Enhancement

The result of this study shows that the instructor-designed instructional materials in the flipped classroom context were effective to help the blind students at the Khon Kaen School for the Blind to enhance their listening comprehension since a paired t-test demonstrated a statistically significant difference. Presumably, in the methodology part, it takes on a significance to refer to the theoretical framework which consists of constructivism and flipped classroom. Therefore, it is regarded as typical to expand credit to the administration of procedures. The results illustrated the difference between average pretest scores ($\bar{x}$= 9.20) and average posttest scores ($\bar{x}$=10.90) while the score of the difference was p = 0.016 in the current study. This finding is consistent with that of Ahmad (2016) who conducted the study about the flipped classroom model to develop Egyptian EFL students' listening comprehension. The study conducted by

Ahmad (2016) demonstrated that there was a statistically significant difference (t = 11.341, $p < 0.05$) according to a paired t-test score. Moreover, this present study produced the result that corroborates the finding of a great deal of the previous work in Roth and Suppasetseree (2016), showing that the implementation of the flipped classroom led the students to have higher test scores. In the study, 30 Cambodian pre-university participants performed the English listening comprehension better after participating in the experiment as the result between pretest and posttest scores had a significant difference at $p = 0.009$. The finding of this study is also in line and compatible with many previous studies concerning impacts of flipping the classroom on the English language when the flipped classroom was implemented (e.g. Başal, 2015; Abdelshaheed, 2017).

The finding of the present study showed that the average score of posttest was higher after the implementation of the instructor-designed instructional materials in the flipped classroom context. There were several reasons that might be used to explain this listening comprehension enhancement. It is divided into three main themes: (1) Learning time, (2) Learning activities, and (3) Instructional material design and development.

(1) Learning Time

This research study was designed for the blind students who have encountered a tribulation about learning time adequacy. Therefore, the blind's listening comprehension enhancement appears to be linked to the leaning time under the flipped classroom context. According to the approach of the flipped classroom that lets students possess a bigger amount of learning time outside of class, the blind students in the

present study also expected to learn by themselves with the extra learning time provision. It would be formulated that extended learning time helps the students to take up the opportunity to learn more in a bigger amount of time. Based on the learning model: Carroll's (1963, 1989) Model, learning is regarded as a function of time. With a large amount of time spent, a greater degree in learning takes place. The blind students could construct their own knowledge outside of class with provided resources (online instructor-designed instructional materials and braille or large-print books). Due to the findings, the blind students could organize their learning and the flipped classroom approach did not cause them to have a heavy workload in a limited period. When students feel motivated, they tend to spend their time on the learning task. They could have dominion over their learning process. The current study found that the blind students were able to prepare, evaluate, and search for more knowledge through other resources by themselves. They were able to portion their learning time so that they could stop when they desired or languished with long time learning. It, therefore, influences them to feel more relaxed and motivated as a consequence of the ability to organize their assigned work while they learned by themselves outside of class.

This factor also accords with the previous studies in Chapter 2 regarding learning and the brain, which showed that satisfaction or a good feeling could help the people to learn better and help about cognition. The findings of the present study did also show that the blind students got satisfaction from the instructor-designed instructional material in the flipped classroom context. To make it clearer, people could learn better from a good environment around them. The environment acts as a counter part of the cognition enhancement (Chiangkun, 2005; Schnelle, 2010). Human beings are one of the animal species, they generally seek for pleasure in order to make them

continue or keep doing something (Pearce, 2015). Whenever people do things with pleasure, they tend to spark memories more effectively due to the responsibilities of the amygdala (emotions) and the hippocampus (memory) that work collaboratively (Khaejornbut, 2015). It could be assumed that the blind's listening comprehension enhancement is from the blind's positive feelings while they were learning in the flipped classroom as 100% of them expressed that they liked learning in the flipped classroom.

Contrary to expectations, this study did not satisfy the blind students at some point. In the case of learning time, exactly half of the blind participants of this research study reflected on the concept of learning time. They wanted the class to be longer in terms of whole course duration and each class learning time. According to the questionnaire, the scores the blind students gave regarding the time spent on learning was not adequate for them to finish each lesson in time ($\bar{x}$ = 2.60, SD. 0.84). That means they felt neutral about it whether they had enough time. The reasons of the statistical scores could be possibly explained by the classroom observational findings that the observers gave as can be seen in the report of finding that the various organizations came to the school for educational events or donations. To give a clear picture why the blind students still needed to have more time after they were required to answer the questionnaire, the reason was that there were many activities happening during the weekends. Giving donation by other government authorities, private organizations, etc. generally happened occurred at the same time that the blind students were supposed to show their presence with the learning in the computer room. Some days the blind students had to participate the academic events organized by the university students or museum professional, coming to the school to teach the blind

students, for instance, sciences and life-safety-systems (The Khon Kaen School for the Blind is located in the low lying areas which are generally more prone to flooding). Moreover, the computer room opening and closing times were fixed and scheduled; they could not learn or use the computer when the donation events finished very late. These external factors frequently caused the blind students to have no time to learn as planned under the concept of the flipped classroom. The blind students were also the cause that shortened the learning time inside of class. The blind students have to start their dinner at 5 p.m. every day and they are not allowed to get out of the school after 6 PM. Therefore, they tended to finish their dinner as fast as possible so they could leave for the convenience store that is around two kilometers away from the school by themselves. When they arrived at school, they were already late for class. The classes were then rescheduled to start after 6 p.m. until 8 p.m. as the School Principal and the Vice Director suggested. Therefore, some blind students felt that they could learn a lot more if they had more time doing activities.

(2) Learning Activities

Furthermore, classroom activities may have played a vital role in bringing about the blind's listening comprehension enhancement. As the reversion of the flipped classroom, learning the contents outside of class and practice exercises inside of class, the blind students showed that they got effectively involved in completing the given tasks in the classroom. The lesson plans for this study were deliberately designed under the concept of flipped classroom and constructivism in order to guide the blind students to achieve the learning objectives through diverse activities. The blind students actively learned and engaged. They construct knowledge

through experience. They could prepare themselves to learn in the class as can be seen from the homework assignments that they were required to summarize what they had learned and then submitted to the teacher before doing in-class activities. Restating the essential parts, the research has shown benefits in comprehension and long-term retention of information (Wormeli, 2004). Another good point of preparation is that it promotes learning in the classroom because students can spend more time on high order thinking activities in class (DeRuisseau, 2016). To give a clear explanation, summarization was one of the activities that the teacher assigned the blind students to complete before they came to class. They had to excogitate through their mental process (cognition) before they wrote their summaries on what they have learned. They could monitor or evaluate their knowledge. In this study, the blind students were also capable of accessing other resources such as Google to gain more knowledge and wash their curiosity toward the contents. Therefore, summarization is another factor that leads the blind students to enhance their listening comprehension. Flipped learning provided students with more accessible instructional materials regarded as another key point when constructivism is implemented in the flipped classroom and consequently it strengthens academic enhancement (Abdelshaheed, 2017).

Additionally, in-side activities could increase achievement, improve motivation, offer a longer time in the classroom in order to ask higher order questions and gain on spot feedback from the facilitator immediately (Ahmed, 2016). In response to the findings, the blind students in this study could practice the contents learned outside and produce outcome by applying it with the multiple types of activities e.g. listening and speaking skills, quizzes, and individual/group/pair work activities. They were capable of developing new concepts from their schemata through activities.

Knowledge occurred due to actual experience. All of these, it could be said that the blind students achieve fluency on account of their classroom practices. Consistent with the literature, this research found that the blind students asked the teachers to clarify, explain, and support the blind students from time to time while the blind students were performing their tasks. During completing activities, clarification and explanation requested by the blind could eliminate misunderstanding of the contents. Moreover, it could refer back to the learning theory of the flipped classroom that is commonly related to constructivism. What we have known about the flipped classroom is largely based on constructivism. It is basically a theory which focuses on constructing knowledge in lieu of gaining knowledge directly through the teacher. The theory provides a useful account of how students learn. It has become commonplace to distinguish an individual's cognition from the socialization of constructivism. To put it simply by using the concept of the flipped classroom, whilst Piaget identifies constructivism as the principal dimension of an individual's cognition since the blind students are generally assigned to work on the contents by themselves outside of class, Vygotsky has taken a different approach by focusing on socialization which can several times be seen from hands-on activities that the blind students work together during the class time with the teacher's guidance. The blind students, in class, performed by using their factual knowledge gained from outside learning. Some blind students got problems related to the contents and caused them to encounter disequilibrium while doing classroom activities. Although flipped classroom requires the blind students to do tasks among themselves and the teacher is the one who gives the blind students supports and facilitation, the form of explicit instruction is necessary to teach the blind students in situations where they process little knowledge and struggle with the tasks (Gilboy,

Heinerichs, & Pazzaglia, 2015). Likewise, the teacher in this study also did several things such as giving facilitation, explicit teaching, etc. as can be seen from the results. Having a chat with the teacher on the problems during class could help the blind students to apply and solve the incomprehensible contents. Therefore, giving feedback, suggestions, clarification, and other important things could help the blind students to become equilibrium once again toward the contents.

(3) Instructional Material Design and Development

As further evidence of improved listening comprehension, it may be partly closed to the instructor-designed instructional materials designed for the blind students to learn in a flipped classroom. The necessity in knowing a particular group of learners in a particular setting works toward a solution that is vital to solve the problems regarding language learning. Intentional content is an important pillar in the flipped classroom concept (Flipped Learning Network, 2014). In this study, what the blind students should have learned, known, and mastered are provided through the instructor-designed instructional materials that they were expected to learn both inside and outside of class. They were deliberately designed owing to the learning objective. According to the questionnaire, the blind participants have considerable satisfaction toward the instructor-designed instructional materials as they thought that they could help them enhance their listening comprehension. The blind participant felt very satisfied due to the scores they gave ($\bar{x}$ = 5.00, SD. 0.00). Regarding the design and development of the instructor-designed instructional materials, it was designed with the bottom-up approach (e.g. the linguistic features, arrangement, and rate of speech of the materials). When the students possessed the adequate linguistic ability, their improved listening

comprehension appeared. This accords with the earlier research studies which revealed that vocabulary was regarded as important in listening comprehension (Adolphs and Schmitt, 2003). In addition, there is a consensus among the researchers that a slower rate of speech allows second language learners to comprehend more significantly (e.g. Chaudron, 1988; Griffiths, 1990, as cited in McBride, 2011). Most importantly, when the provided materials could not serve their needs on the lessons or clarify their misunderstanding such as pronunciation, vocabulary words, and spelling, searching for more information through other websites could help them while learning by themselves outside of class time such as Google according to the findings that the blind students gave during the interview.

According to the questionnaire, the findings could be used as confirmations and possible explanations for the phenomenon. The blind participants also expressed their very satisfied with the contents since they started from the easy to the difficult contents ($\bar{x}$ = 5.00, SD. = 0.00). Additionally, the contents were clear with explanations and full with examples ($\bar{x}$ = 5.00, SD. = 0.00). The blind students' books went along well with the lessons they learned with the computer ($\bar{x}$ = 4.10, SD. 0.57). Moreover, what could help the blind was that the input that helped them learn better was comprehensible. All the contents that the blind students learned were designed by taking the grammar points or language skills that they are supposed to perform as seventh to ninth graders. What follows is a discussion based on the second research question. The aim is to show the feasible reasons that could make the blind students gain satisfaction in this study.

4.2.2 The Blind's Positive Satisfaction

The result of this research study shows that the blind students at the Khon Kaen School for the Blind gained pleasure with the instructor-designed instructional materials in the flipped classroom context. According to the questionnaire, the blind participants have a considerable satisfaction toward the instructor-designed instructional materials in the flipped classroom context. The blind students felt satisfied due to the total scores they gave ($\bar{x}$ = 4.11, SD. 0.53). The finding of the questionnaire is similar to that shown from the findings for this semi-structured interview question, all participants (100%) revealed their likes toward the flipped classroom. It is encouraging to compare this present result with that found by Roth and Suppasetseree (2016) who showed that the implementation of the flipped classroom led the students to receive the strong impression and great satisfaction in English language instruction. This result is in agreement with the research conducted by Hung (2015) who found that the students were able to develop better attitudes toward the learning experiences, and put more effort into their learning process. Several factors are recognized to be associated with language learning and feelings of the blind students. Comparison of the findings with those other studies (e.g. Wu, Chen Hsieh, & Yang, 2017; Chen Hsieh, Wu, & Marek, 2017) confirms that the students gained satisfaction toward the flipped classroom due to several aspects e.g. interaction, motivation, and participation. However, the findings of the aforementioned studies are contrary to one previous study in the English Language arts at some points. It has reported the implementation of the flipped classroom might be effective but it should not be used as a sole method of instruction (Moran, 2014).

There are three explanations for the result of this study why the bind students felt satisfied with the instructor-designed instructional materials in the flipped classroom context. These are: (1) sense of relatedness, (2) active learning, (3) usefulness of the instructor-designed instructional materials and the flipped classroom context.

(1) Sense of Relatedness

A sense of relatedness (Furrer and Skinner, 2003) could make someone feel special and important and a vital impact of it aimed at triggering energized behavior i.e. effort, persistence, and participation in order to strengthen positive emotions. The blind students could feel that they belong to the group since they share equality in learning in case of education circumstance. The idea of equality in teaching and learning was provided by Educasia (2015), addressing that no students should be at a disadvantage to other students. In this study, the split-up of the participants into small groups could also broaden participation because of the fact that the researcher already planned to deliver the motivating and proper activities for the blind students to do for their learning. Therefore, the learning environment is an important factor to promote satisfaction or motivation which is considered as the basic cognitive needs for students (Deci and Ryan, 2008). In this present study, one interesting finding is the blind students did not feel they suffered neglect as they felt when studying with the normal-sighted students. They could participate and do group activities very easily among friends by mean of instructor-designed instructional materials that were appropriately and supportively developed for the blind students. With regard to constructivism, the teacher provided chances for the blind to do activities that they

could fully participate with their peers. This reason is consistent with that of Slavin (1992) who proposed that group activity does not only help cognitive development but also benefit in interpersonal and social skills, self-esteem, and self-motivation.

(2) Active Learning

Additionally, active learning is another key aspect that rendered the blind students to receive satisfaction. The root of active learning goes to constructivism (Centre for Teaching Excellence, n.d.). Independence of people with disabilities is a vital thing that led the blind students to have positive attitudes. In providing the introduction of the present study, one of the crucial objectives of the school for the blind learning is to promote independence in the blind students. According to active learning, students actively take charge of their learning. They must carry out an engagement in such higher-order thinking tasks. The strategies promoting active learning are, for example, debates, cooperative learning, visual-based in class, writing in class, problem solving, computer-based instruction, role-playing, simulations, games, and peer teaching. Bonwell and Eison (1991) suggested strategies that could promote active learning which are: (a) students are involved more than just listening to the teacher, (b) focus is on developing students' skills, and (c) student are involved in higher order thinking and actively engaged in activities. Being able to do activities and learn by themselves was a common reason for it. This result may be explained by the findings of the semi-structured interview that the blind students did not need to disturb other normal-sighted people to read and write the answers for them on the worksheet given by the teachers. They could track the dots in order to learn the contents by themselves. They did not need to ask someone to read the print materials and wait for them to

answer. Based on the class observation, the blind students were actively engaged in doing activities. They discussed, helped one another, and explained to their peers in order to complete the provided tasks while they were doing group or pair activities.

Besides, the blind students did find that learning through the flipped classroom was difficult as shown in the finding of the semi-structured interview. The possible reason was that the Thai translations were provided in the books so that they could learn more easily. Another problematic situation is also when the normal-sighted people e.g. peer and inclusion teachers are not available to read and write for them due to several factors, they still could do learning activities on their own. When the resources are scarce and the accessibility is limited, the blind students declared themselves satisfied with the appropriate materials by comparison with learning at schools they attended with normal-sighted students. They felt satisfied with the design of the materials that allowed the blind students to learn more easily and effectively by themselves both inside and outside of class. They were satisfied with the usefulness of the instructor-designed instructional materials in the flipped classroom context in relation to active learning. As can be seen in the questionnaire that they could list the questions or problems from learning through the flipped classroom to ask the teacher in the classroom ($\bar{x}$ = 3.70, SD. 0.48). However, the blind's satisfaction toward this concept seems remained neutral.

(3) Usefulness of the Instructor-designed Instructional Materials and the Flipped Classroom Context

Some blind students announced their comments during the interviews that learning under the concept of the flipped classroom was useful for them

to search more information by themselves such as Google when they were not capable of pronouncing the words. Similarly, the findings from the questionnaire showed that the blind felt satisfied and found the usefulness of the instructor-designed instructional materials in the flipped classroom context. They could further search for information from other resources as can be seen from the calculation of the scores ($\bar{x}$ = 4.50, SD. 0.71). Moreover, another satisfaction was that the blind students had the ability in questioning and answering the teacher's questions in class.

Instructional materials are one of the crucial keys in the flipped classroom. They must be supportive and user-friendly so that the students could learn easily and effectively by themselves outside of the class (Flipped Learning Network, 2014). The instructor-designed instructional materials were validated by the inclusion teachers at the Nakhon Ratchasima School for the Blind and the Khon Kaen School for the Blind and later were tested by implementing in the pilot to investigate whether there were some mistakes to be adjusted or changed before employing in the actual experiment. The key of this research then was the development of the instructional materials that met the need for a variety of the blind students. The different sensory preferences in learning could impose satisfaction level in the current study. In spite of being low vison, they could not read large-print books. It does not mean that the books were not readable due to the font size. The reason is that they did not learn through print books. They do not know how to read. Thus, the adaptation to the needs of individual blind students was necessary for their learning: the present study successfully followed this aspect so that they felt satisfied with the instructor-designed instructional materials. Whenever the blind students possess accessible instructional materials, they tend to be

able to concentrate on what they are learning. Accessibility of the instructor-designed materials caused the blind students to be able to concentrate while they were learning.

The blind students generated the responses toward the computer use that online learning could lead them to become better students. Likewise, the blind participant responded to the questionnaire, the finding showed that the student manual went along well with the lessons they learned with the computer ($\bar{x}$ = 4.10, SD. 0.57). From the statistical data, it means they felt satisfied with the instructor-designed instructional materials. Moreover, based on the class observation, the main problem the blind students have with computers was Wi-Fi connection and web browser readiness when they would like to have access to the computers. It sometimes acted as if a hindrance to render the blind students to get frustrated and led them to learn with books. However, by comparison with the nonfunctional computer, the responses to good instructional materials exceeded twofold in percentage based on the findings of the semi-structured interview.

According to the finding from the questionnaire about the blind's satisfaction, there were results showing that the blind students felt unsatisfied with the ease of the computer while they were learning in this experiment ($\bar{x}$ = 2.30, SD. 0.67). They did not find the computer was easy for their learning: The online instructor-designed instructional materials could not be effectively used. When the teacher asked the technicians, the inclusion teachers, and the programmers who were the experts about technology and the blind students, they still did not know and find the technical problems. The online instructor-designed instructional material was designed by the button function as the inclusion teachers suggested. The programmers and technicians

later checked and confirmed that all the source codes of the program were the button functionality and they could not find the real problematic aspect. Therefore, the blind students were faced with this sort of problem in their online learning. To battle with this technical problem, the teacher sent the audio files through Line application to make the blind students have the exposure to the contents by themselves before based on the concept of the flipped classroom. The Line group was created by one of the blind students from the first class of the experiment because they wanted to contact and ask some problems with the teacher. Furthermore, all of them had their own mobile phones, the problem with the Line group was erased. This Line group was also used as a means to inform the blind students about the class of each week as aforementioned that the in-class activities were often postponed due to the donations and charities during weekends.

In conclusion, this study was designed to evaluate how effective the instructor-designed instructional materials for the blind students to use in the flipped classroom context were in order to enhance the blind's listening comprehension. The findings clearly indicate that the instructor-designed instructional materials are effective based on the paired t-test scores. Time, learning management, and instructor-designed instructional materials would be the strong factors to enhance the blind's listening comprehension. Moreover, the second major finding was that the blind students have positive satisfactions. The instructor-designed instructional materials helped them to enhance their listening comprehension i.e. instructor-designed instructional materials accessibility or the sense of relatedness that made the blind students feel they belong to the group. However, the blind students still encountered some difficulties while participating in the present study. Some technical problems

caused them to feel unsatisfied such as Wi-Fi and computer readiness while they were learning by themselves. Having print and braille books helped them to overcome these problems.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the conclusion of the findings from the blind students who learned with the instructor-designed instructional materials in the flipped classroom context, limitations, and recommendations for the classroom use and recommendations for further studies.

5.1 The Findings

The current study found that the instructor-designed instructional materials that were administered in the flipped classroom context offered invaluable information toward English listening comprehension. The data collected from pretest, posttest, and questionnaire were analyzed quantitatively whereas semi-structured interview and class observation were analyzed qualitatively. The results obtained from the analyses of the present experimental study can be displayed into two compositions.

1. The instructor-designed instructional materials applied in the flipped classroom seemed to facilitate the blind students to enhance their English listening comprehension with the average score of pretest ($\bar{x}$ = 9.20, SD =1.476) and the average score of posttest ($\bar{x}$ = 10.90, SD = 2.601). The result is significant at the p = 0.05 level. It means the blind's listening comprehension enhancement increased when

they learned with the instructor-designed instructional materials in the flipped classroom context.

2. With successive increases in learning time and appropriate instructional materials of the experimental treatment, the remarkable outcomes to emerge from the data are that the blind students could prepare, evaluate, seek for information, and answer the question inside the classroom. They all lie in the implementation of the flipped classroom context. The present study also made the blind students feel satisfied due to the average score of the questionnaire ($\bar{x}$ = 4.11, SD. = 0.53), data obtained from the semi-structured interview, and class observation. Furthermore, the blind students suggested that having more braille and large print materials, diverse topics/language skills/activities, and longer time.

Taken together, these results generated significant support to the concept that learning through the flipped classroom context with the suitable instructional materials could develop the blind's listening comprehension ability and they gained satisfaction since they were able to gain more knowledge, have access and do activities by themselves, and participate with peers.

5.2 Limitations of the Study

A number of limitations from the present study need to be acknowledged. This part, therefore, sets out to describe some of the limitations based on the present experiment.

The first limitation is concerned with generalizability. The statistical findings of this study would be impossible to generalize due to the small number of the blind students. Moreover, the blind students who participated in this present study were female. It would be hard to generalize the findings with other schools that have only male students or a combination of both genders. Notwithstanding the relatively limited participants, this present offers incalculable insight into the blind education in Thailand.

The next potential limitation is about the complexity of the production of the instructional materials. Thus, it caused some processes to be delayed. Production of the braille books was problematic i.e. the development of the printed materials. Producing braille books for the blind students in this present study consumed a big amount of time due to various production methods. The researcher must have waited for the inclusion teachers who were able to read braille and had special experiences for written or documentary proof because they already had tons of the school workloads. When the teacher was not available or has many projects to be completed, the process would be postponed. The printing spent less time but the one that consumed time was to check for the contents such as symbols, letters, or even spaces because they matter in the braille production. Therefore, it would be very good to contact and spare time for the inclusion teachers for this process.

A big amount of money was spent during the instructional materials production process, too. It was subject to several costly setbacks due to the price of the braille papers. The researcher once learned and tried to produce all the instructional materials because hiring the school to print out the books may more expensive. However, getting a grant or sponsors is possible because the researcher had chances of talking to some

big organizations. They said that they had annual budgets for charities. Therefore, it would be helpful for those who wanted to work for people with disabilities or people in need.

Finally, the limitation concerning applying the technology into education would be a problem. The researcher, the technicians, and the blind students in the schools for the blind faced with a whole host of the new problems. Even though the online instructor-designed instructional material was developed based on the suggestions of the technicians, teachers, programmers, the problem still occurred. Some programs may not be effectively implemented and technology-related factors such as Wi-Fi connection would cause some troubles for the blind's learning. Many times, as can be seen from the findings, the blind students had to attend the school activities during weekends, it caused them not to be able to learn with the computer due to the limitation of time. It is important to make adequate provision and varied collections of instructional materials such as books in case the technology creates thorny problems.

Thus far, the study has shown that there are significant limitations such as instructional material developing processes, learning resources for the blind students, time for material production, budget, and technological problems. Consequently, after having imposed what are the limitations of the blind students from learning through the flipped classroom context with the instructor-designed instructional materials, the following section will discuss the recommendations that are of use to those who are interested in the flipped classroom and special instruction, especially for the blind.

5.3 Recommendations from the Current Study

Drawing upon two strands of recommendations into the instructor-designed instructional materials implemented in the flipped classroom context, this section aims to provide the recommendations on two dimensions that are recommendations for pedagogical implications and recommendations for further studies.

5.3.1 Recommendations for Pedagogical Implications

Owing to the findings of the present study, the blind students have not been provided the appropriate instructional materials and they have encountered the learning time, too. In this section, it will give some practical recommendations to those who have the blind students to teach in the classroom. This part will attempt to formulate a list of recommendations on the practical implementation of the instructor-designed instructional materials in the flipped classroom. The small adjustment might bring about significant changes in the blind's learning achievement.

Firstly, according to the findings that the blind students revealed their satisfaction level toward the flipped classroom, the main recommendation in terms of classroom use is to create a new learning environment for the blind students. Even more useful is to implement the flipped classroom in the Inclusive Education Program if it could be. There would be an underlying assumption that instruction matters. The teacher can effectively lead the blind students to achieve the learning goal with deliberate design of the activities and learning management. According to the present study that the blind students announced that they felt satisfied, they could prepare themselves, evaluate, search, and gain more knowledge in the flipped classroom. Regarding biological constraints of the people with visual disabilities, they spend more

time to perceive the contents because they have to track on dots. They cannot scan and get the concepts as a whole as the normal-sighted students do in the learning process. The blind students must have more time to expose to the contents in advance to reap benefits from education.

The second recommendation is that the novice or experienced teachers who want to implement the flipped classroom but not be ready to produce or develop their own instructional materials for the courses, they can assign the blind students to learn from the general websites. The basic concept of the flipped classroom deals with doing homework (knowledge receiving process) outside of the classroom before doing activities in class. However, the teacher must inform them about the topics. Another means is to give the blind students a list of the websites that the teachers think they are apparently related to the blind students.

Moreover, the activities contributing to the blind students should come up with a good design in order to allow movement that is considered as the most important perception. The appropriate instructional materials could alleviate boredom, decrease the sleeping rate, foster meaningful participation since the blind students have to participate and complete the tasks by themselves under the concept of the flipped classroom; it is no longer a pure teacher-centered method. The teacher should build links between out-of-class activities and in-class activities. The link in the flipped classroom is designed to strengthen students to be more successful in learning.

The findings of this study related to the flipped classroom are astonishing. It appeared satisfying enough to support the blind students in the learning process. The blind students, in the present study, expressed their satisfaction level toward the flipped

classroom because they could enhance their English listening comprehension. They could perform better due to a bigger amount of learning time. By this, the government may be able to develop a policy in order to assist the blind students to learn more during weekends by providing or scheduling additional learning time for them.

The flipped classroom could help the student learning and achievement. Therefore, those results might be representative of an emerging pedagogical trend or implication in the Inclusive Education Program. It is an invaluable issue for the Thai educational system. The teachers must consider multiple things. The students in the Inclusive Education Program are diverse. The teachers may need to apply alternative options in the classroom setting. When it is implemented, learning management is also changed. The blind students can learn more because of a bigger time, appropriate materials, supportive learning activities, and chances of having access to the contents; therefore, it would of use to the blind students to learn in the flipped classroom.

5.3.2 Recommendations for Further Studies

This research has thrown up many interesting questions in need of further investigation. In this part, it will highlight some important recommendations for raising the positive quality of future studies in English language instruction with the flipped classroom concept.

In the first place, further studies might explore the effectiveness of the instructor-designed instructional materials in the flipped classroom context with other language skills such as reading, speaking, vocabulary, grammar based on the findings obtained from the blind students that they desired to enhance the English language skills. Other language skills can be used as the key points in further studies.

Another possible area of future studies would be to investigate the blind's learning progress through the exercises they do in the experiment. It seems reasonable to propose the formative assessment because it would help to establish strong evidence in order to prove if the flipped classroom could really make the blind students enhance their learning. Further research can examine more closely the links between the blind's progress and their enhancement.

There are many schools for the blind across Thailand; however, knowing and understanding the particular context of each school for the blind is limited. Each school may encounter a very complex set of problems or it may harbor a desire to help the blind students to have chances of mastering the particular language skills. Conducting a research study on the flipped classroom in order to enhance the blind students in other language skills is worth doing and it could help the researcher to reflect the special education in Thailand.

The following recommendation for further studies is to implement the flipped classroom with other school levels: This present study dealt with the seventh to ninth graders. It would be conducted with primary school blind students e.g. the fourth to sixth graders or high school blind students e.g. the tenth to twelfth graders who seem grown up enough to learn by themselves outside the classroom under the concept of the flipped classroom. Still, appropriateness of the assignments such as content difficulties and self-learning activities for each school grader must be taken into consideration.

This section has described the two key aspects of recommendations for classroom use and further studies. As regards recommendations for the pedagogical implications, creating a new learning environment in the classroom, applying more

activities and numerous learning resources, having additional learning time for the blind students to expose to the English language, and expanding the flipped classroom to the Inclusive Education Program are produced. With respect to the recommendations for the further studies, researchers seem able to maximize potential by using other appropriate materials or technologies to see if they could enhance the blind students' listening comprehension or other language skills. Another thing is to have formative assessments such as quizzes or exercises during the experiment in order to know how the blind students make progress in learning through the flipped classroom context. In addition, the implementation of the flipped classroom with other schools for the blind or other levels of the students is recommended.

