

CHAPTER 1

CONTEXT AND GENERAL PROBLEMS

1.1 Special Needs Education in Thailand

Thailand covers an area of approximately 513,115 square kilometers with a population of 67,070,000. Education is enforced for all children from grades one (ages 5- 6) to nine (ages 14-15) With English increasingly becoming the international or global language, many ministerial and educational organisations have identified the need to improve the competence of Thai students in communicating in English. English skills are critical for students to compete with people from other Asia Pacific nations, The plan is to develop into a single ASEAN economic community, beginning in 2015. Consequently, Thailand is seeking to address the problems that are associated with learning how to communicate in English for primary school students by setting up policies and strategies to that will support an effective teaching of the English Language at every level of the educational system (Punthumasen, 2007). The need to communicate and utilize language is a fundamental human right (Corina, 1998), but students with disabilities are often at a disadvantage when learning a language.

In 2009 Thailand had a total of approximately 7,894,875 school age students with approximately 104,119 of those being disabled. Of those disabled, around 13,494 study in special education schools: approximately 5,637 have a hearing impairment (NISE, 2010). Disabled students are classified into one of the following eight categories: visual impairment, hearing impairment, intellectual disabilities, physical/motor disabilities or health impairments, speech and language impairment, behavior/emotional disturbance, learning disabilities (LD) and autism and multiple disabilities (Traiwicha, S. 2008). In Thailand, education for children with all types of disabilities is provided by the Bureau of Special Education Administration, Ministry of Education. Disabled Thai children receive educational services from 43 special education schools placed throughout the Kingdom. Within these 43 schools, there are two schools for the visually impaired, 20 schools for the hearing impaired, 19 schools for children and young adults with intellectual/mental disorders and two schools for

persons with physical and health related disabilities (NISE, 2010). Language and communication skills are particularly crucial for deaf and hard of hearing students (Siegel, 2002) and as of 2010, there were 5,637 hearing impaired students in Thailand, taught within schools for the hearing impaired. In 2007, the overall population in Thailand with a hearing impairment (deaf and hard of hearing) was around 243,044 (National Statistical Office, 2007). Given the importance of language and communication to deaf students and the emphasis placed on learning English, this thesis investigates a new method to learn the English vocabulary by conducting a case examination at the Anunsarnsoontorn School for the Deaf in Chiang Mai, Thailand.

1.2 Background of Case Study

The Anusarnsoontorn School for the Deaf is located in the city of Chiang Mai, Northern Thailand. The school is supervised by the Bureau of Special Education, under the control of Thailand's Ministry of Education. There are currently 330 students with a hearing impairment and 75% of these students reside in school for the purpose of safety and convenience. There are 45 teachers employed to carry out lesson planning and teaching for these students. The development of academic services for teaching is via joint project with the Deaf School Rotary Club and Chiang Mai University. Originally, the school used a pictorial paper-based method for students to learn English vocabulary, but this was passive, with students only developing a transient understanding and knowing only what they had been taught at a particular moment. Students are often not able to put their language learning into practice when called upon to use the word. It was believed that if these students were to study pictures of each situation they would then be able to develop their memory retention skills. However, this technique could be improved as learning materials were separate from the context. For example, individual learning subjects would be kept in piecemeal fashion within a file and divided from the whole learning topic. As a result, this has made it difficult for learners to integrate the whole learning concept. Furthermore, these students miss out on developing their language retention skills.

This school implemented the Total Communication (TC) philosophy in the teaching process. The means of communication mainly focus on sign language (Thai Sign Language), voice (Thai), finger spelling (Thai – Numeric - English), lip reading (Thai), amplification, writing (Thai - English), gesture, visual imagery (pictures) (Mayer and Lowenbraun, 1990). The teachers manually prepare the class and teaching materials to support TC, for example they mainly use the picture/ vocabulary card and Thai sign language for teaching the vocabulary in the class and use other communication methods to represent teaching time, such as finger spelling, and lip reading. The limitation of learning materials have a negative effect on the teaching class which does not provide a sufficient time for learning all the courses. For example, they focus on Thai and Mathematic at the primary level rather than teaching English as a second language during this period. In terms of teaching English, Thai deaf school mainly focus on Thai sign language and Thai writing. These schools start to teach basic English in Primary level four (12 -13 years old). They teach English by using Thai Sign Language (TSL) which is the national sign language that is currently taught in most parts of the country. When learning English, these students proclaim that they are having problems in obtaining development due to a lack of basic skills in spelling, syntactic acquisition and difficulty in writing compound sentences with limited vocabulary (Wicha, 2009). Although some of these problems can also be common to other English learners, the language acquisition of hearing impaired students is severely affected by their auditory access to spoken language input which resorts to heavily relying on their visual channel (Berent & Clymer, 2007). Despite the many challenges confronting these learners, their curriculum must meet the same English language requirements as their normal peers (who already have an advantage in hearing) in order to survive in the 21st century.