5.4 Conclusion

This study set out in order to (1) investigate the effectiveness of the instructor-designed instructional materials utilized in the flipped classroom context whether they could enhance the blind's listening comprehension and (2) gather the blind's satisfaction level toward the instructor-designed instructional materials in the flipped classroom context. In this study, ten female blind students from three different grades at the Khon Kaen School for the Blind were required to learn the English language through the flipped classroom context. Pretest and posttest scores were collected from individual blind students to witness in their listening comprehension enhancement after the official launch of the educational experiment. Furthermore, the class observation was a technique used over a ten-week period to know the learning inside the classroom and outside the classroom with the provided instructional materials while questionnaire

and semi-structured interview questions were come into used after the experiment to gain critical information of each blind student toward the flipped classroom, respectively. The conclusions of the findings are based on the answers to each of the research questions as further described. According to the pretest and posttest scores that were implemented to answer the first research question, the blind enhanced their listening comprehension due to the instructor-designed instructional materials they used under the flipped classroom concept. There was a significant difference in the experiment at the level of 0.05. For the second research question on the blind's satisfaction level on the instructor-designed instructional materials in the flipped classroom context, the mean score ($\bar{x}$) at 4.11 indicated that the blind students were satisfied with a variety of reasons i.e. extra learning time provision helped them learn, prepare, and search for more information while the blind learned by themselves outside classroom. The provided activities inside of class were also the ones that made them feel satisfied with the instructor-designed instructional materials in the flipped classroom.

REFERENCES

Abdelshaheed, B. S. M. (2017). Using flipped learning model in teaching English language among female English majors in Majmaah University. *English Language Teaching, 10*(11), 96-110.

Abedin, M. M., Majlish, S. H. K., & Akter, S. (2009). Listening skill at tertiary lever: A reflection. *The Dhaka Journal of Linguistics. 2*(3), 60-90. Retrieved from https://www.banglajol.info/index.php/DUJL/article/view/4144/3436

Adobe. (n.d.). *Adobe Captivate*. Retrieved from http://www.adobe.com/products/captivate/education.html

Adolphs, S. & N. Schmitt. 2003. Lexical coverage of spoken discourse. *Applied Linguistic, 24*(4), 425–38.

AEC Tourism Connectivity. (2012). *Step to AEC … Is the ASEAN language really necessary?*. Retrieved from http://th.aectourismthai.com/tourismhub/419

Ahmad, S. Z. (2016). The flipped classroom model to develop Egyptian EFL students' listening comprehension. *English Language Teaching, 9*(9), 166-

178.

Ahmed, M. (2016). Flipped Learning as a New Educational Paradigm: An Analytical Critical Study. *European Scientific Journal, 12*(10), 417-444. http://dx.doi.org/10.19044/esj.2016.v12n10p417

Ainin, I. K. (2016, November). *Identification the Obstacle in Implementation of Inclusive Education in East Java to Support East Java as an Inclusive Province*. Paper presented at the International Conference on Educational Research (ICER) 2016, Faculty of Education, Khon Kaen University.

Akhtar, M. (2008). *What is self-efficacy? Bandura's 4 sources of efficacy beliefs*. Retrieved from http://positivepsychology.org.uk/self-efficacy-definition-bandura-meaning/

American Hearing Research Foundation. (2012). *Hearing loss.* American-hearing.org. Retrieved from http://american-hearing.org/disorders/hearing-loss/

Anfara Jr., V.A., Lenski, S. J. & Caskey, M. M. (2009). Using the lesson study approach to plan for student learning. *Middle School Journal, 40*(3), 50-57. https://doi.org/10.1080/00940771.2009.11495587

Araluce, H. A. (2002). *Teaching English as a foreign language to blind and visually impaired young learners: The affective factor* (Doctoral dissertation).

Universidad de Castilla-La Mancha. Departamento De Filologia Moderna, Ciudad Real, Spain.

Association of Southeast Asian Nations (2008). *The ASEAN Charter.* Jakarta: Association of Southeast Asian Nations. Retrieved from https://asean.org/storage/images/archive/publications/ASEAN-Charter.pdf

Audacity. (n.d.). *Free, open source, cross-platform audio software for multi-track recording and editing.* Retrieved from https://www.audacityteam.org/

Australia in the Asian Century Task Force. (2011). *Australia in the Asian century*, (December). Retrieved from http://asiancentury.dpmc.gov.au/sites/default/files/white-paper/australia-in-the-asian-century-white-paper.pdf

Baars, B. J. & Gage, N. M. (2010). *Cognition, brain, and consciousness: introduction to cognitive neuroscience* (2nd ed.). Burlington, MA: Academic Press/Elsevier.

Baars, B. J. & Gage, N. M. (2013). *Fundamentals of cognitive neuroscience: A beginner's guide.* Waltham: Academic Press/Elsevier.

Başal, A. (2012). The use of flipped classroom in foreign language teaching. In *The 3rd Black Sea ELT Conference, Technology: A Bridge to Language Learning* (pp. 8-12). Retrieved from https://www.academia.edu/10783686/_3.rd_Black_Sea_ELT_international_Conference_Learning_

Başal, A. (2015). The implementation of a flipped classroom in foreign language teaching. *Turkish Online Journal of Distance Education, (16)*4, 28-37.

Beaty, L. A. (1994). Psychological factors and academic success of visually impaired college students. *RE: view, 26*(3), 131-39.

Bergmann, J. and Sams, A. (n.d.). *How the flipped classroom is radically transforming learning - THE DAILY RIFF - Be Smarter.* Retrieved from http://www.thedailyriff.com/articles/how-the-flipped-classroom-is-radically-ransforming-learning-536.php

Bergmann, J., & Sams, A. (2012). *Flip your classroom: Reach every student in every class every day*. Washington: International Society for Technology in Education (ISTE).

Bergmann, J., & Sams, A. (2014). *Flipped learning: Gateway to student engagement.* International Society for Technology in Education.

Bonwell, C. C., & Eison, J. A. (1991). *Active learning: Creating excitement in the classroom.* ASHE-ERIC Higher Education Report No. 1. Washington, D.C.: The George Washington University.

Brame, C. (2013). *Flipping the classroom*. Vanderbilt University Center for Teaching. Retrieved from http://cft.vanderbilt.edu/guides-sub-pages/flipping-the-

classroom/

Brown, H. D. (1994). Teaching by principles: An interactive approach to language pedagogy. New jersey: Prentice Hall Regents.

Carbaugh, E.M. & Doubet, K.J. (2016). *The differentiated flipped classroom: A practical guide to digital learning.* Thousand Oaks, CA: Corwin Press.

Cartwright, G., Cartwright, C., & Ward, M. (1995). *Educating special learners*. Belmont, Calif.: Wadsworth.

Carroll, J. B. (1963). A model of school learning. *Teachers College Record, 64*(8), 723-733.

Carroll, J. B. (1989). The Carroll Model: a 25-year retrospective and prospective view. *Educational Researcher, 18*(1), 26-31.

Centre for Educational Media and Technology for the Disabled. (2005). *A study on the state and needs of educational media of the blind students of lower secondary schools in Bangkok and its vicinities.* Retrieved from http://www.braille-cet.in.th/Braille-new/?q=content

Centre for Teaching Excellence. (n.d.). *Active learning activities.* Retrieved from https://uwaterloo.ca/centre-for-teaching-excellence/teaching-resources/teaching-tips/developing-assignments/assignment-design/active-

learning-activities

Center for Teaching Excellence, (n.d.). *In-class activities and assessment for the flipped classroom.* Retrieved from https://uwaterloo.ca/centre-for-teaching-excellence/teaching-resources/teaching-tips/lecturing-and-presenting/delivery/class-activities-and-assessment-flipped-classroom

Centre for Teaching Excellence. (n.d). *The Flipped Classroom: A white paper developed by the Centre for Teaching Excellence at the University of Waterloo.* Retrieved from https://uwaterloo.ca/centre-for-teaching-excellence/sites/ca.centre-for-teaching-excellence/files/uploads/files/the_flipped_classroom_white_paper.pdf

Chatkhup, S. (1999). *How can the environment and the brain make a smart kid?.* Bangkok: Office of the National Education Commission.

Cheausuwantavee, T., & Cheausuwantavee, C. (2012). Rights, equality, educational provisions and facilities for students with disabilities in Thailand: Legal and practical perspectives over the past decade. *Disability, CBR & Inclusive Development, 23*(1). http://dx.doi.org/10.5463/dcid.v23i1.83

Chiang, M.C., Barysheva,M., Lee, A.D., Madsen, S., Klunder, A.D., Tago, A.W., McMahon,K.L., de Zubicaray, G.I., Meredith, M., Wright, M.J., Srivastava,

A., Balov, N. Thompson, P.M. (2008). Brain fiber architecture, genetics, and intelligence: A High Angular Resolution Diffusion Imaging (HARDI) Study. *Medical Image Computing and Computer-Assisted Intervention – MICCAI 2008. MICCAI 2008. Lecture Notes in Computer Science, 5421,* pp. 1060-1067.

Chiangkun, W. (2005). *Learn fast: Use the brain effectively.* Nonthaburi: Office of Knowledge Management and Development.

Chen Hsieh, J. S., Wu, W. C. V., & Marek, M. W. (2017). Using the flipped classroom to enhance EFL learning. *Computer Assisted Language Learning, 30(1–2),* 1–21.

Chonlatanon, B. (1992). *History of Special Education.* Retrieved from http://saranukromthai.or.th/sub/book/book.php?book=16&chap=10&page=t16-10-infodetail06.html

Chonlatanon, B. (1992). *Related Agencies for the Blind*. Retrieved from http://saranukromthai.or.th/sub/book/book.php?book=16&chap=10&page=t16-10-infodetail11.html

Christian Foundation for the Blind in Thailand. (n.d.). Retrieved from https://en.wikipedia.org/wiki/Christian_Foundation_for_the_Blind_in_Thailand

Cooper, M., Kirkpatrick, A., & Connor, O. J. (2016). *Introduction to understanding WCAG 2.0.* Retrieved from https://www.w3.org/TR/UNDERSTANDING-WCAG20/intro.html

Creswell, J. W. (2007). *Qualitative Inquiry and Research Design: Choosing Among Five Traditions (2nd edition ed.).* California, U.S.A: SAGE Publications.

Culatta, R. (2015). *Constructivist theory. Instructional design.org.* Retrieved from http://www.instructionaldesign.org/theories/constructivist.html

Cunningsworth., A. (1995). *Choosing your coursebook.* (1st ed.). Oxford: Macmillan.

Cutsforth, T. (1951). *The blind in school and society*. New York: American Foundation for the Blind.

David. (n.d.). *Considerations for data collection in pre-test/post-test designs.* Retrieved from https://www.statisticssolutions.com/considerations-for-data-collection-in-pre-testpost-test-designs/

Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology/Psychologie canadienne, 49*(3), 182-185.

DeRuisseau, L. R. (2016). The flipped classroom allows for more class time devoted

to critical thinking. *Advances in Physiology Education, 40*(4), 522-528.

Dokecki, P.R. (1966). Verbalism and the blind: A critical review of the concept of the literature. *Exceptional Children, 32*, 525-530.

Dronkers, N. F., Wilkins, D. P., Van Valid, R. D., Jr., Redfern, B. B., & Jaeger, J. J. (2004). Lesion analysis of the brain areas involved in language comprehension. *Cognition, 92*, 145-177.

Educasia. (2015). *Teaching skills Trainer's book: A short course for people who want to teach.* Retrieved from http://curriculumproject.org/wp-content/uploads/2016/01/TEACHING_SKILLS_TEACHER_23_NOV_15.pdf

Edutopia (n.d.). *Flipped classrrom*. Retrieved from https://www.edutopia.org/topic/flipped-classroom

Efstathiou, A., & Polichronopoulou, S. (2015). Teaching English as a foreign language to visually impaired students: Teaching materials used by teachers of English. *In G. Kouroupetroglou (Ed.), Enabling Access for Persons with Visual Impairment: Proceedings of the International Conference ICEAPVI 2015*, 67-75. Retrieved from www.rug.nl/research/portal/files/16172042/Melis_Havik_Steyvers_Petrie_Kooijman_ICEAPVI_2015_120_126.pdf

England, C. (2017). *Children inherit their intelligence from their mother.* Retrieved

from http://www.independent.co.uk/news/science/children-intelligence

-iq-mother-inherit-inheritance-genetics-genes-a7345596.html

Evseeva, A., & Solozhenko, A. (2015). Use of flipped classroom technology in language learning. *Procedia- Social and Behavioral Sciences 206*, 205-209. Retrieved from https://www.researchgate.net/publication/283984133

_Use_of_Flipped_Classroom_Technology_in_Language_Learning

Finch, G. (2000). *Linguistic terms and concepts*. Basingstoke: Palgrave.

Flipped Learning Network. (2014). *The four pillars of F-L-I-P*. Retrieved from

https://flippedlearning.org/wpcontent/uploads/2016/07/FLIP_handout_FNL_

Web.pdf

Foundation for the Blind in Thailand under the Royal Patronage of H.M. the Queen. (n.d.). *Background History of the Bangkok School for the Blind*. Retrieved from http://www.blind.or.th/Foundation/61/about

Freedomscientific. (n.d.). *JAWS Screen Reader - Best in Class*. Retrieved from

http://www.freedomscientific.com/Products/Blindness/JAWS

Furrer, C., & Skinner, E. (2003). Sense of relatedness as a factor in children's academic engagement and performance. *Journal of Educational Psychology 95*(1), 148-162.

Gilakjani, A., & Sabouri, N. (2016). The significance of listening comprehension in English language teaching. *Theory and practice in language studies*, *6*(8), 1670. http://dx.doi.org/10.17507/tpls.0608.22

Gilboy, M. B., Heinerichs, S., & Pazzaglia, G. (2015). Enhancing student engagement using the flipped classroom. *Journal of Nutrition Education and Behavior 47*(1), 109-114.https://doi.org/10.1016/j.jneb.2014.08.008

Graham, D. M., & Wong, K. Y. (2016). *Melanopsin-expressing, intrinsically photosensitive retinal ganglion cells (ipRGCs).* Retrieved from http://webvision.med.utah.edu/book/part-ii-anatomy-and-physiology-of-the-retina/melanopsin-expressing-intrinsically-photosensitive-retinal-ganglion-cells/

Gu, J., & Kanai, R. (2014). What contributes to individual differences in brain structure?. *Frontiers in human neuroscience*, *8*, 262. doi:10.3389/fnhum.2014.00262

Hallahan, D. P., & Kauffman, J. M., (1978; 1982 [2nd Ed.]; 1986 [3rd Ed.]; 1988 [4th Ed.]; 1991 [5th Ed.]; 1994 [6th Ed.]; 1997 [7th Ed.]; 2000 [8th Ed.) *Exceptional learners: Introduction to Special Education.* Boston: Allyn & Bacon.

Hallahan, D. P., Kauffman, J. M., & Pullen, P. C. (2009). *Exceptional learners: An introduction to special education*. Boston, MA: Pearson/Allyn & Bacon.

Hancock, B. (1998). *Trent focus for research and development in primary health care: An introduction to qualitative research.* Trent Focus. Retrieved from http://faculty.cbu.ca/pmacintyre/course_pages/MBA603/MBA603_files/IntroQualitativeResearch.pdf

Hancock B., Windridge, K., & Ockleford, E. (2007). *An introduction to qualitative research.* The NIHR RDS EM / YH. Retrieved from https://www.rds-yh.nihr.ac.uk/wp-content/uploads/2013/05/5_Introduction-to-qualitative-research-2009.pdf

Harley, R. K. (1963). *Verbalism among blind children. An investigation and analysis.* Research Series n°10. American Foundation for the Blind, New York, NY, USA.

Howard, J., & Major, J. (2004). Guidelines for designing effective English language teaching materials. *The TESOLANZ Journal*, *12*, 50–58.

Hudson. (2019). *Khon Kaen*. Retrieved from https://www.ajarn.com/help-and-guides/region-guides/khon-kaen

Hung, H.T. (2015). Flipping the classroom for English language learners to foster

active learning. *Computer Assisted Language Learning*, *28*(1), 81-96. doi:10.1080/09588221.2014.967701

Iamla-ong, H. (2007). *A Case Study of Language Learning Strategies of Visually Impaired Students at the Thailand Association of the Blind*. (Dissertation). Faculty of Graduate Studies, Mahidol University, Thailand.

Iamsupasit. S. (2007). *Theories and techniques in behavior modification.* Bangkok: Chulalongkorn University Press.

Isan. (n.d.). In Wikipedia. Retrieved from: https://en.wikipedia.org/wiki/Isan

Jaruteerapan, P. (2014). Teaching English listening comprehension: An understanding of bottom-up and top-down process. *Parichart Journal*, *27*(1), 184-202.

Jensen, L. (2001). *Importance of planning.* Retrieved from www.princeton.edu/~pia/TEFL.pdf

Kanoksilapatham, B., Poonpon, K., & Khamkhong, S. (2016, May). *Global English enhancement and regional Thainess maintenance using community-based instructional innovation*. Lecture notes presented at English Teaching in Regional Context, Centara Hotel & Convention Centre Khon Kaen, Khon Kaen.

Karlsson, G. & Janson, S. (2016). The flipped classroom: A model for active student

learning. In De Corte, E., Engwall, L., & Teichler, U. (Eds.). *From books to MOOCs? Emerging Models of Learning and Teaching in Higher Education.* Wenner-Gren International Series, Volume 88, 127-136. Portland Press Ltd.

Kauffman, J. M., Hallahan, D. P., & Pullen, P. C. (2011*). Handbook of special education*. New York: Routledge.

Kaufmann, S. (2015). *5 ways to learn a new language better*. Retrieved from http://blog.thelinguist.com/5-ways-to-learn-to-notice-a-new-language

Kaufmann, S. (2016). *Listening comprehension – an important language skill.* Retrieved from http://blog.thelinguist.com/listening-comprehension-important-language-skill

Keerativibool, W. (2015). A study of factors influencing on grade point average of Thaksin University's students. *Thaksin University Journal. 18*(2), 46-59.

Keith, J. (2003). *Acoustic and auditory phonetics.* Chicester, United Kingdom: John Wiley and Sons Ltd.

Khaejornbut, S. (2015). *Trick to improve your memory (3rd trick) - How to remember foreign words.* Retrieved from https://www.youtube.com/watch?v= dcIqgvPgS28

Khlaisang, J. (2017). *Producing and using materials in a systematic way for learning*

in the 21 century. Bangkok, Thailand: Chulalongkorn University Press.

Kotchabhakdi, N. (2017). *Drugs (Addiction) on the brain and mind.* Retrieved from http://mhtech.dmh.go.th/ec/somdet/file/klb/KL00000089%20-%20fileklb.pdf

Ladefoged, P. (2006). *A course in phonetics.* Translated by Tumtavitikul, A. Bangkok: Chulalogkorn University Book Centre.

Lado, R. (1957). *Linguistics across cultures*. University of Michigan Press.

Lian, A. P. (1996). *Awareness, Autonomy and Achievement*. Retrieved from http://www.andrewlian.com/andrewlian/prowww/Aaa.htm

Lindsay, C., & Knight, P. (2006). *Learning and teaching English.* Oxford: University Press.

Lovrich, D. (2007). Classroom applications of top-down & bottom-up processing. *The Science Teacher, 74*(1), 28-32.

Mahoney, M. J., and Donald, K. G. (2005). Constructivism and psychotherapy. *World Psychiatry 4*(2), 74–77.

Matsumoto, Y. (2008). Investigating classroom dynamics in Japanese university EFL classrooms. (Dissertation). Department of English, The University of Birmingham, Birmingham.

McBride, K. (2011). The effect of rate of speech and distributed practice

on the development of listening comprehension, *Computer Assisted Language Learning 24*(2), 131-154.

McKenzie-Brown, P. (2006). *Up from the bottom or down from the top?* Retrieved from https://languageinstinct.blogspot.com/2006/11/up-from-bottom-or-down-from-top.html

McLeod, S. (2009). *Jean Piaget*. Retrieved from https://www.simplypsychology.org/piaget.html

Mehring, J. (2016). Present research on the flipped classroom and potential tools for the EFL classroom, *Computers in the schools*, *33*(1), 1-10, DOI:10.1080/07380569.2016.1139912

Mekong Institute. (n.d.). *Visitor's guide (Facilities in Khon Kaen).* Retrieved from http://www.mekonginstitute.org/mekongforum/about/visitors-guide-facilities-in-khon-kaen/

Melchers, G. and Shaw, P. (2003). *World Englishes*. London: Hodder education.

Mihaliček, V., & Wilson, C. (2011). *Language files*. Columbus: Ohio State Univ. Press.

Ministry of Education. (2008). *The Basic Education Core Curriculum B.E. 2551 (A.D. 2008)*. Retrieved from http://lib.edu.chula.ac.th/FILEROOM/CABCU_

PAMPHELT/DRAWER01/GENERAL/DATA0000/00000218.PDF

Moran, C. (2014). *Changing paradigms: A mixed methods study of flipping the English language arts classroom.* Doctoral Dissertation, North Carolina State University.

Morlet, T. (2014). *Auditory processing disorder*. Retrieved from http://kidshealth.org/en/parents/central-auditory.html

Morley, J. (2001). Aural comprehension instruction: Principles and practices. In M. Celce-Murcia (Ed.), *Teaching English as a second or foreign language* (3rd ed., pp. 69-85). Boston: Heinle & Heinle Publishers.

Motschnig-Pitrik, R., & Lux, M. (2007). The person-centered approach meets neuroscience: Mutual support for C. R. Rogers's and A. Damasio's theories. *Journal of Humanistic Psychology, 48*(3), 287-319. http://dx.doi.org/10.1177/0022167807306044

Narot P. K. (2010). Movement in special education in Thailand. *International Journal of Education, 33,* 3-11.

National Cancer Institute. (n.d.) *NCI Metathesaurus*. Retrieved from https://ncim.nci.nih.gov/ncimbrowser/ConceptReport.jsp?dictionary=NCI%20Metathesaurus&code=C0456909

National Education Act, B.E. 2542 (n.d.). Retrieved from https://person.mwit.ac.th/01-Statutes/NationalEducation.pdf

National Government Board for Persons with Disabilities' Quality of Life Development and Promotion. (n.d.). *The national persons with disabilities' quality of life development plan (Volume 5) B.E. 2560-2564 (2017-2021).* Retrieved from http://www.oic.go.th/FILEWEB/CABINFOCENTER28 /DRAWER042/GENERAL/DATA0000/00000138.PDF

Nolan, C., & Ashcroft, S. (1969). The visually handicapped. *Review of Educational Research, 39,* 52-70.

Office of the Education Council (2017). *Education in Thailand.* Bangkok, Thailand, Prigwan Graphic Co., Ltd. Retrieved from https://www.bic.moe.go.th/images/ stories/pdf/EDUCATION_IN_THAILAND_2017.pdf

Osada. N. (2004). Listening comprehension research: A brief review of the past thirty years. *Dialogue, 3,* 56-66.

Ozer, O. (2004). *The Fountain Magazine - Issue - CONSTRUCTIVISM in Piaget and Vygotsky.* Fountainmagazine.com. Retrieved from http://www.fountainmagazine.com/Issue/detail/CONSTRUCTIVISM-in-Piaget-and-Vygotsky

Pacomo, C. (2014). *Time-tested method.* Retrieved from https://prezi.com/adfr4xae19tg/time-tested-methods/

Palinkas, L. A., Aarons, G. A., Horwitz, S., Chamberlain, P., Hurlburt, M., & Landsverk, J. (2011). Mixed method designs in implementation research. *Administration and policy in mental health, 38*(1), 44–53. http://doi.org/10.1007/s10488-010-0314-z

Pauk, W., & Owens, R. (2013). *How to study in college* (11th ed.). Boston, MA: Wadsworth, Cengage Learning.

Pearce, K. (2015). *Neuroplasticity: Rewiring your brain for optimal learning. DIY Genius.* Retrieved from https://www.diygenius.com/neuroplasticity-rewiring-your-brain-for-optimal-learning/

Pickard, G., & Sollars, P. (2001). Intrinsically photosensitive retinal ganglion cells. *Reviews of Physiology, Biochemistry and Pharmacology* 162, 59-90. http://dx.doi.org/10.1007/112_2011_4.

Poorvu Center for Teaching and Learning. (2018). *Flipped classroom*. Retrieved from https://ctl.yale.edu/FlippedClassroom

Profkelly. (2012). *Illustration of schema, assimilation, & accommodation*. Retrieved from https://www.youtube.com/watch?v=3-A9SgbAK5I

Puthong, L. (1999). *English teaching methodology in elementary schools in the upper northern region of Thailand*. Research report. Chiangmai: Maejo University.

Rattanavich, S. (2015). *The effects of blind students' literacy development through concentrated language encounter and traditional instruction.* Retrieved from http://www.journal.au.edu/edu_journal/jan2007/article09_vol1no1.pdf

Reed, M. & Michaud, C. (2010). *Goal-driven lesson planning for teaching English to speakers of other languages*. Ann Arbor: University of Michigan Press.

Rehabilitation of Disabled Persons Act, B.E. 2534. Retrieved from http://www.chainat.m-society.go.th/blank%20a%20form/act.pdf

Richards, J. C. (1983). Listening comprehension: Approach, design, procedure. *TESOL Quarterly, 17*(2), 219. http://doi:10.2307/3586651

Richards, J. C. (2005). Second thoughts on teaching listening. *RELC Journal*, *36*(1), 85–92. doi:10.1177/0033688205053484

Richards, J. C. (2008). *Teaching listening and speaking*. Cambridge University Press.

Richards, J. C., & Rodgers, T. S. (2001). *Approaches and methods in language teaching (2nd ed.)*. New York: Cambridge University Press.

Richards, J. C., Schmidt, R. W. (2002). *Longman dictionary of language teaching and applied linguistics (3rd ed.)*. New York: Longman.

Rixon, S. (1986). *Development Listening Skills*. London: Macmillan.

Rost, M. (1990). *Listening in language learning*. London: Longman.

Roth, C. and Suppasetseree, S. (2016). Flipped classroom: Can it enhance English listening comprehension for pre-university students in Cambodia. In: *CLaSIC*. Singapore: Centre for Language Studies, pp. 255-264.

Saban, Y. (2013). The flipped classroom instructional module. *In Proceedings of the 18th Annual TCC Worldwide Online Conference. Manoa*, Hawaii. Retrieved from http://scholarspace.manoa.hawaii.edu/handle/10125/27174

Saville-Troike, M. (2005). *Introducing second-language acquisition*. Cambridge: Cambridge University Press.

Schirner, T. (n.d.). *The advantages of YouTube in education.* Retrieved from https://www.techwalla.com/articles/the-advantages-of-youtube-in-education

Schnelle, H. (2010). *Language in the brain.* New York: Cambridge University Press.

Seth, A., & Bekinschtein, T. (2014). *30-second brain: The 50 most mind-blowing ideas in neuroscience, each explained in half a minute.* Sydney: Pier 9.

Shimamoto, D. (2012). *Implementing a flipped classroom: An instructional module.* Presentation at the Technology, Colleges, and Community Worldwide Online Conference, Honolulu, HI. Retrieved from http://scholarspace.manoa.

hawaii.edu/bitstream/handle/10125/22527/ETEC690FinalPaper.pdf?sequence=1

Shuhui, T. (2016). Research on cooperative learning based on “Flipped Classroom" teaching mode in higher vocational English teaching. *PEOPLE: International Journal of Social Sciences, 2*(1), 370-377.

Slavin, R. E. (1992). When and why does cooperative learning increase achievement? Theoretical and empirical perspectives. In R. Hertz-Lazarowitz & N. Miller (Eds.), *Interaction in cooperative groups: The theoretical anatomy of group learning* (pp. 145-173). New York: Cambridge University Press.

Smith, C. P. (2000). Content analysis and narrative analysis. In H. T. Reis & C. M. Judd (Eds.), *Handbook of research methods in social and personality psychology* (pp. 313-335). New York, NY, US: Cambridge University Press.

Soliman, N. A. (2016). Teaching English for academic purposes via the flipped learning approach. *Procedia – Social and Behavioral Sciences, 232*, 122–129.

Staker, H. & Horn, M. B. (2012). Classifying K-12 blended learning. Retrieved from https://www.christenseninstitute.org/wp-content/uploads/2013/04/Classifying-K-12-blended-learning.pdf

Strayer, J. F. (2007). *The effects of the classroom flip on the learning environment: A comparison of learning activity in a traditional classroom and a flip classroom that used an intelligent tutoring system.* (Doctoral dissertation). The Ohio State University, USA.

Sunday, C. E. (n.d.). *Qualitative data analysis (QDA).* Retrieved from https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=10&ved=2ahUKEwirxdbDwpziAhXBwI8KHUh0C48QFjAJegQIAxAC&url=https%3A%2F%2Fwww.uwc.ac.za%2FStudents%2FPostgraduate%2FDocuments%2FQualitative%2520data%2520analysis.pdf&usg=AOvVaw338Y9nMnCsy3tV72IyZzKI

Supawattanakul, K. (2006). *The blind who need to pay more for living*. Retrieved from http://www.manager.co.th/Daily/ViewNews.aspx?NewsID=9490000093310

Super User. (2017). *History Saints Foundation for the Blind in Thailand*. Nationals. Retrieved from http://cfbt.or.th/index.php/about-us/history

Suppes, P. (1974). A survey of cognition in handicapped children. *Review of Educational Research, 44*(2), 145-176.

Syondavis. (n.d.). *What the flip is a flipped ESL classroom?* Retrieved from

https://www.fluentu.com/blog/educator-english/flipped-classroom-esl/

Szparagowski, R. (2014). *The effectiveness of the flipped classroom.* Honors Projects. Paper 127.

Tainter, C. R., Wong, N. L., Cudemus-Deseda, G. A., & Bittner, E. A. (2017). The "flipped classroom" model for teaching in the intensive care unit. *J Intensive Care Med*. 32(3), 87–196.

Taweesak, A. (1999). *Phonetics.* Bangkok: Sahathammik Co., Ltd.

Teddlie, C. and Tashakkori, A. (2009). *Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences.* Thousand Oaks, CA: Sage Publications.

Telford, C., & Sawrey, J. (1972). *The exceptional individual* (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.

Teng, F. (2016). An in-depth investigation into the relationship between vocabulary knowledge and academic listening comprehension. *TESL-EJ, 20*(2), Retrieved from http://www.tesl-ej.org/wordpress/issues/volume20/ej78/ej78a5/

Thaichay, T. & Sitthitikul, P. (2016). Effects of the flipped classroom instruction on language accuracy and learning environment: A case study of Thai EFL upper-secondary school students. *Rangsit Journal of Educational Studies, 3*(2), 35-

64.

Tomlinson, B. (2007). *Language acquisition and development: Studies of first and other language learners.* London: Continuum.

Tomlinson, B. (2008). *English language learning materials: A critical review*. New York: Continuum International Publishing Group

Toto, R. & Nguyen, H. (2009, October). *Flipping the work design in an industrial engineering course.* Presented at IEEE 2009. In Proceedings of the 39th Frontiers in Education Conference, San Antonio, TX, USA.

UCD Teaching and Learning. (n.d.). *Education theory: Constructivism and social constructivism.* Retrieved from http://www.ucdoer.ie/index.php/Education_Theory/Constructivism_and_Social_Constructivism

United Nations Economic and Social Commission for Asia and the Pacific - ESCAP (2016). *Disability at a glance 2015: Strengthening employment prospects for persons with disabilities in Asia and the Pacific.* Bangkok, Thailand: United Nations Publication. Retrieved from https://www.unescap.org/sites/default/files/SDD%20Disability%20Glance%202015_Final.pdf

Ur, P. (1991). *A course in language teaching*. Cambridge: Cambridge University Press.

Ur. P. (1984). *Teaching listening comprehension. Cambridge*. NY: Cambridge University Press.

Vandergrift, L. (2004). 1. Listening to learn or learning to listen? *Annual Review of Applied Linguistics, 24*, 3-25.

Wang, Y.Q. & Gu, P. (2005), Reducing intercultural communication barriers between seafarers with different cultural backgrounds, Paper viewed at http://iamu-edu.org/wp-content/uploads/2014/07/s3-wang.pdf

Warren, S. L., Miller, G. A., and Heller, W. (2008). "Emotional facilitation and disruption of memory," in *Human Learning: Biology, Brain and Neuroscience*, eds M. Guadagnoli, A. S. Benjamin, S. de Belle, B. Etnyre, and T. Polk (Holland: Elsevier).

Wattajarukiat, T., Chatupote, M., & Sukseemuang, P. (2014). Listening difficulties and strategy use by university students. *Srinakharinwirot Research and Development, 6*(11), 40-62.

Wilson, L. O. (2017). *The flipped classroom flipped logo: What exactly is the flipped classroom design?* Retrieved from http://thesecondprinciple.com /teaching essentials/models-of-teaching/the-flipped-classroom/

Wormeli, R. (2004). *Summarization in any subject: 50 techniques to improve student*

learning. Alexandria, VA: Association for Supervision and Curriculum Development.

Wu, W. C. V., Chen Hsish, J. S., & Yang J. C. (2017). Creating an online learning community in a flipped classroom to enhance EFL learners' oral proficiency. *Educational Technology & Society, 20*(2), 142-157.

Yang, C. C. R. (2017). An investigation of the use of the 'flipped classroom' pedagogy in secondary English language classrooms. *Journal of Information Technology Education: Innovations in Practice, 16,* 1-20. Retrieved from http://www.informingscience.org/Publications/3635

Yevale, N. A. (2018). *Research methods: The basics.* Maharashtra, India: Laxmi Book Publication.

APPENDIX A

Test Specifications

Students:	The blind students at the Khon Kaen School for the Blind (Grade 7-9)
Educational context:	Average 7.6 years of English instruction; a 12-week period
Purpose of test:	Summative evaluation
Type of test:	Achievement
Response type(s):	Multiple choice
Scoring:	1 point for correct; 0 point for incorrect
Time:	60 minutes

Linguistics/ Cognition / Content	Listening			# of items	% of items
	Response Evaluation	Comprehension	Vocabulary Recognition		
1. Home Sweet Home	2	1	1	4	20
2. Daily Routine	2	1	1	4	20
3. Life at School	2	1	1	4	20
4. Health	2	1	1	4	20
5. Life Experience	2	1	1	4	20
# of items	10	5	5	20	
# of items per part	10	5	5		
% of items per section	50	25	25		100

Test Specifications: Test Description

Title of the test: ……English for the Blind Students …….……

Criteria	Description	Note
General purpose	To enhance the blind's listening comprehension	
Specific purposes	Students can be tested on the following skills: 1. The ability to identify the spoken language. 2. The ability to recognize and recall the lexical form and meaning. 3. The ability to recognize and recall the grammatical form and meaning. 4. The ability to respond to the questions syntactically and pragmatically.	
Description of the test takers	The blind students who study in grade 7 to 9 at Khon Kaen School for the Blind	
Test level	**Listening for:** Vocabulary Recognition Response Evaluation Comprehension	
Input		
• Sources	The instructor-designed instructional materials	
• Topics	Home Sweet Home / Daily Routine / Life at School / Health / Life Experience	
Input types	The questions of the test come from the instructor-designed instructional materials. The contents are created based on the Basic Education Curriculum 2008.	
Nature of content	Concrete and Abstract	
Test methods	Multiple choice with 4 different options marked with A, B, C, and D, only one of which is the correct answer	
Instructions	Instructions will be given in English in the form of print-braille book format or large-print book fromat.	

	Instructions Listen to the questions and choose the most appropriate answer from the options (A-D) for each question.
No. of tasks	3 tasks
No. of items per task	5 or 10 items
Weighting per task	5 or 10
Weighting per item	1 point
Criteria for marking	1 point for correct; 0 point for incorrect
No. of total items	20 items
Total test time	60 minutes
Item specifications	Task requirement: To ask students to choose the best answer for each question. Task contents: The contents taken from the Book used in the experiment Number of items: 20 items (5 to 10 items per cognitive and/or linguistic aspect)

General Guidelines

Task selection

1. Tasks must not be offensive, distressing, or violent.
2. Tasks must be accessible to the students' English proficiency.
3. Have a clear idea what skill and sub-skill(s) intended to test the student.
4. Students must be able to know easily how the task relates to the contents they have learned.

Item writing

1. Items must not be interdependent.
2. Two items must not have similar answers.
3. Items must have only a correct answer key.
4. The items in each task must be numbered sequentially.
5. The four response options are independent and not represent subsets of other options.
6. The response options should be parallel in length, level of complexity, and grammatical structure.
7. The correct response option must not be noticed and answered easily without reading other response options.
8. The words or phrases in the question should not be used in one of the response options since it can act as a clue to correct response.

APPENDIX B

Pre-Test and Post-test

PRE-TEST

PART 1: LISTENING RESPONSE

Instructions: There are 10 statements. You will hear each statement twice. After each statement has been said, there will be a pause for you to read the four choices (A, B, C, and D) and decide which the best answer is.

1. Who is she?

A. She is nice.
B. She is a sister.
C. This is a brother.
D. She is an uncle.

2. Hello, Jenny! What is your father like?

A. He is friendly.
B. He loves English.
C. Yes! He is a brother.
D. He has a toothache.

3. Teacher! What do you always do in the morning?

A. Have lunch
B. Have dinner
C. Have breakfast
D. Have a headache

4. How often does she drink coffee?

A. She likes coffee very much.
B. She always drinks coffee.
C. No, she doesn't like coffee.
D. Yes, she likes it.

5. What subject do you like?

A. Yes. It is amusing.
B. I like IT.
C. It is tiring.
D. I like to sleep.

6. Why do you like art?

A. It makes me bored.
B. Art is a subject.
C. My favorite subjects are art and Thai.
D. Because it's relaxing.

7. Jane! What's the matter?

A. I don't like computer.
B. I have a headache.
C. I love English.
D. You should take a rest.

8. What should I do when I am sick?

A. I think, you should take a rest.
B. Yes, I have a headache.
C. I shouldn't go to the doctor?
D. You should go to work.

9. Have you ever ridden a camel?

A. Yes, I do.
B. Since 2000
C. For many years
D. No. I haven't.

10. How long have you lived in Thailand?

A. Yes, I've lived in Thailand.
B. No, I haven't lived in Thailand.
C. I've lived in Thailand since 2000.
D. I've lived in Thailand with my father.

PART 2: LISTENING COMPREHENSION

Instructions: You will hear the story. At the end of each story, a question will be asked about what was said. You will hear each story twice and decide which the best answer is.

11. *Hello! This is my mother, Jenny. She is nice and charming.*

What is Jenny like?

A. Nice
B. Charming
C. Nice and math
D. Nice and charming

12. *Ken is a doctor. Before going to work, he always takes a shower in the morning.*

How often does Ken take a shower in the morning?

A. Never
B. Always
C. Usually
D. Sometimes

13. *Jenny is a teacher. She loves to teach math because it is interesting.*

What subject does Jenny like?

A. Math B. Science

C. Math and Thai D. Math and English

14. *Joy has played basketball since last year at school. Now she has a broken leg, so she should stop playing it.*

What's wrong with Joy?

A. She has a cut. B. She has a headache.

C. She has a broken leg. D. She has a broken arm.

15. *Jenny has a toothache because she has eaten a lot of snacks for many years. She should stop eating snack.*

How long has Jenny eaten snacks?

A. Stop eating B. Many years

C. A lot D. Never

PART 3: VOCABULARY RECOGNITION

Instructions: In this part, there are 5 questions. Choose the correct word that matches each statement or question.

16. Which word is a family member?

A. Teacher B. Doctor C. Nurse D. Brother

17. What do you eat in the morning?

A. Snack B. Lunch C. Dinner D. Breakfast

18. What is the subject that you learn about numbers?

A. PE B. Art C. Math D. English

19. I cannot speak loudly today because I have a . .

A. Cut B. Cancer C. Sore throat D. Stomachache

20. A vehicle for air travel and fly in the sky

A. Plane B. Bus C. Car D. Horse

POST-TEST

PART 1: LISTENING RESPONSE

Instructions: There are 10 statements. You will hear each statement twice. After each statement has been said, there will be a pause for you to read the four choices (A, B, C, and D) and decide which the best answer is.

1. Who is he?

A. He is kind.
B. He is a sister.
C. He is friendly.
D. He is an uncle.

2. Jake! What is your grandmother like?

A. She is kind.
B. She likes science.
C. She should exercise.
D. My grandmother loves computer.

3. What do you do in the morning?

A. Have lunch
B. Have dinner
C. Have breakfast
D. Have a sore throat

4. How often does he swim?

A. Yes, he does.
B. You like swimming?
C. He likes swimming.
D. He swims sometimes.

5. What subject do you like?

A. I like PE
B. I like to do it too.
C. Yes, I will go to school.
D. I don't like it.

6. Why do you dislike math?

A. Because it is confusing.
B. Yes, I do.
C. No, I don't like it.
D. I don't know why.

7. What is wrong with you?

A. I always do it with my mom.
B. I should take a medicine.
C. Yes, I should go to the doctor.
D. I have a stomachache.

8. What should you do if you have the fever?

A. Take a rest B. Go to work

C. Eat junk food D. Drink Pepsi

9. Have you ever studied science?

A. Yes, I have. B. For 10 years

C. Since I was young D. No, I haven't never.

10. How long have you stayed in China?

A. For 5 years B. It's very nice.

C. No, I haven't. D. Yes, China is very beautiful.

PART 2: LISTENING COMPREHENSION

Instructions: You will hear the story. At the end of each story, a question will be asked about what was said. You will hear each story twice and decide which the best answer is.

11. *Her name is Joy. She is very kind and cute. She has a lot of friends at school.*

What is Joy like?

A. PE B. Sister C. Kind and cute D. Yes, she likes.

12. *Max has stayed in England for 5 years. He always speaks English with his family at home.*

How often does he speak English?

A. Never B. Always C. Usually D. Hardly ever

13. *Hi! My name's Alice. I love to go to school because I like to study art with my friends.*

What's Alice's favorite subject?

A. English B. Art C. Math D. Science

14. *My name is Alice. Today I don't feel good because I have a headache. I think I should take a medicine and take a rest.*

What's wrong with Alice?

A. She has a cut.
B. She has a headache.
C. She has a bad temperature.
D. She has a broken arm.

15. *This is Ken. He likes English a lot. He has studied English for 30 years.*

How long has Ken studied English?

A. I'm fine.
B. He is old.
C. For 30 years
D. Yes, he likes English.

PART 3: VOCABULARY RECOGNITION

Instructions: In this part, there are 5 questions. Choose the correct word that matches each statement or question.

16. Which word is a family member?

A. Soldier
B. Uncle
C. Policeman
D. Teacher

17. What do you do every day?

A. Go to work
B. Nice
C. Always
D. Father

18. What is the subject that you can play sports such as football or basketball?

A. Computer.
B. PE
C. Science
D. Social Studies

19. If you eat spicy food, you will have a . .

A. Cold
B. Stomachache
C. Backache
D. Temperature

20. An animal that is in the desert

A. Never
B. Camel
C. Usually
D. Sometimes

APPENDIX C

Items Analysis for Proficiency Test

Item Analysis for Pretest and Posttest 90 items

The item analysis results presenting level of difficulty (p) and the discrimination index (r) of the Pretest and Posttest on English listening comprehension enhancement.

Items	Level of Difficulty (p)	Discrimination Index (r)	Pretest	Posttest
1	0.00	0.00		
2	0.75	0.50	*	
3	0.63	0.25		*
4	0.25	0.50	*	
5	0.88	0.25		*
6	0.00	0.00		
7	0.63	0.25	*	
8	0.38	0.25		*
9	0.00	0.00		
10	0.00	0.00		
11	0.63	0.25	*	
12	0.25	0.50		*
13	0.63	-0.25		
14	0.25	0.50	*	
15	0.25	0.50		*
16	0.63	0.25	*	
17	0.38	-0.25		
18	0.50	0.50		*
19	0.63	-0.25		
20	0.88	0.25	*	
21	0.25	0.50		

22	0.88	0.25		
23	0.25	0.00		
24	0.63	0.25		*
25	0.13	0.25		
26	0.88	0.25	*	
27	0.38	0.25		*
28	0.63	0.25		*
29	0.50	0.00		
30	0.38	0.25	*	
31	0.00	0.00		
32	0.63	0.75	*	
33	0.63	0.25		*
34	0.00	0.00		
35	1.00	0.00		
36	0.63	0.25	*	
37	0.88	0.25	*	
38	0.13	0.25		
39	0.00	0.00		
40	0.38	0.25	*	
41	0.25	0.00		
42	0.00	0.00		
43	0.38	0.25		*
44	0.00	0.00		
45	1.00	0.00		
46	0.38	0.25		*
47	0.00	0.00		
48	0.00	0.00		
49	0.00	0.00		
50	0.88	0.25	*	
51	0.00	0.00		
52	0.13	-0.25		
53	0.38	0.25		*
54	0.00	0.00		
55	0.38	0.25		*
56	0.25	0.00		
57	0.00	0.00		
58	0.13	-0.25		

59	0.38	0.25		
60	0.00	0.00		
61	1.00	0.00		
62	0.88	0.25	*	
63	0.88	0.25		*
64	0.38	0.25		
65	0.13	-0.25		
66	0.00	0.00		
67	0.88	0.25	*	
68	0.00	0.00		
69	0.88	0.25		*
70	0.00	0.00		
71	0.13	-0.25		
72	0.63	-0.25		
73	0.88	0.25		*
74	0.75	0.50	*	
75	0.50	0.50		
76	0.00	0.00		
77	0.00	0.00		
78	0.50	0.00		
79	0.88	0.25		*
80	0.38	0.25	*	
81	1.00	0.00		
82	0.50	0.00		
83	0.38	0.25		
84	0.00	0.00		
85	0.88	0.25		
86	1.00	0.00		
87	0.00	0.00		
88	0.88	0.25		
89	0.75	0.50		*
90	0.75	0.50	*	

Split-half Reliability : Internal Consistency Reliability

Reliability Statistics

Cronbach's Alpha	Part 1	Value	1.000
		N of Items	1[a]
	Part 2	Value	1.000
		N of Items	1[b]
	Total N of Items		2
Correlation Between Forms			.434
Spearman-Brown Coefficient	Equal Length		.605
	Unequal Length		.605
Guttman Split-Half Coefficient			.604

a. The items are: odd

b. The items are: even

Computing a correlation between two halves of a measure and applying the Spearman-Brown prophesy formula to estimate the reliability of the whole measure, the table illustrates the Reliability Statistics in the Spearman-Brown Coefficient, Equal Length row. It reaches .605, which means it is fairly acceptable.

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
odd	17.38	25.125	.434	.
even	20.50	21.429	.434	.

APPENDIX D

The Results of the Blind's Pretest and Posttest

Students	Pretest	Posttest	Differences
1	8	10	2
2	7	7	0
3	9	11	2
4	10	14	4
5	10	13	3
6	11	12	1
7	9	10	1
8	10	8	-2
9	7	9	2
10	11	15	4
($\bar{x}$)	**92**	**109**	**17**

APPENDIX E

Questionnaire

1. English Version

No.	Statements	1 (Very satisfied)	2 (Satisifed)	3 (Neutral)	4 (Unsatisfied)	5 (Very unsatisfied)
A. Content						
1.	The objectives are clear for the blind students to learn.					
2.	The contents start from the easy to the difficult one.					
3.	The contents are clear with explanations and full with examples.					
B. Media						
4.	The computer is easily used to learn. (computer & facilities readiness)					
5.	The audio files are clear and interesting.					
6.	The instructor-designed instructional materials are good and help the blind students learn better. (online material and student book)					
7.	The student book goes along well with the lessons the blind students learn with computer.					
C. Usefulness						
8.	The blind students can list the questions or problems from learning through the flipped classroom to ask the teacher in the classroom.					
9.	Time spent for learning through the flipped classroom is enough for the blind students to finish each lesson in time.					

10.	The instructor-designed instructional materials increase the blind's confidence in terms of the English listening.					
11.	The blind students think the instructor-designed instructional materials are good for the beginners to enhance listening comprehension.					
12.	The blind students can further search information from other resources.					
13.	Learning through the computer makes the blind students understand the contents better when they learn in the classroom.					
14.	The instructional materials such as the student book decrease the difficulties concerning with the nature of listening while blind students learn via computer.					

2. Thai Version

ข้อ	คำถาม	5 (มากที่สุด)	4 (มาก)	3 (ปานกลาง)	2 (น้อย)	1 (น้อยที่สุด)
ก. เนื้อหา						
1.	เนื้อหามีความชัดเจน					
2.	การเรียงลำดับเนื้อหามีการเริ่มจากง่ายไปหายาก					
3.	เนื้อหามีความชัดเจนพร้อมคำอธิบายและตัวอย่าง					
ข. สื่อ						
4.	คอมพิวเตอร์สามารถใช้งานได้ง่าย (ความพร้อมของคอมพิวเตอร์และอุปกรณ์อำนวยความสะดวกต่างๆ)					
5.	ไฟล์เสียงมีความชัดเจนและน่าสนใจ					
6.	สื่อมีประสิทธิภาพดีและช่วยให้คุณเรียนรู้ได้ดีขึ้น (สื่อออนไลน์และหนังสือ)					
7.	หนังสืออักษรเบรลล์มีความสอดคล้องเนื้อหาที่ได้อธิบายไว้ในคอมพิวเตอร์					
ค. ประโยชน์						
8.	ฉันสามารถจดคำถามหรือปัญหาจากการเรียนรู้ผ่านคอมพิวเตอร์เพื่อไปถามให้ครูในห้องเรียนตามปรกติได้					
9.	เวลาที่ใช้ในการเรียนรู้ผ่านทางคอมพิวเตอร์เพียงพอสำหรับการเรียนจบบทเรียนในแต่ละครั้ง					
10.	สื่อการเรียนการสอนช่วยเพิ่มความมั่นใจในการฟังภาษาอังกฤษของฉัน					
11.	ฉันคิดว่าสื่อการเรียนดีสำหรับผู้เริ่มต้นที่จะเพิ่มความสามารถในการฟังเพื่อเข้าใจ					

12.	ฉันสามารถค้นหาข้อมูลจากแหล่งข้อมูลอื่นๆ เช่น หนังสือหรือขอคำแนะนำจากครูหรือเพื่อนเมื่อพบกับเนื้อหาที่ยากขณะเรียนผ่านคอมพิวเตอร์					
13.	การเรียนผ่านคอมพิวเตอร์ทำให้ฉันเข้าใจเนื้อหาได้ดีขึ้น เพราะฉันสามารถนำสิ่งที่เรียนรู้ไปใช้อีกครั้งในห้องเรียนตามปรกติ					
14.	วัสดุ เช่น หนังสืออักษรเบรลล์ลดปัญหาเกี่ยวกับลักษณะการฟังขณะที่เรียนรู้จากคอมพิวเตอร์					

APPENDIX F

Semi-Structured Interview

1. English Version

List of Questions for the Semi-Structured Interview

1. How do you feel about studying in the flipped classroom context? Do you like or dislike it? Why do you feel in that way?

2. In what way do you think the listening instructional materials are helpful for you?

3. What are the difficulties during participating in the study?

4. Do you find any parts of the contents too easy or too difficult? What are they?

5. Do you think learning by yourself online can make you a good student?]

6. Do you have any comments, feedback, or suggestions toward the study in any dimensions such as time spent during the flipped classroom, contents, teaching methodology, material design, etc.?

2. Thai Version

รายการคำถามสำหรับการสัมภาษณ์แบบกึ่งโครงสร้าง

1. นักเรียนรู้สึกอย่างไรบ้างกับการเรียนที่นักเรียนต้องไปเรียนรู้ด้วยตัวเองก่อนเข้ามาเรียนในห้องเรียน ชอบหรือไม่ เพราะเหตุใด

2. นักเรียนคิดว่าสื่อการเรียนใช้เรียนเป็นประโยชน์ต่อนักเรียนอย่างไรบ้าง

3. มีส่วนไหนที่ยากบ้างที่นักเรียนพบเจอในระหว่างเรียน

4. นักเรียนคิดว่ามีเนื้อหาส่วนไหนที่ง่ายไปหรือยากไปไหม ตัวอย่างสิ่งที่พบคืออะไรบ้าง

5. นักเรียนคิดว่าการเรียนรู้ด้วยตนเองผ่านคอมพิวเตอร์จะทำให้เราเป็นนักเรียนที่ดีได้ไหม

6. นักเรียนมีความรู้สึก ความคิดเห็น หรือคำแนะนำ ต่อการเรียนในครั้งนี้ไหม เช่นระยะเวลาที่ใช้ในการเรียน เนื้อหา การสอน สื่อและอื่นๆ

APPENDIX G

Results of Semi-Structured Interview

STUDENT 1

INTERVIEWER: Okay. This is the first question. How do you feel about learning… about the learning that you have to prepare outside and later do activities together in class? Do you like it or not? If you like it, why? If you don't like it, why?

STD1: Like

INTERVIEWER: Like. Why do you like? What are the reasons?

STD1: Because we would know what we don't know and come back to do.

INTERVIEWER: Aha... it's doable. Do you think the instructional materials such as braille book that I produced, and website that you learned, how are they helpful for you?

STD1: Make me be able to read more

INTERVIEWER: Be able to read more. What do you mean? What do you mean about the word more? You mean you can read more pages or it makes you be able to read more? In what way?

STD1: It's like I am able to read more.

INTERVIEWER: I see, be able to read more.

STD1: We normally listen more than we read.

INTERVIEWER: As there anything else? Any other helpfulness for you? For example, you said it helps you read more… read more because you mostly listen more than you read. What does it mean? Does it mean you normally listen more than you read?

STD1: Yes. Sometimes reading causes me to feel better.

INTERVIEWER: Yes.

STD1: Yes.
INTERVIEWER: Any advantages? Anything else?

STD1: No more.

INTERVIEWER: Now, number three. What do you think, since we started to learn together, it's very difficult… umm… it doesn't need to be about the contents you learned, it's like the thing that caused a big problem or trouble for this activity?

STD1: It may be website.

INTERVIEWER: Website

STD1: Yes

INTERVIEWER: Another thing else? Why website? How is it?

STD1: Because I couldn't have access it.

INTERVIEWER: Well, anything else?

STD1: No

INTERVIEWER: Is time like learning time problematic?

STD1: I don't think learning time is problematic.

INTERVIEWER: But website is the main problem, right?

STD1: Yes.

INTERVIEWER: Inaccessible, and anything else that you faced, except inaccessibility of computer.

STD1: Inaccessible, computer, sometimes I couldn't access.

INTERVIEWER: Number four, do you find any parts are too difficult or too easy since we started learning? Like this topic is too easy. That topic is too difficult. What parts do you think they are difficult for you?

STD1: I don't see anything difficult because they are basic things.
INTERVIEWER: Do you think learning by yourself through computer… that is to learn with computer, can make you become a better student? What I mean being better is about responsibility, searching for more information. Do you think learning through computer can make you be more potential?

STD1: Yes, being more potential

INTERVIEWER: How?

STD1: Because learning with computer, I can search additional websites to learn.

INTERVIEWER: I see. Do you have any feelings, or ideas… it is all about you like your feelings or opinions, suggestions, toward this study like contents, teaching, materials? Do you have anything to tell me in case I can make use of information to keep something if it's already good or to improve, develop? Or how do you see this study beneficial for you?

STD1: It's useful because some who cannot read can practice and it could make them be able to read more.

INTERVIEWER: I see.

STD1: What I want you to improve is website.

INTERVIEWER: Yes, anything else?

STD1: Nothing.

INTERVIEWER: How about your feelings?

STD1: My feeling… it's good that I've got a chance to learn.

INTERVIEWER: How is it good? I just wanna know It's good. How is it good? Why? You told me that it's good. That's the reason that I'd like to know how it's good to you… because of what? How good do you think it is?

STD1: Because I normally learn but with the sighted people.

INTERVIEWER: I see.

STD1: I got the explanations. I got more knowledge.

INTERVIEWER: Well… how do you feel when you learn with the sighted people because you've said that you normally learn with them? How is it about learning with the sighted people?

STD1: Learning with the sighted students, the teacher will write on the board.

INTERVIEWER: Aha

STD1: And friends will work on their work. Sometimes friends don't read it for me. I don't understand.

INTERVIEWER: Well… but when you learn here, it's better.
STD1: Yes.

INTERVIEWER: How is it better for you? You said that you learn with the sighted people, the teacher writes on the board, no one to read for you, and stuff. How is it better compared with your class room? You said it's good because you normally learn with the sighted people. You've got more chances to listen to the explanations, right? Is it the cause that makes you feel better than you learn at your school?

STD1: Yes.

INTERVIEWER: Anything else?

STD1: No.

INTERVIEWER: Is there anything else you wanna suggest? Or do you have anything?

STD1: No

INTERVIEWER: No more?

STD1: No more.

INTERVIEWER: Okay. Thank you. It's done.

STUDENT 2

INTERVIEWER: Okay, this is a question. First question is how you feel about the learning that you have to prepare by yourself before coming back to learn in class. You like it or not? If you like it, why? If you don't like it, why? For example, before coming to class, it's like, go to read, learn by yourself, try to read by yourself first. You like it or not?

STD2: Yes, I like.

INTERVIEWER: If you like it, why do you like it?

STD2: I like because when I'm in class, I can answer your questions.

INTERVIEWER: Aha, because when you are in the classroom, you can answer.

STD2: Yes

INTERVIEWER: What kind of answering? What do you mean about "can answer"? Can do activities?

STD2: Yes

INTERVIEWER: Well, how about instructional materials that you used such as braille book and computer? How are they helpful for you? Like braille book that I produced and audio files that I gave you to listen. In your opinion, how are they helpful for you? How are they? Like when we learn, when we use. What is their helpfulness? How do they help you? How are they helpful for you?

STD2: They help me to read better

INTERVIEWER: Help you to read better

STD2: Yes

INTERVIEWER: What do you mean… help you to read better?

STD2: Read correctly

INTERVIEWER: Read correctly

STD2: Listen and the pronounce

INTERVIEWER: Well, is there anything else, out of helping you to read better? Anything?

STD2: No

INTERVIEWER: No more. Haha. the beginning, what parts do you think they are difficult? What is difficult for you? Like… I mean anything that caused your learning. What are the obstacles from the beginning to the end?

STD2: Whaat?

INTERVIEWER: It can be anything such as teaching, yourself, or time. It's up to you. What do you think, during we did activities together, they are problems and affect you?

STD2: No

INTERVIEWER: Really? How about computer?

STD2: Aha, there is some of it because I could use it. It wasn't okay.

INTERVIEWER: If you cannot learn with computer, did you learn from the book?

STD2: Yes

INTERVIEWER: Aha, do you think they are too easy or too difficult parts? What you

learned, what are the easy of difficult things?

STD2: What is difficult is…

INTERVIEWER: From the start, what do you think it's easy or it's difficult?

STD2: Ugh! I don't know.

INTERVIEWER: Contents that you learned, is anything difficult?

STD2: No, because you explained.

INTERVIEWER: I see, for example, what is your opinion toward learning by yourself, through computer? Do you think learning with computer or doing activities by yourself can make you become a better student?

STD2: No

INTERVIEWER: Why no?

STD2: Because there must be someone to advise, that kind of thing.

INTERVIEWER: Aha, there must be someone to advise. Ehh! If the teacher assigns homework and must search from Google, can you do it?

STD2: Still, there must be a teacher because we don't know.