The teachers at Anusarnsoontorn School took the initiative to understand if there was a better way for their students to learn English. The school approached the College of Arts, Media and Technology, Chiang Mai University to find an improved solution that will allow their students to develop the necessary skills and abilities of recognizing English language vocabulary.

Initial findings from Anusarnsoontorn School were gathered by analyzing the curriculum taught by the instructors in the classroom and comparing this with the curriculum from the Thai Ministry of Education that is used by teachers in mainstream Thai schools. Based on initial observations, it was found that primary students from Anusarnsoontorn School had limited opportunities in learning the English language. This lack of opportunity led to limitations in being able to acquire vocabulary, construct sentences, and practice grammar. The lack of opportunities in learning the English language was ultimately due to limitations of the instructors and learning media. The school's focus was on Thai sign language, Thai written language with a relatively scarce amount of English language learning. In comparison with mainstream students at the equivalent primary level five (12-13 year olds) these students would be considered at an extreme disadvantage in terms of communicating in English. Figure 1 portrays the comparison between deaf students and mainstream students in terms of learning English.

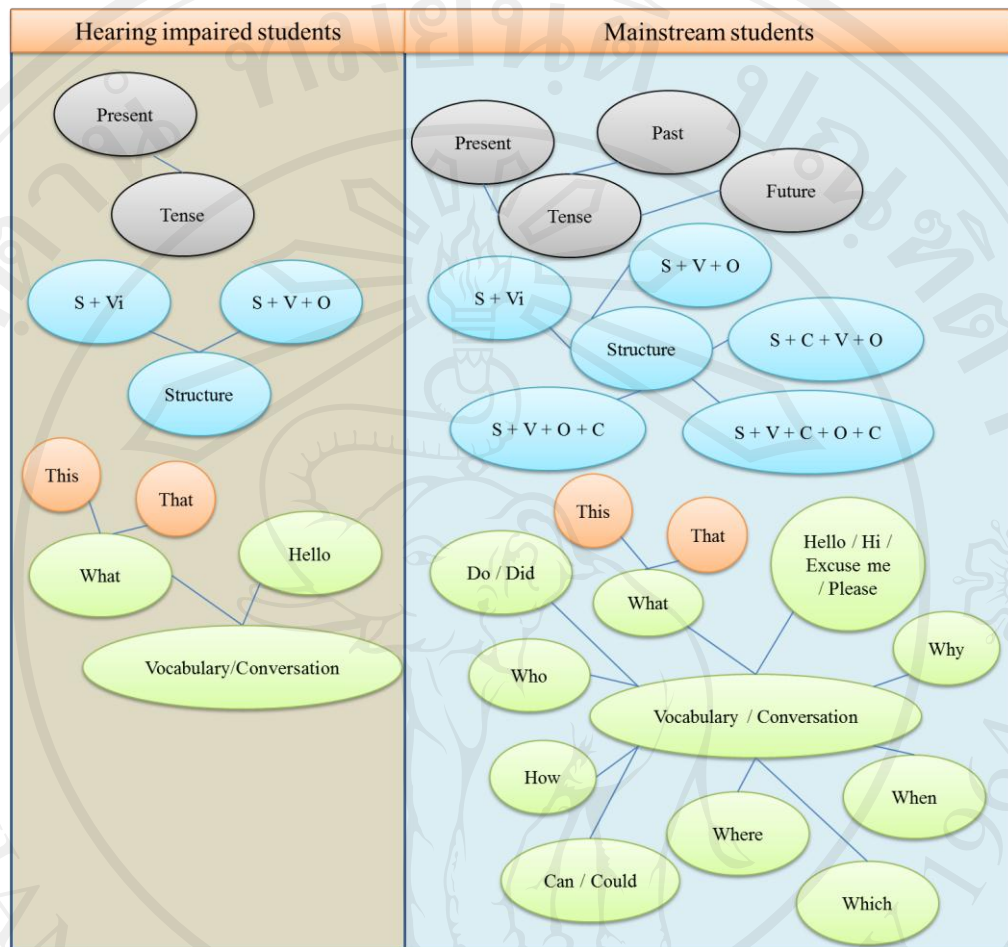


Figure 1.1 Analysis based on curriculum content of English between Chiang Mai School for the Deaf (Anusarnsoontorn School) and mainstream students curriculum from the Ministry of Education, Thailand.