INTERVIEWER: Well, still need a teacher to help. Do you have any comments, suggestions, or any other thing toward what we did together such as learning time, contents, how was my teaching, and instructional materials? Are there any suggestions? There must be something, I think.

STD2: Haha, well!

INTERVIEWER: Tell me! You can tell me in case I would use it to develop all things to be better. It's like to develop it to help you more.

STD2: It's about book because there are some typos.

INTERVIEWER: In case of the braille book, if there are typos, can you edit? Are there any ways to edit? For me, when I write something wrong like my alphabet A become a J, are there any ways to deal with braille? For sighted people, we use…whiteout to erase and sometimes use the pen to cross out by drawing a line. Is there anything like this with braille?

STD2: If some alphabets… some alphabets can be edited. To raise the dots.
INTERVIEWER: Umm… can edit, right?

STD2: Some can't be edited.

INTERVIEWER: Well, it's like… it means, for example, if a dot hasn't been raised, it can be edited.

STD2: Yes.

INTERVIEWER: Okay, anything else? Learning time. Any suggestions about learning time? Anything?

STD2: I want you to teach more contents.

INTERVIEWER: Teach more? Why do you want me to teach more? Why? What are the reasons?

STD2: Because I don't quite understand something.

INTERVIEWER: Don't understand something.

STD2: I understood some of them but they may not be deep enough.

INTERVIEWER: I see. Anything else? Contents. How is my teaching? How are the instructional materials?

STD2: That's okay.

INTERVIEWER: Aha

STD2: Haha, but computer isn't good.

INTERVIEWER: Okay, anything else? From the beginning, don't you ever think they are too easy or too difficult? Is there something making you feel like… whaaat? It's so hard, or it's too easy. What are too difficult or too easy?

STD2: What is difficult is… sentence arrangement.

INTERVIEWER: I see.

STD2: I don't know how to arrange the order.

INTERVIEWER: Umm, why? What is the reason? Because of what that makes you unable to arrange the sentences correctly? What is the cause? Because… you told me you can arrange the sentences correctly, right?

STD2: Yes
INTERVIEWER: What do you think are the causes for being unable to arrange the

sentences?

STD2: Ummmm

INTERVIEWER: I mean… it's about your opinions. Because of what?

STD2: I don't understand.

INTERVIEWER: Don't understand. What do you mean about "don't understand"?

STD2: I don't know which word should be the first in the sentence.

INTERVIEWER: Anything else you wanna tell me? I mean any suggestions or what you wanna say. Anything?

STD2: No

INTERVIEWER: Okay, thank you.

STUDENT 3

INTERVIEWER: Okay. first question, what do you think about learning that you have to prepare like reading and listening by yourself before coming to class? Do you like it?

STD3: Yes, I do.

INTERVIEWER: If you like it, why do you like it? If you don't like it, why?

STD3: Because if we prepare before class, right? We will be like… if we prepare before, we will have… how is it called? If we prepare before class, we won't need to read inside the classroom. It's like we don't need to… don't need to review once again in the classroom.

INTERVIEWER: Aha

STD3: I can read it in a row at once.

INTERVIEWER: prepare before class so you don't need to review in class. Second question. (called the interviewee with the wrong name)

STD3: Haha

INTERVIEWER: I always switch people's names.

STD3: Haha

INTERVIEWER: In your opinion, the instructional materials that you used to do activities, how are they useful for you such as braille book or audio files for listening? In what way do you think they are useful for you, or help you?

STD3: Braille?

INTERVIEWER: Sorry, the large-print book. How is it useful for you?

STD3: The large-print book is okay because it's like when we read, and we… we don't understand, don't know the translation, we will…

INTERVIEWER: Aha

STD3: We will take a look at it because there are translations for us, about translation.

INTERVIEWER: I see. Is there any other usefulness? The first one is about translation. Anything else?

STD3: Usefulness? For example, sounds are useful because we can't see, right? When we listen, we understand.

INTERVIEWER: Listening comprehension. Another thing about having translations, why is it useful? You said having translations is okay. why is it useful for you when it is provided to you?

STD3: Translation… if you ask me why is it useful… it's like… when we read the word "mother"…

INTERVIEWER: Aha

STD3: And we don't know, we can go and read. Then, we will memorize and store it in the brain. Haha. In our brains.

INTERVIEWER: That means

STD3: Yes

INTERVIEWER: Help us to memorize better

STD3: Help you to memorize better from the past that you can hardly memorize things. Haha

INTERVIEWER: What do you think about having both Thai and English in the same book? Do you think it's good? Or it's bad because I'm learning English, why are there Thai translations in the book? Why not only English?
STD3: Well, I think having Thai is good. I think it's good.

INTERVIEWER: Why is it good?

STD3: For example, when we... we read and don't understand what the words mean, we have to ask this person and that person.

INTERVIEWER: I see.

STD3: I need to ask so many people.

INTERVIEWER: Aha

STD3: Having translations help us read all at once.

INTERVIEWER: Aha

STD3: Errr

INTERVIEWER: Okay. since the first day, what do you think they are obstacles or problems?

STD3: Lesson… lesson… For me, okay? the most difficult thing for me

INTERVIEWER: It can be anything? It doesn't need to be only the contents. It could be external factors, or anything that you think like… it's a big problem?

STD3: I see

INTERVIEWER: For example, the lessons. How are they?

STD3: Well, it may be about health symptoms.

INTERVIEWER: Aha

STD3: About the health symptoms because I am not fluent.

INTERVIEWER: Not fluent. What makes you not fluent?

STD3: It's like when I memorizing… I still can't remember some of them.

INTERVIEWER: Aha. Next, are there any parts from the beginning that you think it's way too easy? Why do I need to study them? For what?

STD3: Haha

INTERVIEWER: Or very very hard? It's hard till you feel like why I need to study these difficult things? Anything is too easy or too difficult?

STD3: No. Nothing is easy. They are doable.

INTERVIEWER: Like what?

STD3: About subjects… my favorite subject.

INTERVIEWER: Because you have learned it?

STD3: Yes

INTERVIEWER: You've learned it. What do you mean by this? You mean you have learned at school or you've read it by yourself? Read by yourself before?

STD3: At school. The teacher taught… the foreign teacher.

INTERVIEWER: I see. So, that means you don't need to learn here because you already learned it at school?

STD3: I can learn. I can.

INTERVIEWER: Aha

STD3: Because we don't want to learn only one lesson. It's like we want to learn many different lessons.

INTERVIEWER: Aha. Anything hard? What do you think they are too hard? Is it about health symptoms?

STD3: No more

INTERVIEWER: Well, question five already. Do you think learning by yourself… ask you to learn through the computer… with the computer, do you think it can make you become a better student?

STD3: Yes. It's also another way of practicing.

INTERVIEWER: How to practice? What do you mean?

STD3: It's like… having access to this and that. Sometimes we've never had access or searched. For the important things, we can search.

INTERVIEWER: It helps about searching, right?

STD3: Yes

INTERVIEWER: Is there another benefit of a computer? In what way do you think

learning with computer is helpful?

STD3: It reads for me.

INTERVIEWER: Helps reading?

STD3: Yes

INTERVIEWER: What is helping you read?

STD3: There are sounds.

INTERVIEWER: Because you can't see too, right?

STD3: Yes. It helps about spelling. Some words I can spell correctly… we listen… we help… about listening and spelling words.

INTERVIEWER: How clear can you see? You are low vision, right? How clear can you see?

STD3: About…

INTERVIEWER: I mean you must look at something very very close, right?

STD3: Sometimes. How to tell? When I look at the phone screen, it's around this. But if I look at people or things, around this.

INTERVIEWER: You can see?

STD3: Yes

INTERVIEWER: Because when I saw you writing in class, you could write very fast. Like using a pen.

STD3: Haha

INTERVIEWER: So, I just would like to know. So, when you write, you can see it as always? Not difficult?

STD3: Not difficult

INTERVIEWER: I see

STD3: But if it's far from me like the board, I can see it clearly.

INTERVIEWER: You don't have problems when you are in class? That means you don't have problems about doing homework by yourself.

STD3: Yes

INTERVIEWER: But what if your teacher writes on the board?

STD3: Yes

INTERVIEWER: Can you see?

STD3: No, I can't. I need to use a camera to take photos because I sit far away from the board.

INTERVIEWER: Sit so far. Doesn't your teacher have you to sit in front?

STD3: At first, I sit in front but after that the teacher organized the class for the students to sit in group.

INTERVIEWER: Okay. Next is number six. This is about your feelings, opinions… suggestions toward this learning. It could be learning time, contents, teaching, materials. Do you have anything to tell or suggest?

STD3: Well.
I want you to extend time. It's okay. I don't sleep that late.

INTERVIEWER: Adding more time? Won't it be too tiring for you?

STD3: No. If it's on Saturday and Sunday, it isn't that tiring. If there are no events, learning on Saturday and Sunday is not tiring.

INTERVIEWER: Aha. Anything about your feelings? Do you think this learning is okay… good? Or anything that is not good enough?

STD3: Okay

INTERVIEWER: In case…

STD3: Okay

INTERVIEWER: What do you mean by "Okay"?

STD3: Okay… it's like when you come, you always inform. Sometimes we are not available, I will tell you and you never get mad. Haha

INTERVIEWER: Haha

STD3: Haha
INTERVIEWER: Anything else you want to suggest so that I can make use of it to

make something better?

STD3: Well

INTERVIEWER: Or for example, you learn English, now your English score is ten. But if you get this thing, you can increase your English ability to a hundred scores. What thing do you think you it can make you better if you get it?

STD3: Adding more lessons.

INTERVIEWER: More lessons?

STD3: Yes

INTERVIEWER: What lessons do you want?

STD3: Like… how to say… learning about things.

INTERVIEWER: About things

STD3: Rooms in a house

INTERVIEWER: Rooms in a house. What's more? What skills do you want to improve the most?

STD3: Skills?

INTERVIEWER: Yes

STD3: Skills… I don't know anything about sports. I don't know just a thing, seriously.

INTERVIEWER: Don't know. What you don't know?

STD3: Don't' know. I don't know about spelling.

INTERVIEWER: Don't know vocabulary?

STD3: Yes

INTERVIEWER: How about other skills? What do you want to get like listening speaking, reading, writing, grammar, vocabulary, or else?

STD3: Listening. Listening.

INTERVIEWER: Wanna increase listening.
STD3: Yes

INTERVIEWER: Why?

STD3: Because when we listen, we will be able to memorize, and then read.

INTERVIEWER: Well, the materials are about… what you wanna have more like rooms in a house, vocabulary, and listening for memorizing.

STD3: Yes, yes.

INTERVIEWER: Anything else? How is teaching?

STD3: Okay

INTERVIEWER: Okay? Anything you think it needs to be improved? Activities or anything?

STD3: Nothing. Everything is okay.

INTERVIEWER: When you do activities with friends, in pair or in group, are there any problems?

STD3: It's okay. No problems.

INTERVIEWER: Don't fight?

STD3: I don't fight against friends. I am like… friendly with everyone.

INTERVIEWER: Aha

STD3: I don't' fight except someone hurts me first because I start teaseing friends. Haha.

INTERVIEWER: Anything about your feelings?

STD3: No more

INTERVIEWER: Suggestions? Recommendations? No more?

STD3: Yes.

INTERVIEWER: Okay, thanks.

STUDENT 4

INTERVIEWER: How do you feel with the learning that you have to learn by yourself before coming back to learn in the classroom? Do you like it or not? Because of what? Like you have to read, learn with computer by yourself before doing activities in class. Do you like it?

STD4: Yes, I do.

INTERVIEWER: Because?

STD4: Because I can read the contents before and ask you later. Then I can answer.

INTERVIEWER: Do you think… like asking you to read before, prepare before, do you think it's a problem?

STD4: No

INTERVIEWER: No? Doesn't it increase your workload?

STD4: It doesn't.

INTERVIEWER: Okay

STD4: But we ourselves are lazy. Haha.

INTERVIEWER: Haha. Okay. How do you think the instructional materials we used to learn such as braille book, computer website, audio files, and stuff, are helpful for you?

STD4: They're helpful because when they say a word… we will… err… know how to spell it like this.

INTERVIEWER: Aha, anything else?

STD4: No

INTERVIEWER: Well… how the materials like… like the braille book are helpful for you?

STD4: Yes, it's helpful.

INTERVIEWER: How? How helpful they are for you?

STD4: Like when it says a word… we can track together.

INTERVIEWER: I see.

STD4: Know how to spell the word… like this.

INTERVIEWER: Aha. Since we started learning… since the beginning, what do you face… what are the most problematic, what are the struggles that you think it obstructs you during doing this activity?

STD4: When… when listening to audio files.

INTERVIEWER: Well… how was it?

STD4: Umm… I didn't understand much.

INTERVIEWER: Aha

STD4: The sounds were understandable, but I couldn't understand.

INTERVIEWER: Haha, the sounds were understandable, but you didn't understand.

STD4: Yes.

INTERVIEWER: Why didn't you understand that much? What are the reasons? Why? Yes… you said that you could understand when listening. But…

STD4: No, the audio files are understandable when I listening, but I didn't understand.

INTERVIEWER: Yes. Why? What are the reasons that make you not understand?

STD4: Because I don't get used to the accent.

INTERVIEWER: Aha. Don't get used to the accent.

STD4: Yes.

INTERVIEWER: When you are at school, have you learned with foreign teachers?

STD4: Yes, I have but I don't understand that much. The teacher gives me test like crossing the answers.

INTERVIEWER: Well… next, in your opinion, are there any too easy or too difficult parts?

STD4: Umm…

INTERVIEWER: What parts do you feel like… what? Why do I bring this for you to learn? That's it. It's very easy. It's like you don't need to study. Or what? Why is it so difficult? Any parts? Do you have it? Any parts?

STD4: I don't have. I think everything is okay.

INTERVIEWER: It's okay. Why is 'it's okay'? Okay. Why is it okay?

STD4: Like… when I read it, I understand.

INTERVIEWER: Aha.

STD4: Like… it already has the translation.

INTERVIEWER: Next, do you think… do you think that learning by yourself… learning by yourself with computer can make you become a better student? Learning with computer by yourself… do you think it can make you become a better student?

STD4: Yes, it does.

INTERVIEWER: How? Why? How can it make you better?

STD4: Because we will get a chance to listen to their accents.

INTERVIEWER: Aha, anything other good things?

STD4: That's all.

INTERVIEWER: Like… learning with computer is that you can practice listening to the accents?

STD4: Yes

INTERVIEWER: Next. Number six… the last question.

STD4: Yes.

INTERVIEWER: Very easy. This question is about your feelings, opinions, or suggestions toward this activity. What do you wanna suggest or tell, or any opinions? It can be like… toward learning time, contents, teaching, or instructional materials. Wanna suggest or show opinions in order to make improvements? Or do you have any feelings toward this time of learning? Is it okay? how is it?

STD4: Well… it's fun. It increases our knowledge on what we haven't known before.

INTERVIEWER: What parts do they increase your knowledge?

STD4: For example… errr… asking question about a person, characteristics… and how to tell when I'm sick like this.

INTERVIEWER: Haven't you studied these things at school?

STD4: Umm…

INTERVIEWER: Have you?

STD4: Yes, I have but it's like… it… we study at school, I don't understand like studying here.

INTERVIEWER: Why don't you understand much like here?

STD4: The thing that the teacher teaches isn't understandable.

INTERVIEWER: The teacher can't teach you well enough?

STD4: Yes, the teacher doesn't come and do things much with kids.

INTERVIEWER: Don't do things much with kids… what kids… with who?

STD4: Don't pay much attention on kids… the blind ones. The teacher teaches all people together at the same time, and it's done.

INTERVIEWER: Like teaching altogether at once… no second time explaining.

STD4: No second time.

INTERVIEWER: Is there anything else about the materials… I mean the materials that were used to do activities? Any suggestions or opinions?

STD4: Well…

INTERVIEWER: Or contents?

STD4: No.

INTERVIEWER: Are they sufficient… materials, are they okay and enough?

STD4: Yes.

INTERVIEWER: Nothing is lacking?

STD4: Nothing.

INTERVIEWER: Okay… the content. What topics do you wanna learn more? Or…

STD4: I wanna have more contents… a little more. I wanna be better than this. Haha.

INTERVIEWER: Wanna be better. What topics do you wanna have more?

STD4: Well….

INTERVIEWER: What you wanna learn more?

STD4: About… umm… answering questions, asking, vocabulary, this kind of thing.

INTERVIEWER: Adding vocabulary?

STD4: Yes.

INTERVIEWER: Anything else? What else do you wanna improve?

STD4: That's all.

INTERVIEWER: Anything you wanna improve?

STD4: That's all.

INTERVIEWER: Okay, mostly, don't yours school pay attention on you or else?

STD4: Yes, the teachers just give worksheet and let us do.

INTERVIEWER: Every subject?

STD4: Not every subject… just some subjects. They think that we have the inclusion teachers so they just give us worksheet and inform us to tell the inclusion teachers to read the worksheet.

INTERVIEWER: What subjects do the teachers produce the braille material for you?

STD4: Not for any subjects.

INTERVIEWER: It's like every worksheet is the same thing?

STD4: Yes.

INTERVIEWER: the same thing as the sighted students'?

STD4: Yes.

INTERVIEWER: What if the inclusion teachers aren't available?

STD4: So, can't do it.

INTERVIEWER: Does it affect your grade?

STD4: Yes, it does because we have no work to hand in.

INTERVIEWER: Have you ever experienced the teachers at your school assign you homework and the inclusion teachers aren't available?

STD4: Yes, I have. Quite often too. Haha.

INTERVIEWER: So, when you tell the school, how do you tell?

STD4: Like when it's learning time, I'll explain to the teacher because of this. I can't submit in time. Can I sent it later?

INTERVIEWER: But they don't blame on you, right?

STD4: No, they don't blame.

INTERVIEWER: Do they still understand you?

STD4: Yes, but the teachers for some subjects, they don't understand. Why don't you do it? Next time, do it too. If not, I'll give you an F.

INTERVIEWER: Aha. Okay. So, letting you learn with the sighted students but worksheet isn't supportive you that much to learn with them.

STD4: Yes.

INTERVIEWER: Okay.

STUDENT 5

INTERVIEWER: Okay, the first question. How do you feel with the learning that you need to learn by yourself outside before coming to learn inside the class, like preparing yourself before learning? Do you like it or not? Why?

STD5: Yes, I like because I can have time to prepare before learning.

INTERVIEWER: Well, another thing else?

STD5: It seems like this.

INTERVIEWER: Having time before learning. Having time before learning, how is it good? Do you think having time, for example, preparing yourself before learning

STD5: Yes

INTERVIEWER: How good is it for you?

STD5: Because if we prepare before coming to learn… umm… it's like… we're more

ready in class.

INTERVIEWER: We are more ready, more ready to learn.

STD5: More ready to learn

INTERVIEWER: I see. Number two, how do you think the instructional materials are useful for you such as braille book, audio files, and stuff, how are they useful for you?

STD5: How are they useful, right? They are…

INTERVIEWER: Yes

STD5: Well, the materials can be brought to use in daily life.

INTERVIEWER: How?

STD5: Such as conversation.

INTERVIEWER: Conversation. Anything else? It means… first you said they are useful in daily life such as conversation, is there anything else?

STD5: Well, braille book, right?

INTERVIEWER: Yes

STD5: It's like I can read it anytime. I can try to understand the braille, whenever. It… it makes us understand English more too.

INTERVIEWER: Next is number three. During doing activities since the first day to the last day, do you think there are any difficult parts for you? What do you think they are the struggles or difficulties for you for doing activities?

STD5: Well… for me, there is none.

INTERVIEWER: None?

STD5: Yes

INTERVIEWER: Don't you really have none?

STD5: Yes, I don't have any problems at all.

INTERVIEWER: Is time also okay for you?

STD5: Yes

INTERVIEWER: Like learning in the evening?

STD5: No, it's not bothering.

INTERVIEWER: Aha

STD5: Okay

INTERVIEWER: Next question, in your opinion, what contents are too easy or too difficult for you for doing activities? What do you think they are too easy or too difficult?

STD5: I think all contents… I think they are okay because they are related to the contents that 7 to 9 graders learn.

INTERVIEWER: Aha

STD5: What we have learned here can be applied in the classroom.

INTERVIEWER: Umm… can be applied in the classroom?

STD5: Yes… because I am learning now.

INTERVIEWER: Does it help you inside of class or what you have said, how much is it related to what you have learned in your class?

STD5: About 60%

INTERVIEWER: Does what you have learn here help you learn in class about 60%? Oh! How does it help you?

STD5: It's like if we learn here, right? For example, if we learn here, when we are in class the teacher will ask… like my additional English course, I am learning about my family.

INTERVIEWER: Okay, I see. Are there anything else you think they are too easy or too difficult? Are there any difficult parts for you?

STD5: What's too difficult? From what I've learned, there is none.

INTERVIEWER: Well. Hahaha.

STD5: Haha.

INTERVIEWER: Are there anything too easy like why you bring it here? It's too easy. It's for primary school students? Are there anything looking so easy?

STD5: I've never ever thought it is easy, but it is chilling.

INTERVIEWER: Chilling? What do you mean by chilling?

STD5: Relaxing

INTERVIEWER: For example?

STD5: About family members

INTERVIEWER: Aha… learning comfortably. Not stressful. When there is no stressful, do you get anything from learning? Do you get any?

STD5: Yessss

INTERVIEWER: Haha. Next. Do you think learning by yourself through computer, for example, you go to learn by yourself with computer

STD5: Yes

INTERVIEWER: Can it make you become a better student?

STD5: It can because computer is a resource that makes us learn with websites.

INTERVIEWER: How good it is when you learn through websites? You said you can learn through websites, how good is it?

STD5: Put it simply, it is in the computer, if we access… errr… for a minute.

INTERVIEWER: Yes, you can. Take it easy.

STD5: It's like it teaches correct pronunciation.

INTERVIEWER: Aha

STD5: Accent, speaking, pronunciation.

INTERVIEWER: Correct pronunciation. How does correct pronunciation help you? For example, when you learn… you said it teaches you, it makes you speak correctly, what is the usefulness of correct pronunciation?

STD5: It makes me confident. It makes me more confident to speak.

INTERVIEWER: Confident. Dare to speak. Okay. Number six already. This question is about feeling, opinions, or suggestions… or whatever toward this time of studying. How do you feel or think? Or what do you want to suggest?

STD5: Well… I wanna have… umm… I wanna get English. Sorry! I wanna have more braille materials about the English language.

INTERVIEWER: What topics?

STD5: It's about…

INTERVIEWER: I mean… what do you mean about more materials? It means that what I have given you is not enough? Or is it still lacking for you? What is still needed for you?

STD5: I think it's… it's okay now. I wanna learn… learn… learn more. I wanna learn more than this.

INTERVIEWER: What kinds of topics do you wanna learn more?

STD5: Errr..

INTERVIEWER: What is the thing that you… well… what we have learn consisting 5 lessons, right?

STD5: Yes

INTERVIEWER: You told me you wanna have more materials. Wanna learn more. What are the things that you wanna learn more?

STD5: What do I wanna learn more?

INTERVIEWER: Yes, what do you wanna learn more?

STD5: There will be like… I could think of them recently. Why do I forget?

INTERVIEWER: Okay… take it slow. That's fine. Your friends can wait because it would be useful like this.

STD5: Haha! What I wanna learn is… oops!

INTERVIEWER: What do you think that… yes, you said you wanna have more materials. Do you think the materials are lacking, right? What materials do you think they are missing, inadequate? It is inadequate for you to learn and if you have it you're gonna learn so much better. What kinds of topics?

STD5: I see

INTERVIEWER: Because you told me that you wanna have more English braille materials, right?

STD5: Well… I want… err. Is that vowels? No, no. It's about English alphabets.

INTERVIEWER: Alphabets like teaching how to pronounce each one, right?

STD5: Yes

INTERVIEWER: Is there anything else that you think if you got it, it would make you like… now your English scores are five, if you have it such as this material, it will make you reach to ten, twenty like this? In case someone will do, what do you want?

STD5: Well… it's stuck in my head. A minute please. Let me organize my words for a while.

INTERVIEWER: Vocabulary, or reading, or reading, listening, writing, grammar, or stuff? Is there anything you want me to add?

STD5: I'd like grammar.

INTERVIEWER: Grammar. What do you want it?

STD5: Haha

INTERVIEWER: I mean grammar…any grammar points. For example, why do you want grammar now?

STD5: Why do I want grammar?

INTERVIEWER: Yes

STD5: Because... well, I wanna know how to arrange the sentences like what I should start with.

INTERVIEWER: Aha. Anything else? Now, we have materials like pronunciation worksheet, right? Grammar… because you wanna know how to arrange the sentences. Learning time? Is there anything about learning time, such as suggestions toward time, contents? Or teaching? All these kinds of things.

STD5: For me, I think everything is proper.

INTERVIEWER: Not that long?

STD5: No, not that long.

INTERVIEWER: Too little?

STD5: Actually, I wanna have more.

INTERVIEWER: How about in-class activities?

STD5: This room?

INTERVIEWER: Yes, when we did activities together.

STD5: Not stressful, relaxing, chilling.

INTERVIEWER: Happy?

STD5: Yes

INTERVIEWER: Messy?

STD5: Haha

INTERVIEWER: A little messy. Were you tired when you came to learn because several times, we must have learned since 6 to 8?

STD5: If there is an activity in the afternoon, right?

INTERVIEWER: Yes

STD5: It's not that tiring in the evening. It's just a little tiring but… the day we have activities, it's okay.

INTERVIEWER: How about teaching? Are activities okay?

STD5: Understandable? It's okay.

INTERVIEWER: How do you understand?

STD5: Well… underrr…

INTERVIEWER: I mean… You said yes, what do you mean that my teaching is understandable?

STD5: Well

INTERVIEWER: Explain to me please. How do you understand?

STD5: For example, when you teach about my family, right?

INTERVIEWER: Aha

STD5: Wait… wait. You taught pronunciation, reading, and stud so it made me understand… and also understand the contents.

INTERVIEWER: Okay. Anything else? Wanna tell me another thing? Feelings, opinions, suggestions, except the materials?

STD5: Well…

INTERVIEWER: Are there problems? I mean… do you see anything problematic now? In case, I can edit or improve it.

STD5: Well… I don't see anything problematic now.

INTERVIEWER: You wanna have more materials because nowadays you got some more but you wanna have more. If you got more, it would be a lot better, right? I mean… if the materials are constantly given, they will help you improve a lot?

STD5: Yes

INTERVIEWER: Normally, when you learn, what kinds of materials do your teacher give you? Is it the same thing as the normal-sighted students' worksheet?

STD5: Yes

INTERVIEWER: How do you do it?

STD5: Ask the teacher to read

INTERVIEWER: Can you ask the school to make it become braille material for you?

STD5: Cannot… because the worksheet has two pages. When the school does braille for the students, the school will do with a 10-page worksheet. I'm not sure. It seems to be like this. I couldn't remember.

INTERVIEWER: Aha

STD5: Yes

INTERVIEWER: It's like… the school won't do for you if it is only a 2-page worksheet.

STD5: The school won't do it.

INTERVIEWER: I see.

STD5: The school says that it wastes of paper. Haha.

INTERVIEWER: Really?

STD5: I used to do it. I did once.

INTERVIEWER: Because of wasting of paper.

STD5: It's true. When I was in grade 7.

INTERVIEWER: Really? Is that because the school has to type for you too?

STD5: Yes.

INTERVIEWER: Ahh… okay, thank you.

STD5: Is it done?

INTERVIEWER: Yes.

STD5: Thank you.

STUDENT 6

INTERVIEWER: Okay, in your opinion, how do you feel about learning by yourself, reading, listening outside by yourself before coming to learn in class? You like it or not? Why?

STD6: I like it because we will know how much knowledge, more or less, we have.

INTERVIEWER: Aha

STD6: Know that how much we can do, something like this.

INTERVIEWER: Aha, are there other advantages? Another reason why you like it? Like reading outside, listening outside.

STD6: It's… it's… it's… it's fun.

INTERVIEWER: Reading by yourself outside is fun?

STD6: Yes

INTERVIEWER: How? Why you think it's fun? Because of what? Why it's fun? Because of what?

STD6: Because we got a chance to try to read by ourselves.

INTERVIEWER: Well! Did you see any difficulties when reading? Difficult? Easy?

STD6: Yes, I did.

INTERVIEWER: For example, how did you do when you found difficulties?

STD6: But I couldn't read some words. Some I couldn't read.

INTERVIEWER: I see.

STD6: I used… err.. Google.

INTERVIEWER: Aha

STD6: Google translation

INTERVIEWER: Well, next is question number 2. You think the instructional materials we used to learn, do activities. In what way are they helpful for you, such as braille book and listening materials? What is their helpfulness?

STD6: They can be used to learn… err... like third person pronouns

INTERVIEWER: I see

STD6: Asking and answering too.

INTERVIEWER: Okay, is there any other? What else do they help you, from braille book, from instructional materials? Do they… do they… do they help you in other ways?

STD6: If we try to talk to foreigners or foreign teachers that teach us, I think it is also helpful in that way.

INTERVIEWER: Well, next. Since we have done activities, what do you think that they are the problems during doing activities? Learning time? Materials? Yourself?

STD6: I think time… it's… it's… it's too little.

INTERVIEWER: Little time? Well, how does it affect if there is just a little time? How does it affect you?

STD6: It's

INTERVIEWER: What are the bad things?

STD6: It's… I could understand but may not be 100%.

INTERVIEWER: Umm… not 100%. What do you mean by this? Because of you yourself? Or I could give you just a little because I'm not 100%? Or in what way?

STD6: Because of me myself.

INTERVIEWER: You mean a little time affected you to have a little time to learn, right?

STD6: Yes

INTERVIEWER: If there is a lot of time, won't you get bored?

STD6: No, I won't.

INTERVIEWER: Really? Okay. Next, doing activities from lesson 1 to lesson 5, in your opinion, what is too easy or too difficult? It's like why I need to learn this thing. It's too easy. There is no need to learn.

STD6: For me, no. I don't think each lesson is easy at all. Haha

INTERVIEWER: Really? That means it's not too easy. Then, is it too hard?

STD6: It's… it's not that easy and it's not that hard.

INTERVIEWER: What do you mean?

STD6: But… but some look quite easy.

INTERVIEWER: Which part is easy? Which one is the part that you think it looks easy?

STD6: err… like...err… lesson, lesson two. Around lesson 2 to three.

INTERVIEWER: Umm. It's about daily routines and

STD6: Yes

INTERVIEWER: And and subjects, right?

STD6: Yes

INTERVIEWER: I see

STD6: Because some of them I already learned but it's good because I could review.

INTERVIEWER: Any difficult parts?

STD6: The last lesson. I am confused.

INTERVIEWER: How does it make you confused?

STD6: Sometimes I don't know what to answer.

INTERVIEWER: Don't know what to answer. Why don't you know what to answer?

STD6: Haha. I don't know what to answer. There are two things in one lesson. Asking for detail.

INTERVIEWER: How long and have you ever, right?

STD6: Yeah, yeah.

INTERVIEWER: Why is it confusing? How?

STD6: There are two things so I don't know what to answer.

INTERVIEWER: Aha

STD6: But actually I can answer.

INTERVIEWER: Still confused with the use, right?

STD6: Yes

INTERVIEWER: Well! But you know how to answer, right? This question, the answer should be yes or no. and you know how to answer wh- questions? But if it is fast, it may cause confusion.

STD6: Yes.

INTERVIEWER: Well! Question five. Do you think learning with computer, asking you to learn with computer, can make you become a better student? In case you are blind like this.

STD6: Yes, a little.

INTERVIEWER: A little? Why can you be just a little?

STD6: We'd better learn with the book because that time that we learned with computer… it… it… it couldn't be used.

INTERVIEWER: Why do you think book is better?

STD6: We can read. We can learn the spelling too.

INTERVIEWER: Aha

STD6: And it could help to memorize better because we already read and tried by

ourselves.

INTERVIEWER: And how about computer, If you learn with it?

STD6: It helps pronunciation. Still, it is not as good as reading.

INTERVIEWER: Well! Why isn't it as good as reading? In what dimension is it not as good as reading by yourself?

STD6: Err… errr. Some lessons, foreign words cause incomprehension.

INTERVIEWER: Accent? #00:02:38-7#

STD6: Yes

INTERVIEWER: Aha. Okay. and the materials that you said they are helpful, how are they? You first said that you can use with learning such as third person pronoun and asking/answering questions, right? Use to talk with foreigners. Is there any other helpfulness, based on its form such as braille book?

STD6: We can talk with people.

INTERVIEWER: It

STD6: For dictation, we can memorize these words, such this.

INTERVIEWER: Having Thai translation, in your opinion, is it okay?

STD6: Okay, but I want to have reading words too.

INTERVIEWER: Why do you want to have it? I see, do you mean how to read words in the book, right?

STD6: Yes

INTERVIEWER: But you can listen to computer.

STD6: Yes. The reason that I want to have how to read is some words I can't read.

INTERVIEWER: Well! Next is the last question. This question is about your feelings. It may be your feelings, opinions, or suggestions toward this time of learning. Are there any suggestions? What's your opinion? How you feel? For example, it may be learning time, contents, teaching, other materials, classroom activities, me. How? Any feelings?

STD6: Err… how to answer?

INTERVIEWER: What should be developed, improved toward learning?

STD6: I wanna have more contents.

INTERVIEWER: Wanna have more contents. Why do you wanna have more contents?

STD6: Learning time too.

INTERVIEWER: Why do you wanna have more contents?

STD6: Because we will learn more. Because when I study at school, the sighted teacher is the one who teaches. We don't get it enough.

INTERVIEWER: Aha

STD6: The teacher will explain to the sighted students but hardly does with us.

INTERVIEWER: Aha. What topics do you wanna learn more? Wanna learn. You told me that you wanna learn more, right?

STD6: Yes

INTERVIEWER: What do you wanna learn more in English subject? For example, you are already good, but if you have this thing, get this thing, you will move from 10 to 100 like this. What will make you develop better? What topics you wanna learn to help you to be better? To help you. What do you think it's still missing?

STD6: It

INTERVIEWER: Listening, speaking, reading, writing, grammar, vocabulary. What do you wanna improve or what is still missing?

STD6: Literally, I want vocabulary.

INTERVIEWER: Umm… why do you want vocabulary?

STD6: I want it for reading.

INTERVIEWER: Can you read through computer? Normally, for example, if there is none for you, can you read from computer? Have you ever searched or read from computer?

STD6: Yes, I have but… err… it's… it's English. It is in English spoken form. I don't understand.

INTERVIEWER: Well, wanna have vocabulary. Anything else such as lessons,

contents, how do you want it to be? Like if I have this one, it can be useful for me.

STD6: Aha

INTERVIEWER: How about contents? Too difficult? Too easy? Not easy and not difficult as you told. How is teaching? How is it?

STD6: It's good. It is understandable.

INTERVIEWER: Is it too fast?

STD6: No

INTERVIEWER: Nonsense?

STD6: Haha

INTERVIEWER: Out of the topics sometimes, right?

STD6: Yes

INTERVIEWER: Haha, okay. How about classroom activities? For example, classroom activities that we did together. Do you think they are good enough? Should they be improved such as activities with peers? Are they okay?

STD6: Yes, I wanna have this thing, having more than this.

INTERVIEWER: Well! Is it fun to do activities with friends? Have got a chance to try. Is it problematic because of doing together?

STD6: No

INTERVIEWER: For example, during finding members, What! I don't wanna work with this one, have you ever had this kind of feeling?

STD6: I… I… I haven't.

INTERVIEWER: Aha

STD6: But I don't know about others? But for me, I haven't thought.

INTERVIEWER: Haha. Okay.

STD6: It's the same to be in any groups with anyone. It is just how much, more or less, we know.

INTERVIEWER: When doing activities, is there anyone who doesn't understand and

makes you annoyed?

STD6: Yes. And many times with other subjects.

INTERVIEWER: Well, if you wanna have more activities, what kind of activities you like to have? What do you want me to add? In what way do you want? For example, what activities, I mean the activities that let you speak, let you listen. What activities do you want because they will be fun if you do? Feel less bored.

STD6: like word finding. There is a word and I need to find the translation.

INTERVIEWER: Ok, anything else?

STD6: matching too.

INTERVIEWER: Matching, the thing that we already have, right?

STD6: Yes

INTERVIEWER: But adding more. Okay. Anything else?

STD6: Errr.

INTERVIEWER: Are there any suggestions? Any feelings toward this time of studying? Like or dislike?

STD6: Like. Like.

INTERVIEWER: Which parts do you like? If you don't like, are there anything to improve? For example, tell me. For example, this one is not good, I may develop it and make it better.

STD6: I wanna have a teacher that… that… that speaks English. The one who doesn't speak Thai to come to class too because…

INTERVIEWER: You mean foreigners?

STD6: Yes, and then we can practice right away.

INTERVIEWER: Well, actually, I can speak.

STD6: Haha

INTERVIEWER: Why don't you tell me? I see. But you mean you wanna have a foreigner to come together?
STD6: Yes

INTERVIEWER: In case I can speak English, I speak English purely, isn't it going to help you?

STD6: Errr.

INTERVIEWER: Would it help you?

STD6: Yes, but I may not understand much.

INTERVIEWER: Okay, than you. Wait a minute! Wanna have a foreigner to come to class.

STD6: Yes

INTERVIEWER: So you can practice right away.

STD6: Yes

INTERVIEWER: But if I speak English, only me without any foreigners, will you learn better?

STD6: Yes

INTERVIEWER: You will speak better, right? Can you? For example, I am Thai that can speak English and a foreigner who doesn't understand any Thai words? Which person is better?

STD6: The one that can understand Thai.

INTERVIEWER: Me?

STD6: Yes, I learn English with a German teacher.

INTERVIEWER: Ahhh

STD6: I don't understand when I listen.

INTERVIEWER: Then, learning English with a Thai teacher who can speak both Thai and English, what are the good points?

STD6: He can explain to us.

INTERVIEWER: Gives more explanation. If learning with a foreign teacher, why is it good for you even if your teacher can't speak Thai at all?

STD6: Helps translating

INTERVIEWER: Why is it good for you?

STD6: It's good to teach how to use words but he can't translate for us.

INTERVIEWER: Aha. Okay, thank you.

STUDENT 7

INTERVIEWER: How do you feel about learning that you have to read by yourself before doing activities in class? Do you like it or not? If you like it, why? If you don't like it, why?

STD7: Yes, I like.

INTERVIEWER: Why?

STD7: Because it's… how can I say? It makes us… err… learn before coming to class.

INTERVIEWER: Aha.

STD7: And I can know… err… know more about what they are. Ohhh. It's hot.

INTERVIEWER: Haha. Well… in what way do you think the instructional materials that you used to learned like braille book I produced and audio files are helpful for you?

STD7: Well…

INTERVIEWER: How do they help you? Do they help you?

STD7: It's like I was not good at English at all when I got….. errr.. haha. They make me like from what I've never studied, what I've never known….

INTERVIEWER: Aha

STD7: They make me know more on another level.

INTERVIEWER: How helpful are they? Do they help you in another way? Like braille book I produced, any other things that they help you?

STD7: Can practice spelling words easily.

INTERVIEWER: I see

STD7: And like… when we don't understand, we try. Errr… look at them first…

what they are and combine them together.

INTERVIEWER: Anything else? Can you come up with another idea? Another helpfulness for you?

STD7: I can't think of any.

INTERVIEWER: Okay

STD7: But there are a lot of helpfulness. Haha.

INTERVIEWER: Haha.

STD7: But that's all I can think of.

INTERVIEWER: Then, since we started doing activities… since we started, what do you think they are the most difficult or problematic for you for this activity such as learning time, the materials, or other things? What do you think they are difficult for you?

STD7: Err… for me, there is none.

INTERVIEWER: Okay

STD7: Because I followed my friends. What I couldn't do, I did mumbling.

INTERVIEWER: Haha.

STD7: Haha

INTERVIEWER: During learning since lesson one to lesson five, what do you think… the things like… why are they brought for me to learn, that's too easy or anything difficult? Are there any parts that you think they are too easy or too difficult?

STD7: No. They all are average. Not difficult. Not that easy. Not very difficult.

INTERVIEWER: Not easy and not difficult. Grammar isn't difficult, right? Like grammar is not easy or…

STD7: Well… not… not that easy but it's on average.

INTERVIEWER: Next, do you think learning by yourself… through computer… learning by yourself with computer can make you become a better student… learning with computer?

STD7: I think… I learn by myself… it's like if there is no teacher, I don't know how

to deal with it.

INTERVIEWER: What do you think…it is the helpfulness of computer?

STD7: Yes, there is helpfulness.

INTERVIEWER: How?

STD7: It's like if… err… we learn English with computer, some words are clear, but some are not, It's like… errr.

INTERVIEWER: Yes, yes. I understand.

STD7: Haha.

INTERVIEWER: Does it help you to read?

STD7: Yes.

INTERVIEWER: Between braille book and computer, which one do you prefer?

STD7: I prefer braille book.

INTERVIEWER: Why?

STD7: Because it makes us… like… it's easier to read compared to the computer.

INTERVIEWER: What do you mean by reading more easily than reading through computer?

STD7: It's like… with computer, some words aren't that clear.

INTERVIEWER: It isn't clear. It isn't because of the small size?

STD7: No… it isn't clear like… the words, I can't listen to the sound clearly.

INTERVIEWER: I see.

STD7: But reading is easier.

INTERVIEWER: Well, this is the last question already. It's about feelings, opinions, or suggestions toward this time of studying. Is there anything such as learning time, how is it? Content, way of teaching when I teach, how is it? How are the activities? Anything about the materials? What do you think?

STD7: Umm.. the materials are good.

INTERVIEWER: They are good. How good are they?

STD7: It's like… umm… how… it's good what I go to learn outside. The teachers don't pay attention on us that much. It's like when we don't know, we don't know it at all.

INTERVIEWER: I see. How about learning time?

STD7: Well… ummm…

INTERVIEWER: Is it too late? Or is it…?

STD7: No, it's not late.

INTERVIEWER: Aha

STD7: Ehh!!

INTERVIEWER: The materials that we used, do you think five lessons are enough? Are they too little? Is something missing? Or do you wanna add something?

STD7: Err… I don't know. I'm not good at English.

INTERVIEWER: Well. For example your scores, if your English scores are ten, if you get… what do you think it can make you reach one hundred, what can make you reach one hundred?

STD7: I don't know. Haha. I don't know because I've done my one hundred.

INTERVIEWER: And do you think five lessons are okay for you when you learned?

STD7: Yes, okay.

INTERVIEWER: What do you wanna learn more?

STD7: I don't know much about English.

INTERVIEWER: Yes, that's what I mean, because you told me you don't know about English, then you wanna study. What do you wanna study more?

STD7: I wanna learn something like… umm… what? Errr…rrr.

INTERVIEWER: Okay, there would be, in English, like listening, speaking, reading, writing, vocabulary, grammar, these kinds of things. What do you wanna learn or what do you want?

STD7: It would be something like… these things I can do already but the grammar I

still can't do it.

INTERVIEWER: Grammar, what do you wanna study grammar?

STD7: I don't understand it at all.

INTERVIEWER: What do you mean by I don't understand? Why don't you understand? Because of what reasons that make you not understand grammar?

STD7: Ohhhh!

INTERVIEWER: No, I mean why? Because of what? Because you yourself don't pay attention? Or because of teachers? Because of materials or what? Why don't you understand grammar when you learn?

STD7: It's like I don't quite understand.

INTERVIEWER: If something can make you learn grammar better, to make you understand, what things do you think that there should be to make you better?

STD7: Like… the time when… when we don't understand, we ask the teacher but the teacher seems to be like don't wanna talk to me. I then need… I don't know how to do because I don't understand and the teacher don't speak.

INTERVIEWER: Don't the teacher talk to you at all? Don't you think by yourself?

STD7: Ummm… it's like…

INTERVIEWER: Aren't you biased with the teachers?

STD7: No, I'm not biased.

INTERVIEWER: Is it like this in every subject?

STD7: No, it depends on each teacher.

INTERVIEWER: But for English, when you are in the classroom, the teachers tends to not speak.

STD7: Yes, the teacher don't talk to us, but the normal-sighted students.

INTERVIEWER: What! How about your friends?

STD7: My friends don't know things.

INTERVIEWER: Do you mean they don't know so that they can't explain to you too?

STD7: Yes. Haha

INTERVIEWER: So, when your friends can't explain to you and the teacher also doesn't explain, how do you deal with the problem?

STD7: Well…I'll be like… learning through the internet and sometimes asking my seniors.

INTERVIEWER: Aha. When you study with the normal-sighted friends… you use the same things as the normal sighted friends use, right? Okay. Then, it may not be so problematic.

STD7: Yes.

INTERVIEWER: Okay. It means that you can study inside the classroom. Then, what is problematic?

STD7: ก็ #00:01:35-0# Well.

INTERVIEWER: When you can read worksheet, and write, then what is the problem?

STD7: When I don't understand then I ask the teachers, they don't speak that much.

INTERVIEWER: They don't talk to you?

STD7: Yes, they don't talk to us much.

INTERVIEWER: Do the teachers talk to the normal-sighted students?

STD7: Well… they speak. They normally speak but for me, they hardly speak.

INTERVIEWER: What do you think they are the reasons that the teachers don't talk to you?

STD7: The teachers less likely to understand.

INTERVIEWER: The teachers don't understand means… being blind, being unable to see, this kind of thing, right?

STD7: Yes, they tend to think that… we can't do, we can't speak.

INTERVIEWER: Aha.

STD7: It's like this.

INTERVIEWER: Being unable to speak and this kind of thing, right?

STD7: Yes.

INTERVIEWER: Have you ever told you teachers that you can speak and understand their words?

STD7: Yes, I have. But I used to talk to… errr… foreign teachers.

INTERVIEWER: Are Thai teachers and foreign teachers different?

STD7: Yes, they are.

INTERVIEWER: How?

STD7: The foreign teachers pay more attention on us.

INTERVIEWER: Aha.

STD7: But the Thai teachers seem like… they don't pay much attention on us.

INTERVIEWER: When you learn and do activities in the classroom, do you think it's already good or there is something to be improved?

STD7: Errr…

INTERVIEWER: Are you okay when working in group? Like is your friends too slow? Because you can partly see but your friends… like they need to use braille book, do you feel upset?

STD7: No.

INTERVIEWER: No? Is it fun then? Or have you ever felt lazy when doing activities?

STD7: Well… it's fun but I'm not lazy. Haha.

INTERVIEWER: Anything else do you wanna suggest? It's like if you get it for the next time, it will be better. What do you think they are problems for your learning… English learning for the blind? Is something still lacking?

STD7: Errr…

INTERVIEWER: Like is anything lacking for the blind?

STD7: I don't know.

INTERVIEWER: Well… for the low vision too. What do you think it's lacking for you?

STD7: Well… I don't know.

INTERVIEWER: Are the materials enough?

STD7: Yes, they are.

INTERVIEWER: Are they okay for you like you can search by yourself?

STD7: Yes, I can.

INTERVIEWER: Okay.

STUDENT 8

INTERVIEWER: Ok. How do you think about the way the way that you need to learn by yourself outside and do the activities in class later? Do you like it or not? Why?

STD8: Well! I like it because umm! We learn outside and when we don't understand something, we can keep it and ask you inside of the class.

INTERVIEWER: Aha! Then, your thoughts toward the instructional materials that I produced. Book and audio files. That kind of thing. In what way do you think they are helpful for you?

STD8: Well! The font is proper to my eyesight that I am able to see. Audio files are clear. And when I learn outside, they may not that clear. I later listen to them more.

INTERVIEWER: Aha! Next, during doing activities, what do you think they are difficult or they cause lots of problems during participating in this activity?

STD8: They are not that difficult but I don't fully understand the lesson 5.

INTERVIEWER: Umm! During doing activities, is it problematic to do activities in the evening?

STD8: No. Because it is free time during evenings.

INTERVIEWER: Umm! Are the a lot of contents in lesson 5?

STD8: No. Enough. Enough. Enough with the lesson. It is kind of mixing this and that.

INTERVIEWER: Okay. Then, from lesson 1 to lesson 5, do you think there is something too easy or too difficult?

STD8: It's okay because learning and teaching are the same. Combine together. So do

the lessons.

INTERVIEWER: As you just recently mentioned about the difficulties of the lesson 5, what are they?

STD8: It is hard with the change of words and verb tense conjugation.

INTERVIEWER: Aha!

STD8: These are the confusing things.

INTERVIEWER: Well! It's okay. Learning many things together is quite fine. Question number 5 now. Do you think learning by yourself… with computer, via computer, ask you to learn with the computer by yourself, do you think it can make you be a better student?

STD8: It may not because learning with computer sometimes it is not as clear as self-searching… learning with books. It is easier to understand.

INTERVIEWER: Umm! Because it may not be clear.

STD8: Yes

INTERVIEWER: If there are book and computer, is it gonna be better?

STD8: Yes. if only computer, it isn't okay.

INTERVIEWER: Aha! Next, the last question now. It is about feelings, opinions, or suggestions toward this activity. for example, is learning time okay? are the contents too easy or difficult? How is my teaching? And how about the materials? Are there any suggestions, feelings about how they are?

STD8: Umm! There is none because teaching is okay. Your teaching makes me understand more easily. When I do a test or learn with my sighted friends, I understand better.

INTERVIEWER: Umm.. you mean you learn with the sighted people more easily?

STD8: Well! We..we have gained knowledge here and then studied with the sighted people. When a teacher explains, the teacher doesn't… doesn't… doesn't ... doesn't come to us nor explain to us clearly.

INTERVIEWER: I see

STD8: Then I mix what I learn with you with what I learn at school.

INTERVIEWER: Umm

STD8: With the words the teacher speak, I can keep up and comprehend.

INTERVIEWER: Umm. The materials I produced, are they enough or too many? Is something missing?

STD8: It's enough.

INTERVIEWER: Wanna add something? Are there any points you want me to add? For example, you score yourself, you may give yourself ten, but if you have this thing, you may a lot improve. It may be like you may get 100 scores in English. You think you lack something that can make you, you want this thing because it will make you learn English better?

STD8: There is none because you already gave all alphabets and vowels worksheets.

INTERVIEWER: Wanna learn something more?

STD8: Right now I can't think of any.

INTERVIEWER: And are there any language skills you wanna improve? Listening, speaking, reading, writing, vocabulary, grammar. If I ask you to choose these things, wanna add something? What you wanna add?

STD8: Wanna add reading.

INTERVIEWER: Wanna add reading.

STD8: And speaking. It will cause fluency.

INTERVIEWER: Wanna add reading and speaking, why do you wanna add reading and speaking?

STD8: Because if we can read, read fluently, when we talk to foreigners or English teachers, it will be more understandable.

INTERVIEWER: Ah, okay. Anything else?

STD8: No

INTERVIEWER: Teaching is easy to understand, better learning with the sighted people.

STD8: Yes

INTERVIEWER: Having the materials that are alphabets and vowels worksheets. But what you wanna have add is to have more reading, speaking, this kind of thing.

STD8: Yes

INTERVIEWER: Umm, how were the class activities?

STD8: It's fun.

INTERVIEWER: Aha

STD8: Not… not stressful

INTERVIEWER: When doing group activities, are there any problems like… sometimes… because you are a low vision student, right? But sometimes you got blind friends into your group, is it problematic for doing activities? Did you fight? Were your friends to slow until you felt frustrated?

STD8: No, because I understand. Because we are similar.

INTERVIEWER: Aha, was your group okay?

STD8: Yes

INTERVIEWER: like… what? This one is too slow? Nothing like this?

STD8: No

INTERVIEWER: What activities do you wanna add?

STD8: Wanna have only English for learning.

INTERVIEWER: haha

STD8: Seems like focus more on English

INTERVIEWER: Okay, thanks

STD8: Thank you

STUDENT 9

INTERVIEWER: How do you feel with the learning that you have to read, prepare, prepare by learning by yourself before coming into class? Do you like it or not? Why?

STD9: Well… I like it because I can learn and seek by myself and time for doing other activities is okay. I understand some of them. What I don't understand, I will know inside of class and later read more by myself. I know a lot more.

INTERVIEWER: Is that a lot?

STD9: Yes.

INTERVIEWER: Haha.

STD9: I feel I have known more at some level.

INTERVIEWER: At some level?

STD9: Yes.

INTERVIEWER: Next, this is number two. How do you think that the instructional materials that we used to learn… used to do activities such as braille book, audio files, and stuff are helpful for you?

STD9: For example like I was in the classroom with the sighted people, if it is a braille book, it makes me know what the word is, how to do and read it. I then can make myself understand.

INTERVIEWER: Well… it's like the braille book I gave you makes you know what the word is and how to read it.

STD9: Yes

INTERVIEWER: Does it make you read better?

STD9: Yes, it also makes me know more vocabulary at the same time like what the meaning of the word is, how to read and spell.

INTERVIEWER: Well… other advantages? Do you think of other advantages, except helping you to read and remember vocabulary better? Are there any other advantages, except helping you in reading?

STD9: No

INTERVIEWER: Number three, since the beginning, what do you think they are the most problematic or struggling for you with this activity?

STD9: In this activity, it is… words that I can't read and I am not confident about how to spell each word. Actually, we know but they might be spelled out correctly and incorrectly altogether.

INTERVIEWER: Aha

STD9: That's all.

INTERVIEWER: Anything else?

STD9: No

INTERVIEWER: Number four already. Are there any parts that you think they are too easy or too difficult?

STD9: Lesson five is quite confusing but the easiest is about family. Lesson one and two are easy but lesson four and five may be too difficult for me or not? It depends whether I know it or not.

INTERVIEWER: Well… do you think it's too difficult?

STD9: For lesson four and five, I can do it but it may not be that much as lesson one and two.

INTERVIEWER: You told me you are confused, right? How is it confusing? What makes you feel confused? How do you feel confused?

STD9: Like adding words such as verbs. What should be added after verbs?

INTERVIEWER: Verb addition.

STD9: Yes… such as adding –s and –es. How to read words. It is how to add things after words, how to answer each of questions.

INTERVIEWER: Aha… is it like they are quite similar?

STD9: Yes. I feel like I don't know how to answer… how to answer correctly.

INTERVIEWER: Okay. Number five already. Do you think learning by yourself… learning by yourself right?... with computer, through computer, can make you become a better student?

STD9: For computer, right? It helps at some level. I can search by myself more like… Reading… speaking… makes me know more vocabulary compared to reading. I am good at writing, more than using computer because computer sometimes is not convenient to use. Then, writing is more convenient.

INTERVIEWER: Computer is not convenient, sometimes.

STD9: Yes, sometimes it is not related to what I have access… like… for example, the sighted people can have access but the programs for the blind people, they can't be used, except other sighted people come and click for us.

INTERVIEWER: May I emphasize on what you have said again?

STD9: Yes

INTERVIEWER: What do you mean about reading and writing?

STD9: Is it he thing that I talk about I gain more knowledge?

INTERVIEWER: Yes… that you said about reading and writing. Is it compared to what you write by yourself or reading to braille?

STD9: Yes, when we read, we know more than we use materials. I can use it better.

INTERVIEWER: Why can they make you better?

STD9: I don't know how to tell.

INTERVIEWER: You mean tracking on braille book, right?

STD9: Yes.

INTERVIEWER: Does it make you learn better than you press on the keyboard?

STD9: Yes… keyboard is okay at some level.

INTERVIEWER: The point is about the materials, right? Sometimes you couldn't access. But normal websites are not accessible for the blind.

STD9: Yes

INTERVIEWER: Okay… then, how do you do when the website is not accessible and you also don't have a braille book? How do you deal with it?

STD9: Well….

INTERVIEWER: I just wanna know. For example, the teacher assigns you to work about Africa and your teacher hasn't prepared the braille book for you, I just wanna know how you solve the problem if your teacher has no braille book for you?

STD9: Yes.

INTERVIEWER: And another thing is you access to Google but you can't find things, it is inaccessible… like you can't get any information, how do you do? Or are there any accessible websites?

STD9: Yes, some websites are accessible.

INTERVIEWER: But you can't have access to all. I see. Between computer and braille book, which one do you prefer?

STD9: I prefer braille.

INTERVIEWER: Because?

STD9: Because… umm… how can I say?

INTERVIEWER: Why do you say you prefer braille to computer?

STD9: Because it is more convenient for learning and doing.

INTERVIEWER: Is the braille I did okay for you?

STD9: Yes, it is. There are translation… this word… and vocabulary provided.

INTERVIEWER: There are translation and vocabulary.

STD9: Yes.

INTERVIEWER: How good is it to have translation for you?

STD9: Err… it's good because it makes me know the meanings of words… how to read them… makes us know, gives us more knowledge like how to read and the meanings of them.

INTERVIEWER: Aha. Don't you think it's a bad thing because you learn English but there is Thai translation given to you?

STD9: For me. I don't think it's a bad thing.

INTERVIEWER: Aha.

STD9: For me, I don't think it's bad but I don't know about others.

INTERVIEWER: But, for example, you learn English… will learn English but there is Thai translation for you, don't you think it's a problem?

STD9: Yes, I… if there is also Thai translation, it will be good… good for me.

INTERVIEWER: Is it good to have Thai translation? The last question already. This is the question about your opinions… opinions or suggestions toward this activity. Or it can be your feelings toward it.

STD9: Well…

INTERVIEWER: How do you feel, or have opinions toward the… maybe learning time?

STD9: I feel like…

INTERVIEWER: or other contents.

STD9: Umm… contents are good but learning time is too little. If it's possible, I want it to take place all day. It would be very okay.

INTERVIEWER: Won't you feel tired of doing activities all day?

STD9: It makes us have more knowledge. What we don't know, we can have it at the same time.

INTERVIEWER: Well… good contents. How are they good for you?

STD9: Good… good contents, right?

INTERVIEWER: Yes. Because you've said that they're good… since we've learned from lesson one to five, how are they good?

STD9: It's good like… there are translation, and together with vocabulary. They makes us know like… this word, this word… know the purposes of them and stud. About contents.

INTERVIEWER: Aha.

STD9: Each lesson.

INTERVIEWER: Okay, are there any suggestions?

STD9: Nothing.

INTERVIEWER: It's like if you have it…for example, you English scores are ten, you have ten scores.

STD9: How much do I get?

INTERVIEWER: I jotted down yesterday, I forget. Haha. For example, you knowledge scores ten, if you have this thing, you will quickly reach like a hundred scores. What do you think they can make you English learning better?

STD9: Errr… I don't know how to tell.

INTERVIEWER: Do you feel something is lacking?

STD9: Well….

INTERVIEWER: Like… like the braille book I brought to you. Do you think it's

okay or it needs to improve something? What do you want me to add? Anything?

STD9: For me, it's okay. It's readable.

INTERVIEWER: Are the contents okay? Wanna add something?

STD9: Well.

INTERVIEWER: It's like what you wanna know… the thing that's gonna make you better. Is there anything to be added?

STD9: Umm… vowels, consonants because these… what sound does letter a represent blah blah… until letter z.

INTERVIEWER: Anything else that can make you better?

STD9: No more.

INTERVIEWER: How is teaching? How are the class activities?

STD9: For me, right?

INTERVIEWER: Yes.

STD9: Umm..well. I learn sometimes, get confused sometimes. It all depends on the topic. What I can do and answer, it's okay. But what is confusing, there are some.