Based on the initial findings and problems in learning English at Anusarnsoontorn School, this research proposes a Total Communication with Animation Dictionary (TCAD) as a conceptual tool, which is considered as a practical guide to “eight ways for communication”. The eight ways are; sign language, finger spelling, auditory, lip reading, picture captioning, reading, writing and vocabulary. Situational learning that develops a situational vocabulary game for learning is also investigated in this research to enhance English language skills and is known as “TCAD+” and “TCAD++”. The related vocabulary knowledge and situated vocabulary learning will be combined with total communication to create a tool that

will support hearing impaired students to learn more effectively and will utilize vocabulary examples as if they were in a real situation and using English in the context of their daily life. Such a tool would fulfill the needs of Anusarnsoontorn School by creating a device to improve the instruction of English vocabulary for these students. It is expected that a tool focusing on effective English language learning for deaf students in Thailand will be essential to lead these students in understanding how to learn and ultimately propel them towards life-long learning. A formal hypothesis of how such a tool might work and the expected results is given below.

1.3 Research Hypothesis

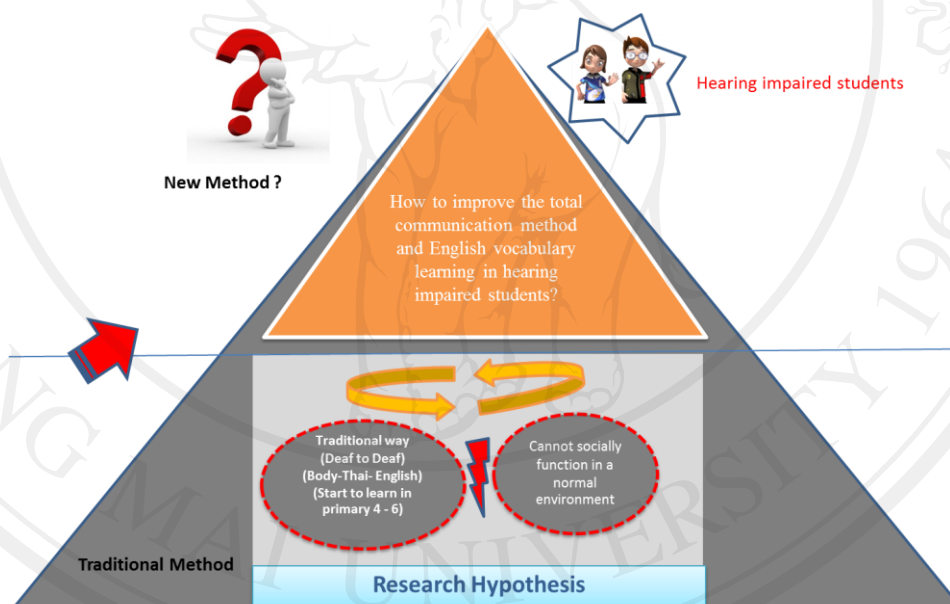


Figure 1.2 Research Hypotheses

Total Communication with Animation Dictionary (TCAD), as a new method, will improve and enhance effectiveness in short term/long term memory/memory retention/communication of English vocabulary for hearing impaired students. The TCAD system will support English vocabulary learning of the hearing impaired students of primary level one to three instead of the traditional method where learning English begins in primary levels four to six. The expected result is that their English vocabularies will increase after the use of TCAD system and will be more effective

than the current, traditional methods of learning English. These hypothesis creates an aim and set the research questions.