INTERVIEWER: Confusing…what is confusing?

STD9: Like sentences, some words… some words we already learned. Some words we can't remember… what this word is… what it is.

INTERVIEWER: When doing activities, like when I made you group of two or three, is it okay?

STD9: It's okay because we did. Because it makes us practice our skill. Had got chances to practice on how to do it.

INTERVIEWER: Aha

STD9: It's like… well... know how to practice and what to practice, how to think to make us be able to do.

INTERVIEWER: Is your group okay? Don't fight?

STD9: Err… my group? Well… there was someone who couldn't do… if they couldn't, just helped them. Help one another.

INTERVIEWER: Okay. Thank you.

STUDENT 10

INTERVIEWER: First question is how you feel about this kind of learning. Like you are assigned to read or prepare before learning together in class together. Do you like it? If you like it, why? If you don't like, why?

STD10: Umm…how?

INTERVIEWER: Understand my question?

STD10: Yes

INTERVIEWER: Okay

STD10: Well, I like it. It's like… like it makes us… prepared before.

INTERVIEWER: I see.

STD10: It's like this.

INTERVIEWER: Anything else?

STD10: No more.

INTERVIEWER: No more? Do you think how helpful the instructional materials are for you such as braille book, audio files, and stuff?

STD10: I think…

INTERVIEWER: How are they helpful for you?

STD10: The braille book you gave me is portable to the classroom when we forget the vocabulary words. Be portable to the classroom.

INTERVIEWER: Portable to the classroom

STD10: Yes, it can be brought for reading. It's used for supplementing.

INTERVIEWER: Anything else?

STD10: No more?

INTERVIEWER: No, I mean in case you have another thing. Then, are there any parts from the beginning of the activity that you think they are struggles or obstacles?

STD10: For me, nothing is a problem.

INTERVIEWER: Problem about time?

STD10: No

INTERVIEWER: Okay

STD10: Problem is us because we were late.

INTERVIEWER: Since you needed to study in the evening, it is problematic? Or you can learn either in the afternoon or in the evening?

STD10: In the afternoon is okay. In the evening is okay too because it is free time. We are available. When we are available, we normally play on the phone.

INTERVIEWER: Aha… it's called making use of time. Next, which parts do you think they are too easy or too difficult?

STD10: Umm… there is none.

INTERVIEWER: Are there anything that should be improved?

STD10: No

INTERVIEWER: Not just a thing? Next, do you think learning by yourself, like practicing and learning by yourself through computer, going to learn with computer, can make you become a better student?

STD10: Well… well, can you say the question again?

INTERVIEWER: Do you think learning with computer, go to learn by yourself, can make you become a better student? For you.

STD10: I don't know. I feel indifferent.

INTERVIEWER: Indifferent, how is it?

STD10: Umm… how can I tell you?

INTERVIEWER: Indifferent. What do you mean by that?

STD10: Well… I think no matter where we learn, it can make us become better students.

INTERVIEWER: That means… for example, no need to learn with computer, it still makes you become a better student? Last question, it is about feelings, opinions,

suggestions, or any advice toward this activity such as the feelings, right? Suggestions, opinions toward this learning, is there anything to tell me? It could be your feelings toward contents, learning, teaching, or instructional materials. It's for me to know what to keep if it's good or what to improve. Are there any suggestions, opinions?

STD10: I think it is already good.

INTERVIEWER: Which parts do you think it is already good?

STD10: Well, it… it's because there are instructional materials given for us. But the only thing that is not good is computer, it couldn't be used.

INTERVIEWER: I see.

STD10: That's the point.

INTERVIEWER: Aha, is learning time okay for you?

STD10: Yes, it's okay.

INTERVIEWER: Your point about materials is with computer. How is teaching? Contents? How is my teaching?

STD10: It isn't difficult. What you taught is what is needed in daily life.

INTERVIEWER: Anything else?

STD10: No more.

INTERVIEWER: No more? Haha.

STD10: I'm excited. Haha.

APPENDIX H

Class Observation

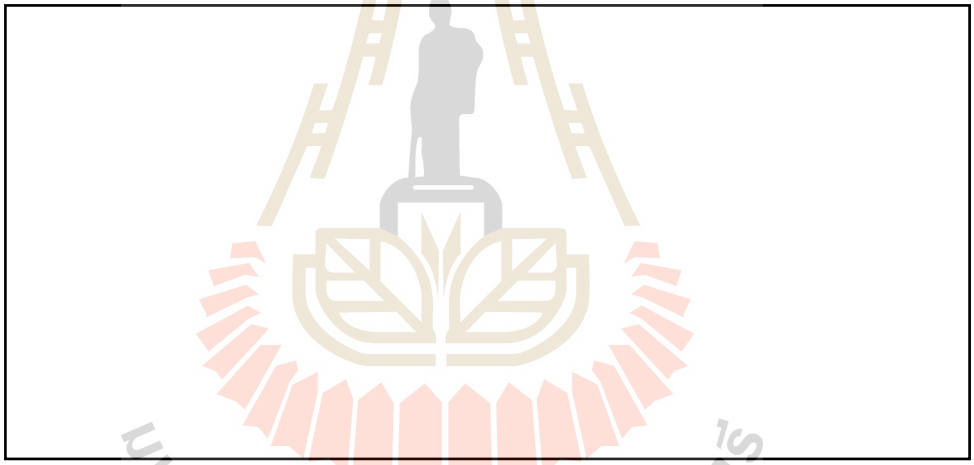
Class Observation: Out-of-Class Activities

Date of Observation: _____

Observer: _____ Teacher: _____

Beginning Time: _____ Ending Time: _____

Classroom Layout



Teacher

1. Does the teacher tell the students on what they are assigned to do?

_____Yes _____No

2. What are the teacher personalities during that day?

_____

_____

3. How does the teacher respond to the students, what was heard, seen, and felt by the observer?

_____

_____

4. How the teachers deal with the students when they are not willing to learn?

_____
_____

Students

1. Do the students get engaged actively while studying?

_____Yes _____No

2. Do the students ask the teacher for help when they have problems?

_____Yes _____No

_____Problems about content _____Problems about using technological devices

_____
_____

3. How the students react before, while and after studying?

_____
_____

Technological Devices Used

1. Are there any problems concerning with technological devices such as computer, speakers while the students are learning?

_____Yes _____No

_____Clearness of sound _____Non-functional devices

_____Amount of computer

_____
_____

- If yes, how do the students cope with the problems?

_____
_____

2. Are the materials easily accessible for the students according to the way they appear?

_____

_____

3. What are the student's reactions during learning through the flipped classroom context?

_____

_____

Book

1. How is it used?

_____

_____

2. When is it used?

_____

_____

3. How often?

_____

_____

4. How do the students emotionally show through their faces, gestures, and words when they use the book?

_____

_____

External factors

1. How is the weather during that day?

_____

_____

2. Are there any interruptions or distractions during the class period?

- By whom?

_____

_____

- How long?

_____

_____

- How does the teacher cope with it?

_____

_____

Concerns and Recommendations

Concern	Recommendation

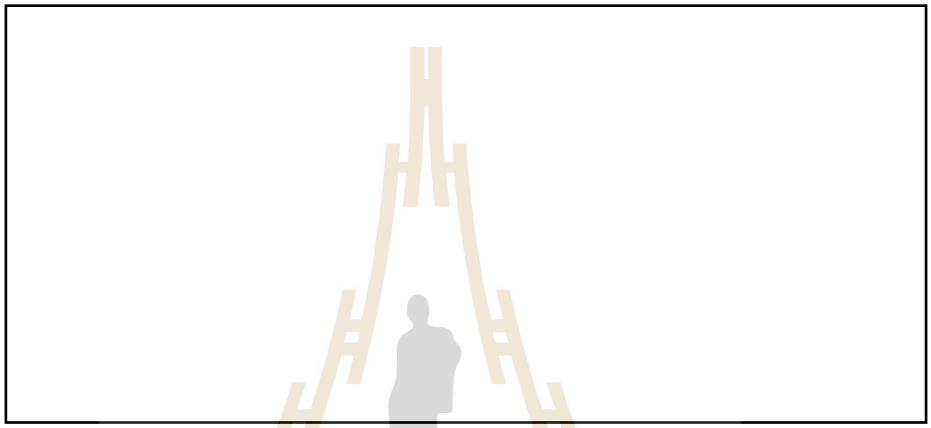
Class Observation: In-class Activities

Date of Observation: _____

Observer: _____ Teacher: _____

Beginning Time: _____ Ending Time: _____

Classroom Layout



Teacher

1. Does the teacher tell the students on what they are going to do?

_____Yes _____No

2. Does the teacher ask the students questions? And in what way?

_____Yes _____No

_____Recalling data/facts _____To increase student involvement

_____Summarizing _____To evaluate

_____Punishment _____To embarrass

_____Establishing the student's background information _____To arouse interest

_____

_____

3. Does the teacher follow the lesson plans?

_____Yes _____No

4. Does the teacher give feedback, comments, etc.? And how are they?

_____Yes

_____No

_____Encouraging positive motivation; well done, excellent, token, etc.

_____Providing guidance/suggestions/information for improvement and development

_____Evaluating; corrective feedback

_____Providing feedback on behavior factors

_____Reprimanding; negative comments through words

_____Giving feedback through action; physical pain e.g. hitting

_____Overcorrecting; the teacher punishes the student in the way that it should actually be

_____

_____

5. What are the teacher personalities during that day?

_____

_____

6. Can the teacher organize time well in order to finish the lessons as planned in the lesson plans? If not, why and how to cope with it?

_____

_____

7. How does the teacher respond to the students, what was heard, seen, and felt by the observer?

_____

_____

8. How the teachers deal with the students when they are not willing to learn?

_____

_____

Students

1. Do the students get engaged actively while studying?

_____Yes

_____No

2. Do the students ask the teacher for help when they have problems?

_____Yes _____No

_____Problems about content _____Problems about using technological devices

_____

_____

3. How the students react before, while and after studying?

_____

_____

4. Are there any compliments or plaints during class?

_____

_____

Technological Devices Used

1. How are the technological devices used during class?

_____

_____

2. Are there problems for computer, speakers, etc.?

_____Yes _____No

_____Clearness of sound _____Non-functional devices

_____Not ready to be used _____Cables for connecting computer with other device such as speakers

_____

_____

- If yes, how does the teacher cope with the problems?

_____

_____

Book

1. How is it used?

_____

_____

2. When is it used?

_____

_____

3. How often?

_____

_____

4. How do the students emotionally show when the book is being used?

_____

_____

External factors

1. How is the weather during that day?

_____

_____

2. Are there any interruptions or distractions during the class period?

- By whom?

_____

_____

- How long?

_____

_____

- How does the teacher cope with it?

_____

_____

Concerns and Recommendations

Concern	Recommendation

APPENDIX I

Lesson Plans

Course Description: This course focuses primarily on integrated skills. The students first learn through the flipped classroom in order to have background knowledge before coming to class. During the flipped classroom, the students are able to learn from the given audio and use the provided materials in form of braille books simultaneously. According to the focus on this lesson, the students can heighten both receptive and productive skills via constructive activities either individually or socially. Before completing a task, the students are motivated, provided the vocabulary items and also given the prefabricated chunks which are related to the lessons. Especially, the teacher's role is changed to be a facilitator who facilitates or helps the students when they are in a struggle.

Course Lessons: The course consists of five lessons which are:

1. Home Sweet Home
2. Daily Routines
3. Life at School
4. Health
5. Experience

<table>
<tr><td colspan="2">Lesson Topic:
Home Sweet Home 1.1</td></tr>
<tr><td colspan="2">Learning Objectives
The blind students will be capable of:
• Asking for and giving data about family members
• Conversing for an exchange of data about family members
• Forming and responding to the questions related to family members accurately</td></tr>
<tr><td>Steps of Lesson</td><td>Setting/Duration</td></tr>
<tr><td>Step 1: The blind students cognitively engage in the process of individual learning to actively construct, explore, and evaluate knowledge.
<u>Content to be viewed:</u> The blind students will listen to Lesson Home Sweet Home 1.1 which consists of:
- Vocabulary about family members
- Conversation:
A: Who is he/she?
B: This is a father/mother. He/she is my sister/brother.
- Song: Family Members
<u>Formative Assessment:</u> The blind students are asked to do a multiple choices exercise.
<u>Active Processing:</u> After learning, the blind students are asked to do the following on paper.
1. Summarize what they have learned from the lesson
2. List the questions or problems in case they have found</td><td>Completed…
_√_ Outside classroom
___ Inside classroom

Time: 1 hour or more</td></tr>
<tr><td>Step 2:
<u>Activities responding to outside classroom activities:</u>
When the blind students enter class, they are asked to submit their assignment they have summarized. The teacher, in collaboration with the blind students, will then begin class by leading a discussion to review what they have learned outside.
At school, the teacher places the blind students into pairs/groups and has each pair/group of the blind students to practice and complete activities from the book.
• Practice
➢ The teacher asks the students if they know any words that have the same meaning as Father, Mother, and Grandmother. This activity would be challenging to the students because the synonyms are not presented in the instructor-designed instructional materials but normally heard in general. If they do not know the word “synonym”, the teacher has to inform them about its meaning. The teacher probably says that it means “having the same meaning” and give them an example by using the Thai language as examples to make them understand the concept clearly.</td><td>Completed…
___ Outside classroom
_√_ Inside classroom

Time: 2 hours</td></tr>
</table>

<u>For example</u> **Teacher:** What are the synonyms of พ่อ in Thai? **Students:** บิดา ป๊า ปะป๊า **Teacher:** Very good! *The vocabulary words could be: o Mother: Mom, Mum, Mama o Grandfather: Grandpa, Granddad o Grandmother: Granny, Grandma ➢ The teacher later asks the blind students to sit pair and lets them help each other to list the vocabulary words. *(In this process, the blind students actively engage in order to solidify knowledge based on cognitive and social constructivism.)* • **Production** **Introducing family members** - The teacher asks the students to sit in pairs in order to practice asking and answering about family members. - The teacher explains the direction to the students. In this exercise, the students could make up their answers by choosing the words they have learned about the family members to answer their friends. *(In this process, the blind students are expected to extend their knowledge by applying schemata in a new situation, but using the same content they have learned.)* **<u>For example</u>** **(1)** **Nik:** Who is he? **Chet:** Ahh. This is a father. **(2)** **Nik:** Chet! Who is she? **Chet:** She is my mother. **<u>Formative Assessment:</u>** The blind students have to demonstrate an understanding of the concept or skill while the teacher could do as follows: 1. Ask questions orally about what they have learned 2. Clarify if there is something wrong 3. Sum up the lesson	

<table>
<tr><td colspan="2">Lesson Topic:
Home Sweet Home 1.2</td></tr>
<tr><td colspan="2">Learning Objectives
The blind students will be capable of:
• Describing characteristics of a person
• Conversing for an exchange of data about characteristics of a person
• Forming and responding to the questions related to characteristics of a person accurately</td></tr>
<tr><th>Steps of Lesson</th><th>Setting/Duration</th></tr>
<tr><td>Step 1: The blind students cognitively engage in the process of individual learning to actively construct, explore, and evaluate knowledge.
<u>Content to be viewed:</u> The blind students will listen to Lesson Home Sweet Home 1.2 which consists of:
- Vocabulary: Character and Personality
- Conversation:
A: What is he/she like?
B: He/She is nice/kind/attractive.
- Song: Humble and kind
<u>Formative Assessment:</u> The blind students are asked to do a multiple choices exercise.
<u>Active Processing:</u> After learning, the blind students are asked to do the following on paper.
1. Summarize what they have learned from the lesson
2. List the questions or problems in case they have found</td><td>Completed…
_√_ Outside classroom
___ Inside classroom

Time: 1 hour or more</td></tr>
<tr><td>Step 2:
<u>Activities responding to outside classroom activities:</u>
When the blind students enter class, they are asked to submit their assignment they have summarized. The teacher, in collaboration with the blind students, will then begin class by leading a discussion to review what they have learned outside.
At school, the teacher places the blind students into pairs/groups and has each pair/group of the blind students to practice and complete activities from the book.

• Practice
- The teacher has the students practice speaking on the topic of character and personality by letting them talk with the nearby friends. Firstly, the teacher checks if the students could remember how to ask for and give data about characteristics of a person.
(In this process, the blind students actively engage with the teacher in order to retrieve knowledge based on cognitive and social constructivism.)</td><td>Completed…
___ Outside classroom
_√_ Inside classroom

Time: 2 hours</td></tr>
</table>

For example **Teacher:** Can you remember how to ask for and give data about character and personality of a person? If the students cannot remember, the teacher is capable of giving some clues. The teacher could keep giving the clues by pausing in order to give them a gradual word because they may finally recognize for example: **What is // he // like?** - Next, the teacher asks the students how to respond to the question. **For example** **Teacher:** What is he like? **Students:** "He/She is nice/kind/cute." - The teacher also emphasizes the use between "He is ___." and "She is ___." **He is __. (with a man) / She is __. (with a woman)** - The teacher forms questions to have the students answer. **For example** **Teacher:** What is he like? He is _____. **Students:** He is nice/charming. - After that, the teacher asks the students to have a conversation about asking for and giving information regarding character and personality. • **Production** **Rearrange the sentences** - The teacher asks the students to open to the task about rearranging Exercise 1.2. - The teacher later explains the direction to the students - There are ten sentences but they are all segmented; therefore; the students have to help each other to rearrange them into a correct sentence. *(In this process, the blind students actively and collaboratively engage among themselves in order to solidify knowledge based on cognitive and social constructivism.)* **For example** (1) She/ nice / is **Answer:** She is nice - After they finish, they have to help one another to read and orally translate the sentences. **Formative Assessment:** The blind students have to demonstrate an understanding of the concept or skill while the teacher could do as follows: 1. Ask questions orally about what they have learned 2. Clarify if there is something wrong 3. Sum up the lesson	

<table>
<tr><td colspan="2">Lesson Topic:
Daily Routines 2.1</td></tr>
<tr><td colspan="2">Learning Objectives
The blind students will be capable of:
• Asking for and giving data about daily routines and activities
• Conversing for an exchange of data about daily routines and activities
• Forming and responding to the questions related to daily routines and activities accurately</td></tr>
<tr><th>Steps of Lesson</th><th>Setting/Duration</th></tr>
<tr><td>Step 1: The blind students cognitively engage in the process of individual learning to actively construct, explore, and evaluate knowledge.
<u>Content to be viewed:</u> The blind students will listen to Lesson Daily Routines 2.1 which consists of:
- Vocabulary: Daily Routines and activities
- Conversation:
A: What do you do in the morning?
B: I take a shower in the morning.
- Song: All in a day
<u>Formative Assessment:</u> The blind students are asked to do a multiple choices exercise.
<u>Active Processing:</u> After learning, the blind students are asked to do the following on paper.
1. Summarize what they have learned from the lesson
2. List the questions or problems in case they have found</td><td>Completed…
_√_ Outside classroom
___ Inside classroom

Time: 1 hour or more</td></tr>
<tr><td>Step 2:
<u>Activities responding to outside classroom activities:</u>
When the blind students enter class, they are asked to submit their assignment they have summarized. The teacher, in collaboration with the blind students, will then begin class by leading a discussion to review what they have learned outside.
At school, the teacher places the blind students into pairs/groups and has each pair/group of the blind students to practice and complete activities from the book.
• Practice
The teacher asks the students to form questions in order to ask their friends about their daily routines.
(In this process, the blind students actively engage with the teacher in order to retrieve knowledge based on cognitive and social constructivism.)
*The prefabricated chunks learned are:
Question:
What do you do in the morning? / What does he/she do at night?

Answer:
He wakes up in the morning. / She watches TV at night.</td><td>Completed…
___ Outside classroom
_√_ Inside classroom

Time: 2 hours</td></tr>
</table>

*The list of vocabulary is shown as follows.

Breakfast = อาหารเช้า	Lunch = อาหารเที่ยง
Dinner = อาหารเย็น	Arrive = มาถึง
Start = เริ่ม	Wake up = ตื่นนอน
Brush = แปรง	Get dressed = แต่งตัว
Finish = เสร็จ	Get home = กลับบ้าน
Cook = ทำอาหาร	Go to bed = เข้านอน
Take a shower = อาบน้ำ	

- During this process, the teacher can walk and ask them questions related to daily routines and activities.

- **Production**

Presentation

- The teacher asks the students to sit in groups and then explains the direction to the students.
- The teacher has the students do the task. Each group must compose a story during this process.

(In this process, the blind students actively engage to extend knowledge in a different situation by composing a story with the team members based on cognitive and social constructivism.)

- Once the task is done, the teacher calls the representative of each group to tell the story.
- After each story is read, the teacher other groups if they can understand. The teacher also can ask the questions related to the story.

Formative Assessment: The blind students have to demonstrate an understanding of the concept or skill while the teacher could do as follows:

1. Ask questions orally about what they have learned
2. Clarify if there is something wrong
3. Sum up the lesson

<table>
<tr><td colspan="2">Lesson Topic:
Daily Routines 2.2</td></tr>
<tr><td colspan="2">Learning Objectives
The blind students will be capable of
• Knowing the differences of adverbs of frequency
• Conversing for an exchange of data about habits
• Forming and responding to the questions related to habits accurately</td></tr>
<tr><td>Steps of Lesson</td><td>Setting/Duration</td></tr>
<tr><td>Step 1: The blind students cognitively engage in the process of individual learning to actively construct, explore, and evaluate knowledge.
<u>Content to be viewed:</u> The blind students will listen to Lesson Daily Routines 2.2 which consists of:
- Vocabulary: Adverbs of Frequency
- Conversation:
A: How often do you take a shower?
B: I always take a shower.
A: How often does he/she go to work late?
B: He/She never goes to work late.
- Song: Every day
<u>Formative Assessment:</u> The blind students are asked to do a multiple choices exercise.
<u>Active Processing:</u> After learning, the blind students are asked to do the following on paper.
1. Summarize what they have learned from the lesson
2. List the questions or problems in case they have found</td><td>Completed…
_√_ Outside classroom
___ Inside classroom

Time: 1 hour or more</td></tr>
<tr><td>Step 2:
<u>Activities responding to outside classroom activities:</u>
When the blind students enter class, they are asked to submit their assignment they have summarized. The teacher, in collaboration with the blind students, will then begin class by leading a discussion to review what they have learned outside.
At school, the teacher places the blind students into pairs/groups and has each pair/group of the blind students to practice and complete activities from the book.
• Practice
Conversation
➢ The teacher explains the direction to the students.
➢ The students find out how often their friends do daily routines or activities by using the question given below and write an answer of each person.
* The students can open to exercise 2.2 to look at words as examples.
- play games
- do homework
- eat papaya salad
- read books
- learn English
- play sport</td><td>Completed…
___ Outside classroom
_√_ Inside classroom

Time: 2 hours</td></tr>
</table>

For example
A: How often do you play on the computer?
B: I always play on the computer.

- Then, the blind students write down the answer to present in front of class.

For example
Answer: John/ Usually

- **Production**
- The teacher asks the students to produce 5 sentences by using adverbs of frequency that they have learned in this lesson.

(In this process, the blind students are encouraged to do task with their peers based on cognitive and social constructivism by applying knowledge they have learned in a different aspect.)
* The structures that they can used are:
(1) Subject + adverb + verb. I always watch TV.
(2) Subject + verb + adverb. He/She cooks food every day.

*The list of adverbs of frequency which can be used here are:

Always = ประจำ	Once = หนึ่งครั้ง
Usually = มักจะ	Twice = สองครั้ง
Often = บ่อยๆ	Week = สัปดาห์
Never = ไม่เคย	Year = ปี
Sometimes = บางครั้ง	Month = เดือน
Hardly ever = แทบจะไม่	Every … = ทุกๆ…

- The teacher can facilitate or gauge individual student understanding while the students are completing their task.

Formative Assessment: The blind students have to demonstrate an understanding of the concept or skill while the teacher could do as follows:

1. Ask questions orally about what they have learned
2. Clarify if there is something wrong
3. Sum up the lesson

Lesson Topic:
Life at School 3.1

Learning Objectives
The blind students will be capable of:

- Asking for and giving data about favorite subjects
- Conversing for an exchange of data about favorite subjects
- Forming and responding to the questions related to favorite subjects accurately

Steps of Lesson	Setting/Duration
Step 1: The blind students cognitively engage in the process of individual learning to actively construct, explore, and evaluate knowledge. **Content to be viewed:** The blind students will listen to Lesson Life at School 3.1 which consists of: - Vocabulary: Subjects - Conversation: **A:** What is your favorite subject? / What subject do you like? **B:** I like math. / I like math and English. - Song: What's your favorite subject? **Formative Assessment:** The blind students are asked to do a multiple choices exercise. **Active Processing:** After learning, the blind students are asked to do the following on paper. 1. Summarize what they have learned from the lesson 2. List the questions or problems in case they have found	**Completed…** _√_ Outside classroom ___ Inside classroom **Time:** 1 hour or more
Step 2: **Activities responding to outside classroom activities:** When the blind students enter class, they are asked to submit their assignment they have summarized. The teacher, in collaboration with the blind students, will then begin class by leading a discussion to review what they have learned outside. At school, the teacher places the blind students into pairs/groups and has each pair/group of the blind students to practice and complete activities from the book. • **Practice** ➢ The teacher asks the students to tell vocabulary concerning with the subjects they learn in the school if they can remember. The teacher also asks them to translate the word that they have said. *The vocabulary words are shown below. English = ภาษาอังกฤษ PE = พละ Math(s) = คณิตศาสตร์ Art = ศิลปะ Social studies = สังคม Music = ดนตรี Computer = คอมพิวเตอร์ Thai = ภาษาไทย IT = เทคโนโลยีสารสนเทศ Science = วิทยาศาสตร์ ➢ The teacher asks the students about the prefabricated chunk used to ask about favorite subjects.	**Completed…** ___ Outside classroom _√_ Inside classroom **Time:** 2 hours

Questions: What is your favorite subject? / What subject do you like? **Answers:** I like math. / I like math and English. / My favorite subject is Thai. / My favorite subjects are Thai and art. ➢ The teacher asks the students to sit in pairs and asks them to write the words but the words wouldn't be said directly. **For example** **Story:** I don't want to go to school to study. But I am always happy to play with my friends because I love to play sport such as swimming, football, and so many things. Do you know what my favorite subject is? **Answer:** PE *(In this process, the blind students are expected to retrieve and solve the problems through their schemata with their peers according to cognitive and social constructivism.)* • **Production** **Listen and Speak** ➢ The teacher informs the students about the task and them the direction of the task. ➢ The teacher tells the blind students that they are required to listen to the conversations about favorite subjects and then translate the answer or summarize the conversations they have heard. **For example** **Max:** John. What is your favorite subject? **John:** Well. I like English because it is interesting and fun. I love to speak English with my friends. **Formative Assessment:** The blind students have to demonstrate an understanding of the concept or skill while the teacher could do as follows: 1. Ask questions orally about what they have learned 2. Clarify if there is something wrong 3. Sum up the lesson	

<table>
<tr><td colspan="2">Lesson Topic:
Life at School 3.2</td></tr>
<tr><td colspan="2">Learning Objectives
The blind students will be capable of:
• Expressing opinions and feelings by using adjectives –ed and –ing endings
• Conversing for an exchange of data about opinions and feelings
• Forming and responding to the questions related to opinions and feelings accurately</td></tr>
<tr><td>Steps of Lesson</td><td>Setting/Duration</td></tr>
<tr><td>Step 1: The blind students cognitively engage in the process of individual learning to actively construct, explore, and evaluate knowledge.
<u>Content to be viewed:</u> The blind students will listen to Lesson Life at School 3.2 which consists of:
- Vocabulary: Opinions and Feelings
- Conversation
A: Why do you like math?
B: I like math <u>because it is interesting</u>. / <u>because it makes me interested.</u>
- Song: Makes me happy by Drake Bell
<u>Formative Assessment:</u> The blind students are asked to do a multiple choices exercise.
<u>Active Processing:</u> After learning, the blind students are asked to do the following on paper.
1. Summarize what they have learned from the lesson
2. List the questions or problems in case they have found</td><td>Completed…
_√_ Outside classroom
___ Inside classroom

Time: 1 hour or more</td></tr>
<tr><td>Step 2:
<u>Activities responding to outside classroom activities:</u>
When the blind students enter class, they are asked to submit their assignment they have summarized. The teacher, in collaboration with the blind students, will then begin class by leading a discussion to review what they have learned outside.
At school, the teacher places the blind students into pairs/groups and has each pair/group of the blind students to practice and complete activities from the book.

• Practice
- The teacher asks the students to sit in groups and then explains the direction to the students about the task that they will practice.
- The teacher has the students to complete matching activities between English and Thai word.</td><td>Completed…
___ Outside classroom
_√_ Inside classroom

Time: 2 hours</td></tr>
</table>

*The list of the words is:

Words (verb) ทำให้		-ing = น่า…..	-ed = รู้สึก…..
Bore (เบื่อ)	Interest (สนใจ)		
Excite (ตื่นเต้น)	Relax (ผ่อนคลาย)		
Amuse (สนุกสนาน)	Satisfy (พอใจ)		
Intrigue (สนใจ)	Fascinate (ดึงดูด)		
Confuse (สับสน)	Tire (เหนื่อย)		

- After that, the teacher has the students talk with their friends about the subjects that they like and dislike.

*The examples of the prefabricated chunk are:

- I love/ don' t love English because it makes me **- ed endings.**
- I like/dislike art because it's **-ing endings.**
- I like/hate art because I am **-ed endings.**

(In this process, the blind students are expected to extend knowledge by thinking, comparing, and applying previous information to do the task based on cognitive and social constructivism.)

- **Production**

Role Play

- The teacher asks the students to sit in groups and explains the direction.
- The students need to create a story about expressing feelings or opinions by using either –ed endings or –ing endings.

*The words they can use are in lesson 3.2. The teacher could also inform the students that they can search or ask for the words they want to use but don't know from the teacher.

(In this process, the blind students are expected to extend knowledge by applying their schemata in a new different situation.)

For example

Jane: How are you?
Nice: I am fine. Where are you going?
Jane: I am going to study math.
Nice: Math? I don't like math because it is confusing. But I like English because it makes me amused.
Jane: Me too. I like English because it is amusing.

- After that, the teacher randomly calls or asks for volunteers to speak to other classmates

Formative Assessment: The blind students have to demonstrate an understanding of the concept or skill while the teacher could do as follows:

1. Ask questions orally about what they have learned
2. Clarify if there is something wrong
3. Sum up the lesson

<table>
<tr><td colspan="2">Lesson Topic:
Health 4.1</td></tr>
<tr><td colspan="2">Learning Objectives
The blind students will be capable of:
• Describing about various health symptoms
• Conversing for an exchange of data about health symptoms
• Forming and responding to the questions related to health symptoms accurately</td></tr>
<tr><td>Steps of Lesson</td><td>Setting/Duration</td></tr>
<tr><td>Step 1: The blind students cognitively engage in the process of individual learning to actively construct, explore, and evaluate knowledge.
<u>Content to be viewed:</u> The blind students will listen to Lesson Health 4.1 which consists of:
- Vocabulary: Health Symptoms
- Conversation:
A: What’s the matter?
B: I have (have got) a headache.
- Song: I have a headache.
<u>Formative Assessment:</u> The blind students are asked to do a multiple choices exercise.
<u>Active Processing:</u> After learning, the blind students are asked to do the following on paper.
1. Summarize what they have learned from the lesson
2. List the questions or problems in case they have found</td><td>Completed…
_√_ Outside classroom
___ Inside classroom

Time: 1 hour or more</td></tr>
<tr><td>Step 2:
<u>Activities responding to outside classroom activities:</u>
When the blind students enter class, they are asked to submit their assignment they have summarized. The teacher, in collaboration with the blind students, will then begin class by leading a discussion to review what they have learned outside.
At school, the teacher places the blind students into pairs/groups and has each pair/group of the blind students to practice and complete activities from the book.
• Practice
- The teacher asks the students to sit in pairs and provided them an open-ended question about health symptoms that they have had.
(In this process, the blind students collaboratively engage to solidify knowledge based on cognitive and social constructivism.)
- The teacher has the students talk about the causes of the health symptoms they have had and also provide the ways to cure. Moreover, they can talk about anything in relation to the topic about health problems.
- The teacher walks around to have a chat with each pair of the students.</td><td>Completed…
___ Outside classroom
_√_ Inside classroom

Time: 2 hours</td></tr>
</table>

- **Production**

Grouping

- The teacher asks the students to sit in a group of 3-4 students.
- The teacher explains to the students that they have to group the health symptoms with the causes of them.

For example

Symptom: Have a headache

Causes:

- Stress
- Sleep late
- Don't have enough sleep

Symptom: Stomachache

Causes:

- Drink Pepsi
- Eat spicy food
- Don't have breakfast

(In this process, the blind students actively engage and discuss with their peers in order to correctly group the symptoms with the causes based on cognitive and social constructivism.)

Formative Assessment: The blind students have to demonstrate an understanding of the concept or skill while the teacher could do as follows:

1. Ask questions orally about what they have learned
2. Clarify if there is something wrong
3. Sum up the lesson

<table>
<tr><td colspan="2">Lesson Topic:
Health 4.2</td></tr>
<tr><td colspan="2">Learning Objectives
The blind students will be capable of:
• Giving advice about health by using “should” and “shouldn’t”
• Conversing for an exchange of data about health advice
• Forming and responding to the questions related to health advice accurately</td></tr>
<tr><th>Steps of Lesson</th><th>Setting/Duration</th></tr>
<tr><td>Step 1: The blind students cognitively engage in the process of individual learning to actively construct, explore, and evaluate knowledge.
<u>Content to be viewed:</u> The blind students will listen to Lesson Health 4.2 which consists of:
- Vocabulary: Verbs for health advice
- Conversation:
A: What should / How can I do when I am sick?
B: You should/shouldn’t _____
- Song: Get well soon
<u>Formative Assessment:</u> The blind students are asked to do a multiple choices exercise.
<u>Active Processing:</u> After learning, the blind students are asked to do the following on paper.
1. Summarize what they have learned from the lesson
2. List the questions or problems in case they have found</td><td>Completed…
_√_ Outside classroom
___ Inside classroom

Time: 1 hour or more</td></tr>
<tr><td>Step 2:
<u>Activities responding to outside classroom activities:</u>
When the blind students enter class, they are asked to submit their assignment they have summarized. The teacher, in collaboration with the blind students, will then begin class by leading a discussion to review what they have learned outside.
At school, the teacher places the blind students into pairs/groups and has each pair/group of the blind students to practice and complete activities from the book.

• Practice
- The teacher leads a discussion to stimulate the students’ cognition about health problems.
- After that, the teacher asks the students to sit in groups and asks them to relate their experience to the lesson.
- The teacher talks among themselves and list the advice or suggestions as much as possible when someone is sick.
*During this practice, the blind students are required to use the English language.
(In this process, the blind students are encouraged to discuss with peers, explore new knowledge, or refer to the previous activity or their life experiences through cognitive and social</td><td>Completed…
___ Outside classroom
_√_ Inside classroom

Time: 2 hours</td></tr>
</table>

constructivism in order to solidifying knowledge among themselves.) **Questions:** **(1)** What should I do when I am sick? **(2)** How can I do if I have a headache? - The answer can vary, but should mainly focus on the use of ***"Should"*** and ***"Shouldn't".*** **For example** - You should take a rest. - You shouldn't sleep late. - You should take a medicine. - You shouldn't drink cold water. • **Production** **Help Me** ➢ The teacher asks the students to sit in a group of 3-4 people. ➢ The teacher starts the section by giving students a situation for each group to complete. ➢ The teacher explains the directions to the students. ➢ The teacher lets them list advice for each situation what they should or shouldn't when they are sick. **For example** - Situation 1: Have the fever **You should……** 1) Take some vitamin tablets 2) Sleep a lot **You shouldn't……...** 1) Drink cold water 2) Swim in the swimming pool ➢ Later, every person in the group goes to another nearby group in order to share what should and shouldn't do when they have a health symptom. ➢ The representative of each group tells the answers to the classmates. *(In this process, the blind students are expected to excogitate and socialize with their peers in order to complete the task. They are also asked to explain or share the possible reasons of the answers.)* **Formative Assessment:** The blind students have to demonstrate an understanding of the concept or skill while the teacher could do as follows: 1. Ask questions orally about what they have learned 2. Clarify if there is something wrong 3. Sum up the lesson	

<table>
<tr><td colspan="2">Lesson Topic:
Experience 5.1</td></tr>
<tr><td colspan="2">Learning Objectives
The blind students will be capable of:
• Asking for and giving data about life experience by using Present Perfect
• Conversing for an exchange of data about life experience
• Forming and responding to the questions related to life experience accurately</td></tr>
<tr><td>Steps of Lesson</td><td>Setting/Duration</td></tr>
<tr><td>Step 1: The blind students cognitively engage in the process of individual learning to actively construct, explore, and evaluate knowledge.
<u>Content to be viewed:</u> The blind students will listen to Lesson Experience 5.1 which consists of:
- Vocabulary: Words about life experience
- Conversation:
A: Have you ever been to China?
B: Yes, I have. / No, I haven’t.
- Song: Have you ever by S Club 7
<u>Formative Assessment:</u> The blind students are asked to do a multiple choices exercise.
<u>Active Processing:</u> After learning, the blind students are asked to do the following on paper.
1. Summarize what they have learned from the lesson
2. List the questions or problems in case they have found</td><td>Completed…
_√_ Outside classroom
___ Inside classroom

Time: 1 hour or more</td></tr>
<tr><td>Step 2:
<u>Activities responding to outside classroom activities:</u>
When the blind students enter class, they are asked to submit their assignment they have summarized. The teacher, in collaboration with the blind students, will then begin class by leading a discussion to review what they have learned outside.
At school, the teacher places the blind students into pairs/groups and has each pair/group of the blind students to practice and complete activities from the book.

• Practice
- The teacher asks the blind students to sit in pairs and lets them ask questions. One person uses column “A” and the other use column “B”.
A.
1. Slept in a tent 4. Planted a tree
2. Swum in a lake 5. Learned English
3. Climbed a tree 6. Done some sports
B.
1. Fed a dog 4. Played games
2. Caught a fish 5. Ridden a horse
3. Drunk coffee 6. Been to the sea</td><td>Completed…
___ Outside classroom
_√_ Inside classroom

Time: 2 hours</td></tr>
</table>

(In this process, the blind students are encouraged to do task with their peers based on cognitive and social constructivism by applying knowledge they have learned in a different aspect.) • **Production** **Listening Comprehension** ➢ The teacher explains the direction of the task. ➢ The students listen to the stories about life experiences. ➢ After each story is done, the students are required to answer to the teacher's questions. **For example** **Story:** Hello, my name is Jane. I am a student. I have learned English for 5 years. I love English very much. *The examples of the questions asked by can be as follows: **(1) Has Jane ever learned English?** **(2) Jane has ever learned English. Yes or no?** - The teacher wraps up each story to the students by translating it again so as to know and ensure if they can fathom the story correctly. *(In this process, the blind students are expected to demonstrate an understanding to the teacher based on cognitive constructivism. They are supposed to explain to the teacher why they have chosen or responded that. And when their answers are partly wrong or have some mistakes the teacher would facilitate them to think carefully according to cognitive and social constructivism.)* **Formative Assessment:** The blind students have to demonstrate an understanding of the concept or skill while the teacher could do as follows: 1. Ask questions orally about what they have learned 2. Clarify if there is something wrong 3. Sum up the lesson	

<table>
<tr><td colspan="2">Lesson Topic:
Experience 5.2</td></tr>
<tr><td colspan="2">Learning Objectives
The blind students will be capable of:
• Distinguishing between the use of “since” and “for”
• Conversing for an exchange of data about life experience
• Forming and responding to the questions related to amounts or periods of time accurately; How long</td></tr>
<tr><td>Steps of Lesson</td><td>Setting/Duration</td></tr>
<tr><td>Step 1: The blind students cognitively engage in the process of individual learning to actively construct, explore, and evaluate knowledge.
<u>Content to be viewed:</u> The blind students will listen to Lesson Experience 5.2 which consists of:
- Vocabulary: Verbs for life experience
- Conversation: How long?
A: How long have you studied English?
B: I have studied English for 5 years. /
- Song: How Long Have You Known? by DIIV
<u>Formative Assessment:</u> The blind students are asked to do a multiple choices exercise.
<u>Active Processing:</u> After learning, the blind students are asked to do the following on paper.
1. Summarize what they have learned from the lesson
2. List the questions or problems in case they have found</td><td>Completed…
_√_ Outside classroom
___ Inside classroom

Time: 1 hour or more</td></tr>
<tr><td>Step 2:
<u>Activities responding to outside classroom activities:</u>
When the blind students enter class, they are asked to submit their assignment they have summarized. The teacher, in collaboration with the blind students, will then begin class by leading a discussion to review what they have learned outside.
At school, the teacher places the blind students into pairs/groups and has each pair/group of the blind students to practice and complete activities from the book.

• Practice
- The questions and answers used in this class are:
Question:
- How long have you stayed in Thailand?
- How long has he/she studied English?
Answer:
- I have stayed in Thailand for 1 year/ 5 months.
- He/She has studied English since last year.

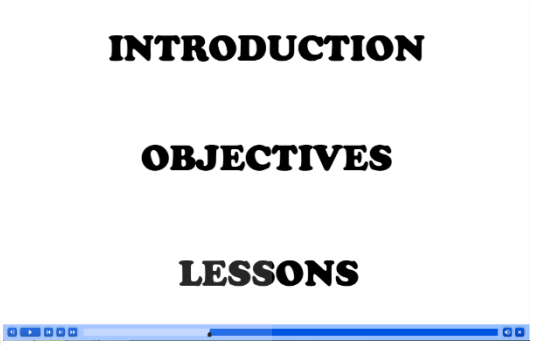
*The examples of the patterns that can be used are:.
(1) I have + past participle (V3) for/since _____.
(2) He/She has + past participle (V3) for/since _____.</td><td>Completed…
___ Outside classroom
_√_ Inside classroom

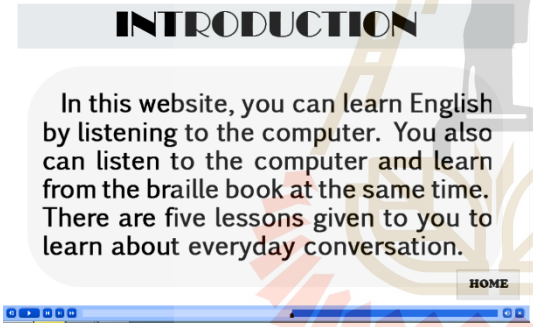
Time: 2 hours</td></tr>
</table>

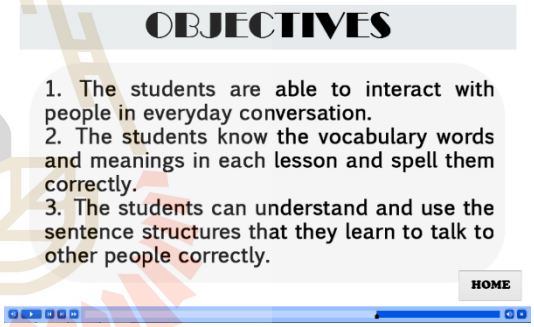
➢ The teacher lets the students write three sentences about the amounts and periods of time they have spent for doing any activities. *(In this process, the blind students are encouraged to do task with their peers based on cognitive and social constructivism by applying knowledge they have learned in a different aspect.)* • **Production** **Conversation** ➢ The teacher explains the direction to the students. ➢ The teacher shows how to do the task. **For example** (1) **A:** How long have you stayed in Thailand? **B:** I have stayed in Thailand for 2 years. (2) **A:** How long have you studied English? **B:** I have studied English since 1990. ➢ The teacher lets the students ask their friends as much as they want. In this exercise, the students can open to the book exercise 5.2 because there are activities that they can use and adapt in order to ask their friends such as: - Known me - Lived in this city - Been in Khon Kaen - Learned English *(In this process, the blind students actively engage in doing task with their peers based on cognitive and social constructivism by applying knowledge they have learned in a different aspect.)* **Formative Assessment:** The blind students have to demonstrate an understanding of the concept or skill while the teacher could do as follows: 1. Ask questions orally about what they have learned 2. Clarify if there is something wrong 3. Sum up the lesson	

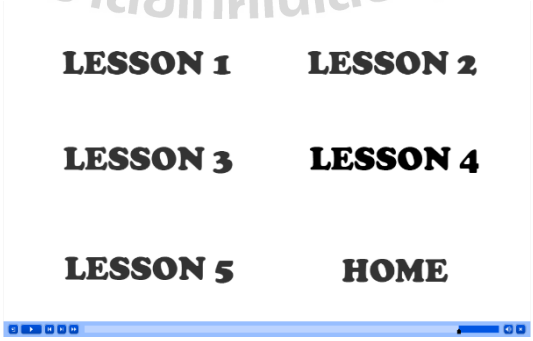
APPENDIX J

Online Instructor-Designed Instructional Materials

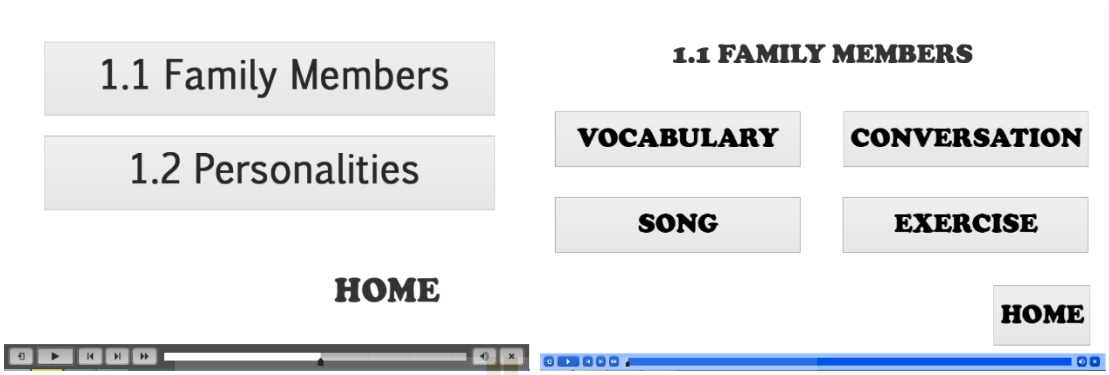


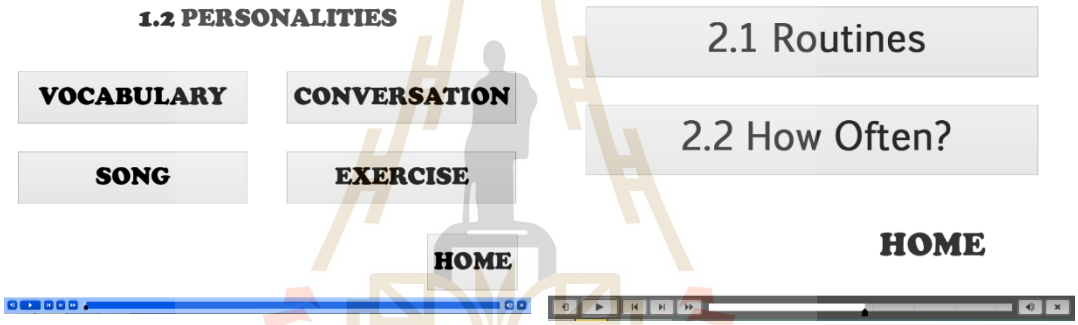


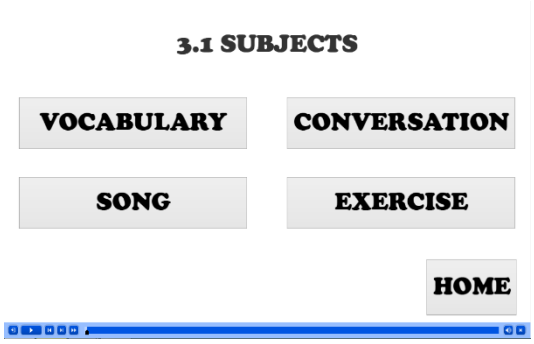


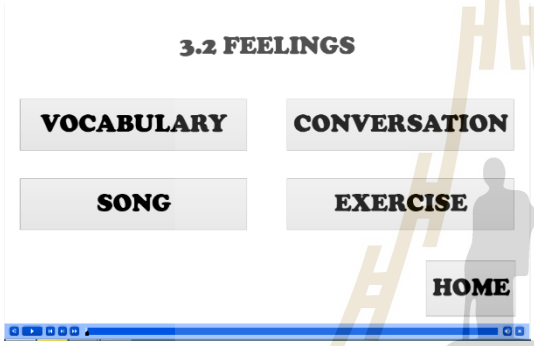


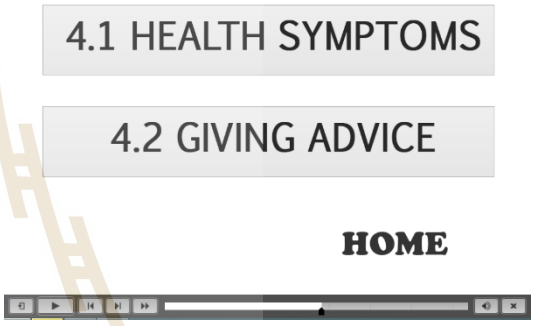
Learning Contents

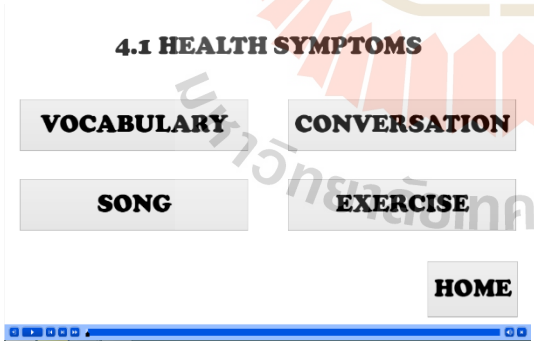


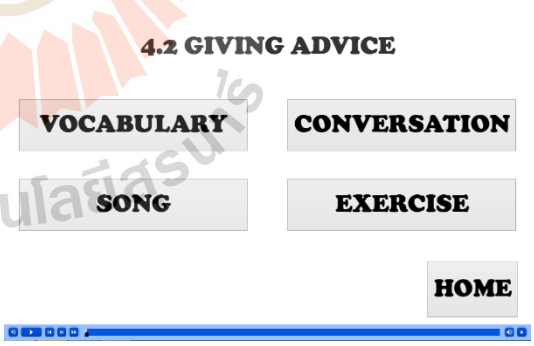


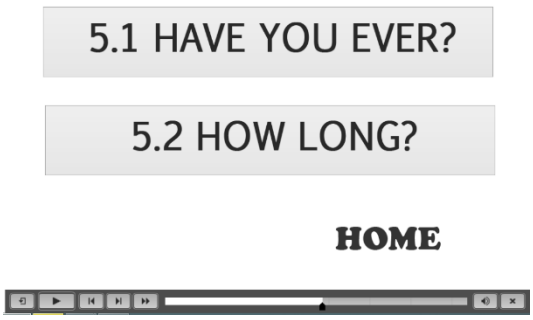


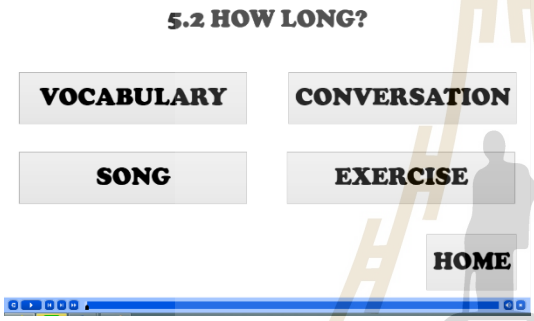




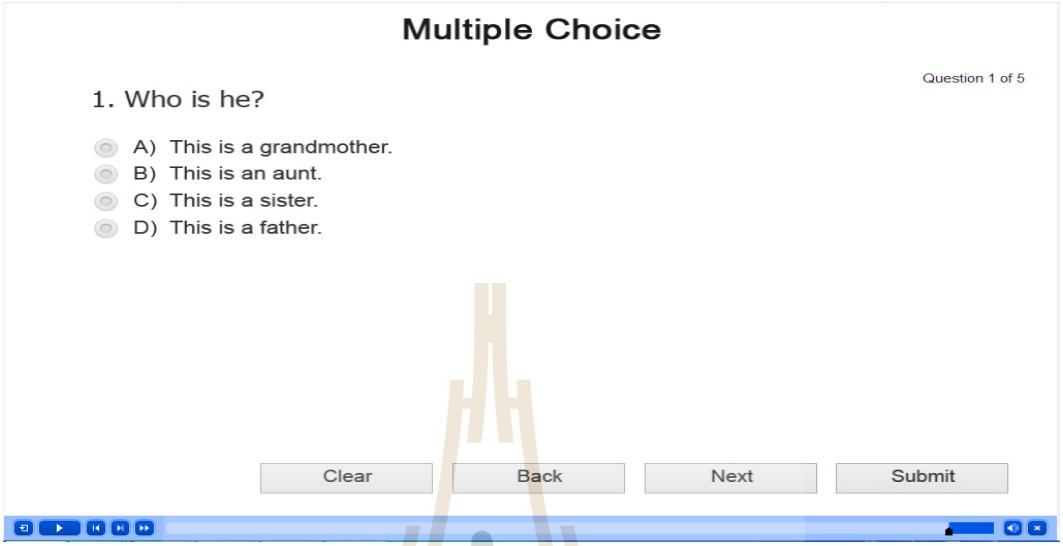


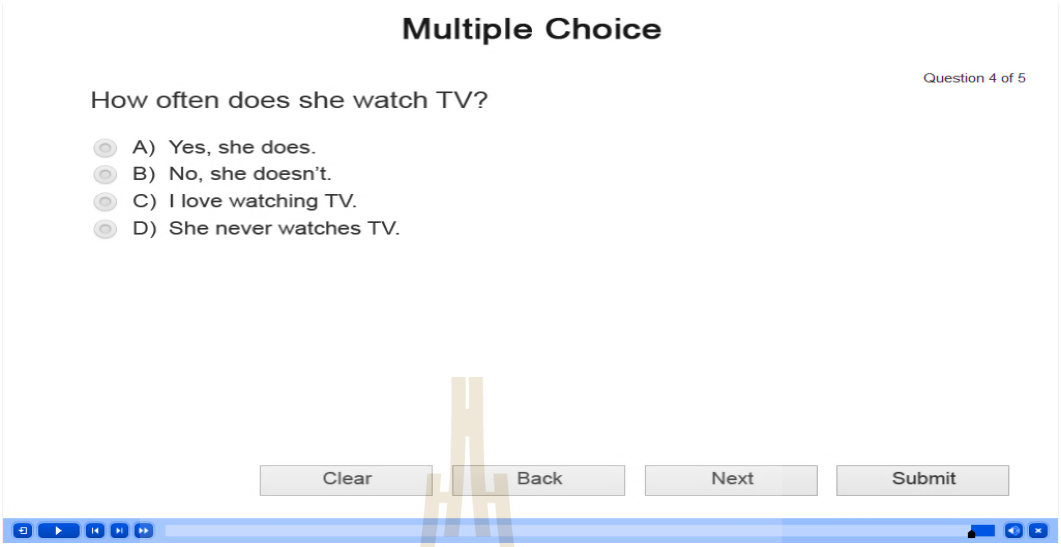


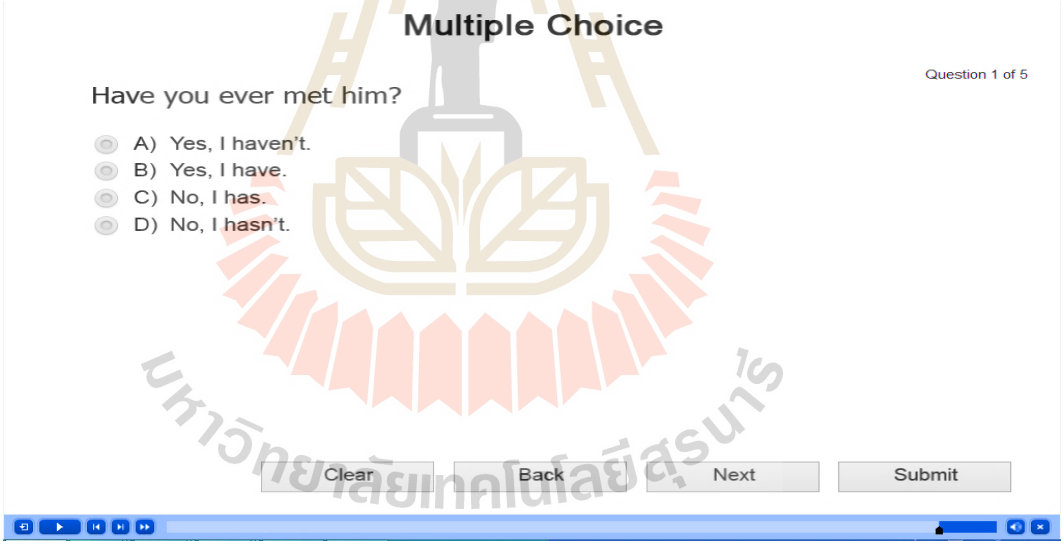




Examples of Exercises for Outside Classroom Learning







APPENDIX K

Contents in the Blind's Book

LESSON 1: Home Sweet Home

ในบทเรียนนี้ นักเรียนจะได้เรียนรู้เกี่ยวกับการแนะนำสมาชิกภายในครอบครัวและการบอกเกี่ยวกับบุคลิกภาพ ลักษณะนิสัยของบุคคล

1.1 Introducing Family Members

Vocabulary: Family Members

1. Father = พ่อ
2. Mother = แม่
3. Brother = พี่ชาย น้องชาย
4. Sister = พี่สาว น้องสาว
5. Grandfather = ตา ปู่
6. Grandmother = ยาย ย่า
7. Uncle = ลุง น้า อา (ผู้ชาย)
8. Aunt = ป้า น้า อา (ผู้หญิง)
9. Cousin = ลูกพี่ลูกน้อง
10. Me = ตนเอง

Grammar

ในหัวข้อนี้ นักเรียนจะได้เรียนรู้การถามและการตอบคำถามเกี่ยวกับสมาชิกภายในครอบครัว การใช้ประโยคคำถามนี้จะใช้เมื่อนักเรียนอยากจะรู้ว่าบุคคลคนนั้นเป็นใคร ประโยคที่ใช้ในการถามคำถามมีดังนี้

Questions:

1. Who is he? = เขาคือใคร
2. Who is she? = เธอคือใคร

Answers:

ส่วนการตอบคำถามนั้น สามารถใช้รูปแบบประโยคที่ว่า This is a (my) ….. หรือ He/She is a (my)….. แล้วก็ตามด้วยสมาชิกในครอบครัว เช่น

1. This is a father. = นี่คือพ่อ
2. This is my mother. = นี่คือแม่ของฉัน
3. He is a brother. = เขาคือพี่ชาย
4. She is my sister. = เธอคือน้องสาวของผม

1.2 Personality

หัวข้อต่อไปนี้ นักเรียนจะได้เรียนรู้เกี่ยวกับการตอบและการถามถึงบุคลิกภาพ ลักษณะนิสัยของแต่ละบุคคล

Vocabulary: Personalities

1. Earnest = จริงจัง
2. Generous = ใจกว้าง
3. Sincere = จริงใจ
4. Kind = ใจดี
5. Warm = อบอุ่น
6. Friendly = เป็นมิตร
7. Attractive = ดึงดูด
8. Sweet = อ่อนหวาน
9. Adorable = น่ารัก
10. Charming = มีเสน่ห์

Grammar: Telling about someone's personalities

ในส่วนนี้ นักเรียนจะได้เรียนเกี่ยวกับการถามและการตอบคำถามเกี่ยวกับบุคลิกภาพของบุคคล

Questions:

1. What is he like? = เขาเป็นคนอย่างไร
2. What is she like? = เธอเป็นคนอย่างไร

แต่นักเรียนสามารถเปลี่ยนบุคคลที่นักเรียนอยากรู้เข้าไปในประโยคแทน he หรือ she ได้ เช่น

1. What is your brother like? = พี่ชายของคุณเป็นคนอย่างไร
2. What is your sister like? = น้องสาวของคุณเป็นคนอย่างไร

และรูปแบบที่ใช้ตอบคำถามคือ He/She is แล้วตามด้วยลักษณะนิสัย แปลว่า เขา/เธอเป็นคน…..