1.4 Research Questions

The aim of this study is to enhance English language skills for hearing impaired students through the use of information technology as the new method to improve English learning called Total Communication with Animation Dictionary.

The key research questions in this thesis are as followed:

- How can the TCAD for hearing impaired students be systematically developed?
- How can the TCAD improve the English learning in term of vocabulary knowledge and reading ability for hearing impaired students?

1.5 Research Objectives

To answer the research questions outlines above, the main objectives of this study are as followed:

- To develop the TCAD for hearing impaired students
- To compare the hearing impaired students' vocabulary knowledge after using the TCAD
- To compare hearing impaired students' long term vocabulary retention using the TCAD
- To compare hearing impaired students' reading skill using the TCAD

1.6 Problem Justification

Justification and motivation for the research problem were derived from a lack of research in investigating Total Communication (TC) for deaf students in learning English. Instructors at the previous Deaf School did not have the appropriate materials necessary to improve the English language knowledge for students with a hearing impairment. Traditional teaching at this school focused only on sign language

and Thai language contents without the situational context to improve English as the second language learning at the optimum level. Therefore, this research is aimed at improving the English language organization with vocabulary learning by using situational learning in the optimal level that was previous to learning a second language (Primary one to three rather than Primary four to six). In addition, the thesis investigates animation with total communication skills to enhance the learning skills of the hearing impaired by integrating TCAD with situational learning as a language immersion tool to develop the long-term English vocabulary memory of students with a hearing impairment.

1.7 Scope of Work and Outline of Thesis

The main goal of the first part of this research was to collect primary data. Since this research has never been carried out in Thailand, TCAD was initially based on existing resources.

In the first step, user requirements were obtained for developing a software animation dictionary. Documents pertaining to manuals based on teaching and testing physically impaired students were then analyzed. These documents were compared to the national manual for teaching and testing mainstream students in regular school. The focus was on primary school vocabulary levels of Math, Thai and English subjects.

In the second step, a mock up animation dictionary software was developed using the “Total Communication” method as modes of communication (manual, oral, auditory, and written). In this research the principles of Total Communication were adapted to provide “8 ways for communication”: sign language, finger spelling, auditory, lip reading, picture captioning, situation learning, reading, and writing. These were then assembled with multimedia and programming techniques that were comprised of 3D animation, Sound, VDO and Web programming for creating a total communication environment.

In the third step, software testing was conducted by implementing animation with a manual for teaching pedagogy. This software showed validity in the area of measuring what was the best way to find out how students were able to learn in such an environment. The combination of teaching manual and animation turned out to be the most effective method for developing the learning skills of the student as well as making the teaching techniques more effective in the classroom. This software was flexible enough to meet individual needs of those with a hearing impairment. For example, someone who may be totally deaf can gain the same learning benefits as someone who may be half deaf. Such a device can be considered as a ‘one size fits all’.

Finally the device is tested by comparing pre-test and post-test examination based on long-term vocabulary retention and reading skills that is taught through TCAD to evidence by learning theory comparison and find the significance, validity and applicability for confirming the learning method.

1.8 Definitions

Total Communication refers to the modes of communication (manual, oral, auditory, and written). In this research we adapted the principles of Total Communication to “8 ways for communicating”: sign language, finger spelling, auditory, lip reading, picture captioning, situation learning, reading, and writing for Hearing impaired students

Animation Dictionary refers to the English vocabulary program that features a 3D animation model, situational learning by 3D movie, and lip reading movie that supports the way of total communication. Animation Dictionary is the mobility device for access learning at anyplace at any time.

Total Communication with Animation Dictionary system (TCAD) refers to a tool to be utilized in the English vocabulary program. Activities are based on encouraging hearing impaired students to learn a lot of vocabularies. The English vocabulary program is a language immersion tool using animation, situational

learning as an applied tool for creating an intellectual learning environment, improving English language skills and enhancing vocabulary memory.

English vocabulary knowledge refers to the knowledge of vocabulary of the hearing impaired students. Vocabulary knowledge consists of knowledge of meaning, spelling, and applying the vocabulary.

English reading ability refers to the hearing impaired students' ability to read and comprehending the texts which can be evaluated by a reading comprehension test.

Students with hearing impairment refer to the deaf in primary school level 1 to 3 at Anusarnsoontorn School for the deaf in Chiang Mai, Thailand.