Answers:

1. He/She is nice/friendly/kind.
2. My brother/My sister is sweet/charming/attractive.

Warm-up 1.2: There are ten mirror-written words. Do you know what they are?

1. yldneirf =
2. tsenrae =
3. evitcartta =
4. suoreneg =
5. dink =
6. gnimrahc =
7. elbaroda =
8. teews =
9. mraw =
10. erecnis =

Exercise 1.2: Rearrange the sentences

Direction: Sit with your team around 2-3 people and rearrange the sentences in their proper order

1. cute./is/She
2. is/My mother/attractive.
3. is/He/sincere.
4. sweet./grandmother/is/My
5. and cute./My/sister/attractive/is
6. Jake/lovely./is
7. is/Mike/and charming./warm,/kind,
8. kind./is/She
9. She/my/is/adorable./aunt./She/is
10. and friendly./My uncle/is earnest,/generous,

LESSON 2: Daily Routines

ในบทเรียนนนี้ นักเรียนจะได้เรียนการถามการตอบเกี่ยวกับกิจวัตรประจำวัน

2.1 What do you do?

Vocabulary: Daily Routines

1. Breakfast = อาหารเช้า
2. Wake up = ตื่นนอน
3. Cook = ทำอาหาร
4. Arrive home = มาถึงบ้าน
5. Take a shower = อาบน้ำ
6. Go to bed = เข้านอน
7. Brush teeth = แปรงฟัน
8. Get dressed = แต่งตัว
9. Finish work = เสร็จงาน, เลิกงาน
10. Get home = กลับบ้าน

Grammar

ในบทเรียนนี้นักเรียนจะได้เรียนการถามและตอบคำถามเกี่ยวกับกิจวัตรประจำวันหรือสิ่งที่นักเรียนทำเป็นประจำ

Questions:

1. What do you do in the morning/in the afternoon/in the evening?
2. What does he/she do at night?

Answers:

1. I have breakfast in the morning.
2. He/She watches TV at night.

ข้อควรจำ

1. ถ้าประธานของประโยคเป็น I You We และ They กริยาไม่ต้องเติม s หรือ es ต่อท้าย

2. ถ้าประธานเป็นสรรพนามบุรุษที่สาม เช่น He She หรือ It ให้เติม s หรือ es โดยการใส่ s หรือ es จะอธิบายต่อจากนี้

2.1 The third person singular is usually formed by adding *s*. (กริยาโดยทั่วไปเติม **s** ได้เลย)

get – gets
sleep – sleeps
wake – wakes

2.2 Verbs ending in s, sh, ch, x, z and o add es (กริยาที่ลงท้ายด้วย s, sh, ch, x, z และ o ต้องเติม es)

go – goes
brush – brushes
finish – finishes
watch – watches

2.1: Presentation

Direction: Complete the stories and then present the task to other groups.

(1)
wake up
have
get dressed
start
watch TV
get home

I (1) ___ in the morning. Then, I take a shower and (2) ___. After that, I (3) ___ breakfast with my father and brother. My father (4) ___ work at 8 o'clock. I go to school with my brother every morning and we (5) ___ at 4 pm. At night, my mother, brother, and I (6) ___, but my dad doesn't.

(2)
take a shower
finish
cook
arrive
go to bed
brush teeth

My mom wakes up at six every morning. She (1) ___ food for me every day before I go to school. I (2) ___ when my mom cooks. After having lunch, I (3) ___. My mom is a teacher. She (4) ___ work at 5 pm every day and she (5) ___ home around 6 pm. My mom and I always (6) ___ at night together.

2.2 How often?

ในบทนี้นักเรียนจะได้เรียนรู้เพิ่มขึ้นเกี่ยวกับการถามและตอบคำถามเกี่ยวกับความถี่หรือความบ่อยที่บุคคลนั้นได้ทำต่อกิจกรรมใดกิจกรรมหนึ่ง

Read and Use

1. I always get up early.
2. I usually watch TV before going to bed.
3. I often have breakfast with my brother.
4. I sometimes go to school by bus.
5. I hardly ever sleep in class.
6. I never play games.

Vocabulary: Frequency

1. Always = ประจำ
2. Usually = มักจะ
3. Often = บ่อย ๆ
4. Sometimes = บางครั้ง
5. Hardly ever = แทบจะไม่
6. Never = ไม่เคย
7. Once = 1 ครั้ง
8. Twice = 2 ครั้ง
9. Time = ครั้ง
10. Every … = ทุก ๆ …

Grammar

ในภาษาอังกฤษนักเรียนสามารถใช้คำว่า How often แปลว่า บ่อยแค่ไหน เพื่อถามถึงความถี่ของกิจกรรมที่ทำ โดยนักเรียนสามารถใช้คำ เช่น always, never, once a week และอื่น ๆ ที่นักเรียนได้เรียนไปแล้วในส่วนของคำศัพท์เพื่อตอบคำถามเกี่ยวกับความถี่ของกิจกรรมที่ทำได้

Questions:

1. How often do you go to school late? = คุณไปโรงเรียนสายบ่อยแค่ไหน
2. How often does he/she watch TV? = เขา/เธอดูทีวีบ่อยแค่ไหน

Answers:

1. I never go to school late. = ผมไม่เคยไปโรงเรียนสาย
2. He/She watches TV twice a week. = เขา/เธอดูทีวีอาทิตย์ละสองครั้ง

2.2: Daily Routines

A: How often do you ...? or How often does he/she ...?
B: I + adverb + activity. or He/She + adverb + activity.

Brush teeth
Take a shower
Cook dinner
Watch cartoon
Read newspaper
Eat rice
Drink Pepsi
Exercise
Wash dishes

LESSON 3: Life at School

ในบทนี้นักเรียนจะได้เรียนเกี่ยวกับวิชาที่นักเรียนเรียนในโรงเรียน และการถามตอบเกี่ยวกับความรู้สึกต่อวิชานั้น ๆ

3.1 My Favorite Subjects

Vocabulary: Subjects

1. English = ภาษาอังกฤษ
2. Thai = ภาษาไทย
3. Math(s) = คณิตศาสตร์
4. Art = ศิลปะ
5. PE = พละ
6. Science = วิทยาศาสตร์
7. Social studies = สังคม
8. Computer = คอมพิวเตอร์
9. IT = เทคโนโลยีสารสนเทศ
10. Music = ดนตรี

Full names of the subjects

Math = Mathematics, PE = Physical Education, IT = Information Technology

Grammar: What is your favorite subject?

หลังจากที่นักเรียนได้เรียนรู้คำศัพท์เกี่ยวกับวิชาต่างๆไปแล้ว นักเรียนสามารถนำคำศัพท์เหล่านั้นมาถามและตอบคำถามเกี่ยวกับวิชาที่ชอบหรือไม่ชอบได้ดังตัวอย่างข้างล่าง (Like = ชอบ, Dislike = ไม่ชอบ)

Questions:

1. What subject do you like = คุณชอบวิชาอะไร
2. What subject do you dislike? = คุณไม่ชอบวิชาอะไร
3. What is your favorite subject? = วิชาอะไรที่คุณชอบ

Answers:

1. I like English.
2. I dislike math, English, and Thai.
3. My favorite subject is art.
4. My favorite subjects are art and Thai. (ใช้ are เพราะมีมากกว่าหนึ่งวิชา)

3.2 Express feelings

ในบทเรียนนี้นักเรียนจะได้เรียนรู้การถามและการตอบคำถามเกี่ยวกับความรู้สึกต่อวิชาที่นักเรียนได้เรียนในโรงเรียน

Vocabulary: Feelings and opinions

1. Bore = ทำให้เบื่อ
2. Interest = ทำให้สนใจ
3. Excite = ทำให้ตื่นเต้น
4. Relax = ทำให้ผ่อนคลาย
5. Amuse = ทำให้สนุกสนาน
6. Satisfy = ทำให้พอใจ
7. Intrigue = ทำให้สนใจ
8. Fascinate = ทำให้ดึงดูด
9. Confuse = ทำให้สับสน
10. Tire = ทำให้เหนื่อย

Grammar: How do you feel?

ในการถามคำถามนั้น นักเรียนสามารถใช้รูปแบบประโยคสองประโยคที่ให้ไว้ในการถามคำถามเกี่ยวกับความรู้สึกต่อวิชาเรียนได้

Questions:

1. Why do you like PE?
2. Why do you dislike computer?

ในการตอบคำถามนั้น จะใช้รูปแบบสองรูปแบบหลัก ๆ ดังนี้คือ การใช้คำที่ลงท้ายด้วย -ed และคำที่ลงท้ายด้วย -ing

Answers:

นักเรียนสามารถพูดแสดงความรู้สึกหรือความคิดเห็นได้ 2 วิธี

1. ใช้ คำศัพท์ในรูป -ed แปลเป็นภาษาไทยได้ว่า รู้สึก… (ใช้บรรยายอารมณ์)

1.1 I like PE because I feel satisfied. (ฉันรู้สึกสุขใจ)

1.2 I dislike computer because it makes me bored. (มันทำให้ฉันรู้สึกเบื่อ)

2. ใช้คำศัพท์ในรูป -ing แปลเป็นภาษาไทยได้ว่า น่า… (ใช้บรรยายลักษณะของสิ่งต่างๆ)

2.1 Math is confusing. (น่าสับสน)

2.2 Science is boring. (น่าเบื่อ)

2.3 Computer is amusing. (น่าสนุกสนาน)

For example
1. I am bored because English is boring.
2. I am tired right now. Learning PE was tiring.

ข้อควรจำ: -ing น่า -ed รู้สึก

3.2: Matching
1. Boring
2. Interested
3. Exciting
4. Relaxed
5. Amusing
6. Satisfied
7. Intriguing
8. Fascinated
9. Confusing
10. Tired

A. น่าสนใจ

B. รู้สึกผ่อนคลาย

C. รู้สึกสนใจ

D. รู้สึกพอใจ

E. รู้สึกถูกดึงดูด

F. น่าตื่นเต้น

G. รู้สึกเหนื่อย

H. น่าสับสน

I. น่าสนุกสนาน

J. น่าเบื่อ

LESSON 4: Health

ในบทนี้นักเรียนจะได้เรียนรู้การถามและการตอบคำถามเกี่ยวกับสุขภาพ โดยสิ่งแรกที่จะเริ่มเรียนก็คือคำศัพท์เกี่ยวกับอาการต่างๆ ที่ทำให้เรารู้สึกไม่ดี หรือรู้สึกไม่สบาย

4.1 Health Symptoms

Vocabulary: Health Symptoms

1. Headache = ปวดหัว
2. Cough = ไอ
3. Diarrhea = ท้องเสีย
4. Broken arm = แขนหัก
5. Cold = เป็นหวัด
6. Fever = เป็นไข้
7. Temperature = ตัวร้อน
8. Cut = รอยบาด
9. Sore throat = เจ็บคอ
10. Runny nose = น้ำมูกไหล

Grammar: Talking about illness (illness = ความเจ็บป่วย)

ในส่วนนี้นักเรียนจะได้เรียนรู้เกี่ยวกับการถามบุคคลใดบุคคลหนึ่งว่าเขามีปัญหาอะไรหรือไม่และจะได้เรียนรู้วิธีการตอบคำถามเมื่อคุณรู้สึกหรือมีอาการไม่ค่อยสบาย

Questions:

1. What's the matter with you?
2. What's wrong with him/her?

Answers:

If you become sick, you can use the next patterns to talk to your friends or doctor "I have" or "I have got".

For example

1. I have a headache.
2. I've got a stomachache.

And if people in your family are sick, you can use:
"He/She has" or "He/She has got"

For example

1. She has a broken arm.
2. He's got a toothache.

ข้อควรจำ

ใช้ has เมื่อประธานของประโยคคือ he, she, it หรือคำนามเอกพจน์ นอกจากนั้น สามารถใช้ have ได้เลย

Contractions (รูปย่อ)

1. Have got = ’ve got
2. Has got = ‘s got

Warm-up 4.1: Word Discovery

Direction: Track from left to right from the top of the page to the bottom of the page to find the names of symptoms.

1. txxexmxpxerxaxtxxuxrxxex
2. xxtxooxtxhacxhxxe
3. xfexxxvxxerx
4. sxoxrxxe txhxroaxxxt
5. cxuxt
6. bxxroxxkxen arxxxmx
7. xxxrxuxnnxy noxxsxexx
8. xdixxxxarxrhxxexa
9. xcxouxxxgh
10. hexxaxdaxxchxex

4.1: Grouping

Direction: Group the causes of each symptom

Symptoms:

1. Headache
2. Diarrhea
3. Broken arm
4. Temperature
5. Toothache

Causes

1. Stress
2. Eat spicy food
3. Accidents
4. Weather changes
5. Drink Pepsi, green tea, etc.
6. Don’t brush teeth
7. Hot weather
8. Fight with friends

9. Dirty plates, spoons, and forks
10. Don’t have enough sleep
11. Sleep late
12. Don’t watch hands before eating
13. Play sports
14. Play in the rain
15. Eat a lot of sweets
16. Dirty food

4.2 How to Make Yourself Feel Better

เมื่อมีอาการป่วย ย่อมรู้สึกไม่สบายตัว จึงควรหาสิ่งที่ทำให้รู้สึกดีขึ้น

Vocabulary: Advice for better health

1. Blow nose = สั่งน้ำมูก
2. Rest = พัก
3. Medicine = ยา
4. Enough = เพียงพอ
5. Sweets = ขนมหวาน
6. Smoke = สูบบุหรี่
7. Junk food = อาหารขยะ
8. Vegetables = ผัก
9. Pharmacy = ร้านขายยา
10. Health checkup = การตรวจร่างกาย

Grammar: Give Advice

ในส่วนนี้นักเรียนจะได้เรียนรู้เกี่ยวกับการถามและการให้คำแนะนำเกี่ยวกับปัญหาสุขภาพที่เกิดขึ้น ในภาษาอังกฤษนั้นมีหลายวิธีมากที่ใช้ในการให้คำแนะนำ และคำว่า should ก็เป็นหนึ่งในนั้นที่นักเรียนสามารถใช้ได้ โดยที่ should มีความหมายว่า ควรหรือควรจะ

Questions:

1. What should I do when I am sick? (ฉันควรทำอะไรเมื่อฉันป่วย)

2. How can I do when I have a headache? (ผมควรทำอย่างไรเมื่อผมปวดหัว)

Answers:

ใช้ Should และ Shouldn’t ในการให้คำแนะนำหรือข้อเสนอแนะ

1. ใช้ Should เมื่อต้องการให้ทำสิ่งใดสิ่งหนึ่ง เช่น You should sleep. = คุณควรนอน

2. ใช้ Shouldn’t หรือ Should not เมื่อสิ่งใดสิ่งหนึ่งนั้นเป็นสิ่งที่ไม่ควรทำ เช่น You shouldn’t run. = คุณไม่ควรวิ่ง

ข้อควรจำ

นักเรียนอาจขึ้นต้นประโยคด้วยคำว่า I think ที่แปลว่า “ฉันคิดว่า”ก่อนที่จะให้คำแนะนำก็ได้

For example

1. You should drink a lot of water every day.
2. I think you should not (shouldn’t) go to bed late because you are sick.

LESSON 5: Experience

ในบทนี้นักเรียนจะได้เรียนรู้การถามและการตอบคำถามเกี่ยวกับประสบการณ์ที่นักเรียนเคยทำหรือไม่เคยทำ

5.1 Have you ever?

Vocabulary: Talking about experience

1. Drive = ขับรถ
2. Ride = ขี่รถ
3. Plane = เครื่องบิน
4. Meet = พบปะ, เจอ
5. Camel = อูฐ
6. Try = พยายาม, ลอง
7. Stay = พักอาศัย
8. Travel = เที่ยว
9. Know = รู้, รู้จัก
10. China = ประเทศจีน

Grammar

นักเรียนสามารถใช้ Present Perfect เพื่อพูดเกี่ยวกับประสบการณ์ที่นักเรียนเคยทำหรือไม่เคยทำมาในชีวิต โดยใน ประโยคคำถามมักจะใช้คำว่า ever อยู่บ่อย ๆ ดังนั้นสิ่งที่นักเรียนกำลังจะได้เรียนต่อไปนี้แปลเป็นภาษาไทยได้โดยง่ายว่า “เคยไหม” เวลาตอบคำถามจึงตอบได้เพียงแค่ Yes หรือ No

*** Present Perfect: Subject + have/has + V.3**

Questions:

1. Have you ever + V. 3 (been/met/learned)? (คุณเคยไป/เจอ/เรียนไหม)
2. Has he/she ever + V.3? (เธอเคย…ไหม)

ส่วนในการตอบนั้นจะมีอยู่ 2 อย่างคือ Yes หรือ No ดังตัวอย่าง

Answers

1. Yes, I have./No, I haven’t. ใช่ ผมเคย/ไม่ ผมไม่เคย
2. Yes, she has./No, she hasn’t. ใช่เธอเคย/ไม่ เธอไม่เคย

ข้อควรจำ

1. ใช้ **has** กับสรรพนามบุรุษที่สามที่เป็นเอกพจน์ เช่น he, she, it นอกเหนือจากนี้ให้ใช้ **have** เช่น I You We They

2. กริยาช่องที่สาม มีวิธีการใช้อยู่ 2 รูปแบบหลัก ๆ คือ

2.1 กริยาปกติเติม ed ได้เลย เช่น played, walked, talked และอื่น ๆ

2.2 กริยาไม่ปกติอาจจะมีการเปลี่ยนรูปหรือใช้รูปเดิม สามารถดูได้ในตาราง irregular verbs

Exercise 5.1: Talk about experiences
Direction: Ask and answer the questions by using "Have you ever ...?"
A: Have you ever …?
B: Yes, I have./No, I haven't.

1.
slept in a tent
swum in a river
climbed a tree
learned English
done some sports
planted a tree

2.
fed a dog
caught a fish
drunk coffee
played games
ridden a camel
been to the sea

5.2 How long?

ในส่วนนี้ นักเรียนจะได้เรียนรู้การถามและการตอบคำถามเกี่ยวกับระยะเวลาหรือจุดเริ่มต้นที่นักเรียนได้เริ่มกระทำสิ่งใดสิ่งหนึ่ง

Vocabulary: Common Verbs

1. Since = ตั้งแต่
2. For = เป็นระยะเวลา
3. Hour = ชั่วโมง
4. Week = สัปดาห์
5. Month = เดือน

6. Year = ปี

7. Last = ที่ผ่านมา

8. Young = วัยรุ่น, อายุน้อย

9. Spring = ใบไม้ผลิ

10. Autumn = ใบไม้ร่วง

Grammar

ในส่วนนี้นักเรียนจะได้เรียนเกี่ยวกับการถามถึงระยะเวลาหรือช่วงที่เริ่มต้นในการทำสิ่งใดสิ่งหนึ่ง โดยใช้คำว่า How long? ในการถามคำถาม แปลได้ง่าย ๆ ว่า นานเท่าไรแล้ว

Questions:

1. How long have you studied in this school? (คุณเรียนที่โรงเรียนนี้มานานเท่าไรแล้ว)

2. How long has he/she stayed in Thailand? (เขา/เธออยู่ที่ประเทศไทยมานานเท่าไรแล้ว)

Answers:

1. I have studied in this school since December/for five years. = ผมเรียนที่โรงเรียนนี้ตั้งแต่เดือนธันวาคม/มาเป็นระยะเวลาห้าปีแล้ว

2. He/She has stayed in Thailand since last summer/for ten weeks. = เขา/เธอท่องเที่ยวในประเทศไทยตั้งแต่หน้าร้อนที่แล้ว/มาเป็นระยะเวลาสิบสัปดาห์แล้ว

ข้อควรจำ

ใช้ for เพื่อบอกระยะเวลา และใช้ since เพื่อบอกจุดเริ่มต้นของสิ่งที่ทำ เช่น

1. For = เป็นระยะเวลา

2 hours, 10 weeks, 5 months, 3 years, many day/weeks/months/years

2. Since = ตั้งแต่

Last spring/summer/autumn/winter
1999, 2015
I was young, Last week/month/year

Exercise 5.2: Talk about experiences
Direction: Using the provided phrases to ask and answer questions.
For example:
A: How long have you ...?
B: I have … for/since…

1. Known me
2. Lived in this city/town
3. Been in Khon Kaen
4. Learned English/Thai/Math
5. Met me/your best friend
6. Stayed in Thailand
7. Fed a dog
8. Started playing games
9. Watched TV
10. Drunk milk

5.2: How long?

A:

1. How long have you learned history?
2. How long has your mom stayed in England?
3. How long has your sister lived in this house?
4. How long have you played football?
5. How long has your brother worked here?
6. I've learned history since last year.
7. My mom has stayed in England for 10 years.
8. My sister lived in this house since she was young.
9. I have played football since last spring.
10. My brother's worked here for 4 weeks.

B:

A. น้องสาวของฉันอาศัยอยู่ในบ้านหลังนี้ตั้งแต่เธอเป็นวัยรุ่น

B. แม่ของฉันอาศัยที่อังกฤษมาเป็นระยะเวลา 10 ปีแล้ว

C. คุณเล่นฟุตบอลมานานเท่าไรแล้ว

D. ฉันเรียนประวัติศาสตร์ตั้งแต่ปีที่แล้ว

E. คุณเรียนประวัติศาสตร์มานานเท่าไรแล้ว

F. พี่ชายของผมทำงานที่นี่มาเป็นระยะเวลา 4 สัปดาห์แล้ว

G. ผมเล่นฟุตบอลตั้งแต่ฤดูใบไม้ผลิปีที่แล้ว

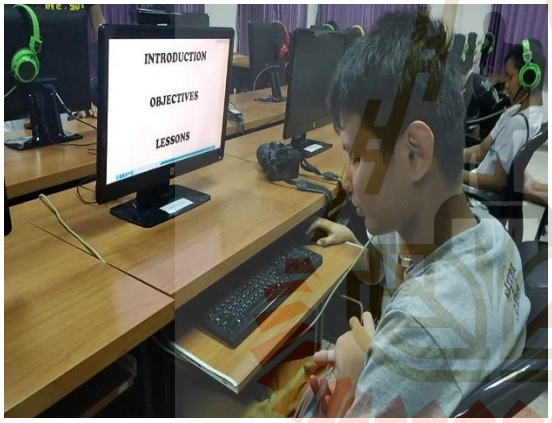
H. พี่ชายของคุณทำงานที่นี่มานานเท่าไรแล้ว

I. แม่ของคุณอาศัยที่อังกฤษมานานเท่าไรแล้ว

J. น้องสาวของคุณอาศัยอยู่ในบ้านหลังนี้มานานเท่าไรแล้ว

APPENDIX L

The Nakhon Ratchasima School for the Blind



The Khon Kaen School for the Blind

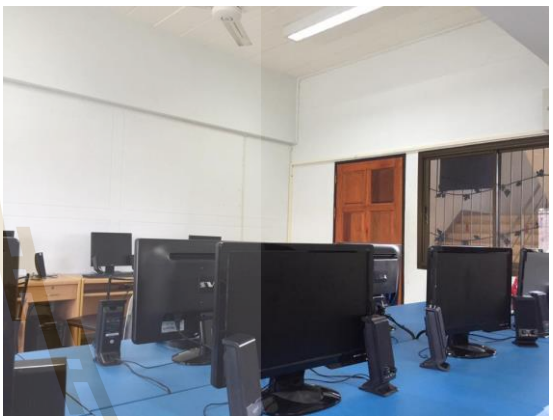





โรงเรียนการศึกษาคนตาบอดขอนแก่น
มูลนิธิธรรมิกชนเพื่อคนตาบอดในประเทศไทย ในพระบรมราชูปถัมภ์



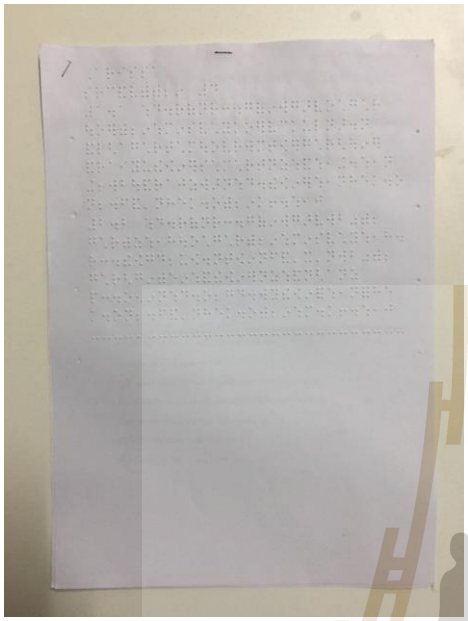
BUNG NONG KHOT
โรงเรียนการศึกษาคนตาบอด
KHONKAEN SCHOOL FOR THE BLIND

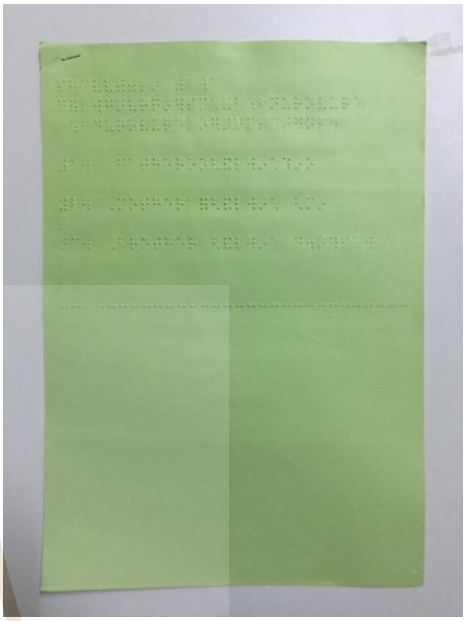



ศูนย์เทคโนโลยีการศึกษาคนตาบอด
กระดาษเบรลล์เจาะรู 180g
12.5" x 11"
1,000

Examples of the assignments that the blind students did outside classroom

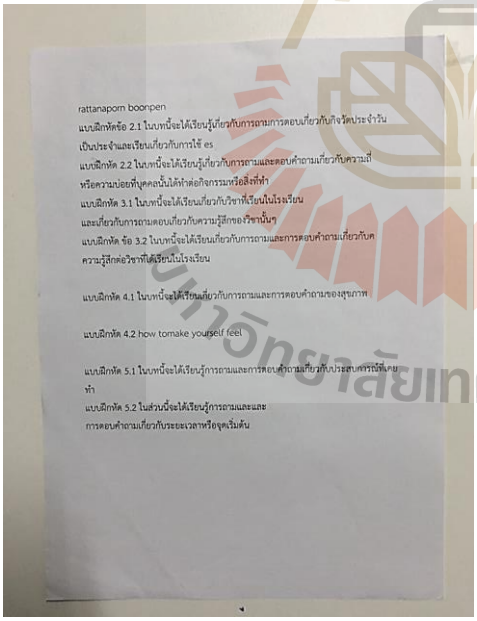
a) Braille

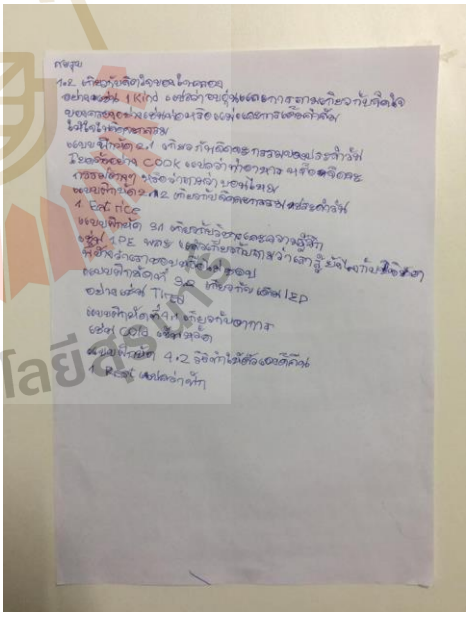




b) Typing

c) Handwriting





CURRICULUM VITAE

Arnon Jannok was born on April 24, 1992 in Bangkok, Thailand. He graduated from Khon Kaen University in 2014 with a Bachelor of Arts degree in English.

On graduation from Khon Kaen University in 2014, Arnon Jannok began his teaching career at Assumption Convent Lamnarai School, Lopburi Province, Thailand. He taught the students in Intensive English Program (IEP).

In 2015, he enrolled his Master's degree on English Language Studies (ELS) program at the School of Foreign Languages, Institute of Social Technology, Suranaree University of Technology, Nakhon Ratchasima Province, Thailand. His research interests include Special Education, Computer-Assisted Language Learning (CALL), Language Testing and Assessment, and English Language Teaching Methodologies.