(6)
21

acll2013

The Asian Conference on Language Learning 2013

April 25-28, 2013

Organized by the International Academic Forum in affiliation with conference partners Waseda University (Japan), Birkbeck, University of London (UK), The National Institute of Education (Singapore), Tainan University (Taiwan), and the Hong Kong Institute of Education (HKSAR).

Held at the Ramada Osaka
3-16-19 Toyosaki, Kita-Ku,
Osaka City, Osaka Prefecture, Japan 631-0072

Certificate of Participation

Kanyanat Plaewfueang
(King Mongkut's University of Technology Thonburi, Thailand)

has presented the paper entitled:

A Design of an Interactive Multimedia Learning Environment for Supporting Reading Skills of Deaf Individuals

This is to confirm that Kanyanat Plaewfueang (0378) has actively participated in the Third Asian Conference on Language Learning, and thereby contributed to the academic success of the event.

Please contact me for any further details.

Joseph Haldane
Executive Director
The International Academic Forum

IAFOR
The International Academic Forum
Academic Vision and Mission

The vision of iafor grew out of the perceived need to fill a vacuum in the communication and exchange activities of the academic world. Its mission arose out of examining that space and investigating why it existed. The vacuum existed because of the lack of opportunity for serious and thoughtful exchange between academics, members of the global business community, and practitioners in the fields of human endeavor that linked these groups together. In the field of education, for example, we have academic theorists, educational mangers (political decision-makers and organizational directors) and classroom teachers with their support staff in IT, library work, exchange programs, and specialist fields. But how often do they have the opportunity to interact?

Moving beyond one particular field, larger questions arise. What function should universities prioritize in the 21st century? What do businesses see as their contribution to social and global wellbeing? How can people on the ground, trying to implement improvements that will transform human life, best be supported? And perhaps above all, what are the agendas that will drive mechanisms to enable these groups to interact effectively.

One piece of distilled thought that came from early exchanges at an iafor conference was the recognition that some of the rhetoric of concern about the problems of developing nations was perhaps over-focused on the term "poverty" because it can be defined only in a relative way. "Hunger" was put forward as being more immediate and itself a contributory factor to poverty, rather than the other way round. One key to the hunger issue could be the provision of safe drinking water, or water for irrigation in some contexts, while flood management might be necessary elsewhere. These, in and by themselves become valuable only insofar as they help to relieve hunger in specific contexts.

Iafor is affording opportunities that do not exist elsewhere. The base is Osaka, Japan's great commercial and manufacturing hub, one symbol of the emerging Pacific economy that in time will eclipse the long dominant Atlantic zone. iafor conferences present those taking part with three unique dimensions of experience. First of all, it encourages interdisciplinary activity to be expanded. Depending on the field, this can face varying degrees of difficulty, ranging from discouragement to downright prohibition. Those overly dependent on fixed academic structures often see lateral thinking as a threat. None of these negatives apply in iafor. Its purpose is to generate new approaches that cross any disciplinary lines. The principle employed is to let the imagination permit intuitive responses to questions. There are no panels of critics. There are simply people who want to listen and reflect. The model of academic work as potholing is replaced by the metaphor of mountaineering. While respecting the need for solid and well-founded academic work, we feel the need to go beyond it from time to time to discover fresh approaches to old questions.

Secondly, it facilitates the heightening of intercultural awareness. Again, iafor encourages innovation through cross-cultural perception. Cultural roots influence people in their attitudes more than most would realize or admit. The need to see and internalize insights gained from other viewpoints is met by a process of steady illumination.

Thirdly, it promotes the broadening of international exchange. We may liven a globalized world, but in reality parochialism still holds sway. The collapse of the U.S.S.R and the break-up of Yugoslavia led to the re-establishment of numerous former countries. While this may be desirable for the peoples concerned, it merely adds to the world's cultural confusion. Exchange leads to explanation and that helps the growth of intercultural awareness.

Iafor makes all of these developments possible in one gathering. An iafor conference is not a substitute for specialist conferences. It is intended to be an alternative that functions as a balance or even a corrective to the extreme tendencies that can arise from more narrowly defined research parameters. In short, iafor is promoting and facilitating a new multifaceted approach to one of the core issues of our time, namely globalization and its many forms of growth and expansion. Awareness of how it cuts across the worlds of business, and academia, along with its impact on societies and institutions is one of the driving forces that has given iafor its momentum and is making it a pioneer in this global age.

Rev. Professor Stuart DB Picken
Order of the Sacred Treasure (瑞宝中授章), M.A. (Hons), B.D., Ph.D., F.R.A.S.
Chairman, Japan Society of Scotland
Chairman, IAFOR Advisory Board

Dr. Joseph Haldane
B.A. (Hons), Ph.D., F.R.A.S.
Executive Director, IAFOR

people

Committee Members

D.B. Picken, Chairman, IAFOR IAB (chair)
Koyama, Founder of the PHP Institute, Kyoto, Japan & Director, the Yufuku Gallery, Tokyo, Japan
Miyanaga, Director, the Human Potential Institute, Tokyo, Japan and Fellow, Reischauer Institute, Harvard University, USA
Nakano, Professor & Director of the Distance Learning Center, Waseda University, Tokyo, Japan
Ogata, Director of the Center for Human Rights Affairs, Japan & Former UN Special Rapporteur on Myanmar
Haldane, Executive Director, IAFOR

International Advisory Board (IAB)

Ali, Lecturer, National University of Modern Languages, Pakistan
David N Aspin, Professor Emeritus and Former Dean of the Faculty of Education, Monash University, Australia & Visiting Fellow, St Edmund's College, Cambridge UK
Baber, Associate Professor, Kyoto University Graduate School of Management, Japan
Don Brash, Former Governor of the Reserve Bank, New Zealand, Former Leader of the New National Party, New Zealand & Adjunct Professor, AUT, New Zealand & La University, Australia
Bruce of Elgin and Kincardine, Lord Lieutenant of Fife, Chairman of the Patrons of the National Galleries of Scotland & Trustee of the Historic Scotland Foundation, UK
Judith Chapman A.M., Professor of Education, Australian Catholic University, Australia & Visiting Fellow, St Edmund's College, Cambridge University, UK
Chung-Ying Cheng, Professor of Philosophy, University of Hawai'i at Manoa, USA & Editor-in-Chief, The Journal of Chinese Philosophy
Hsien-Hui Chiang, Professor and Chair, Department of Education, National University of Tainan, Taiwan/Chinese Taipei
Chidgey, CEO, Captive Minds Communications Group, London, UK
Kevin Cleary, President of the Japan Association of Language Teachers (JALT)
Steve Cornwell, Professor of English and Interdisciplinary Studies, Osaka Jogakuin University, Osaka, Japan & Osaka Local Conference Chair
Michael A. Cusumano, SMR Distinguished Professor of Management and Engineering Systems, MIT Sloan School of Management, MIT, USA
Dexter Da Silva, Professor of Educational Psychology, Keisen University, Tokyo, Japan
Georges Depeyrot, Professor and Director of Research, French National Center for Scientific Research (CNRS)/Ecole Normale Superieure, Paris, France
Jackson, Professor of Lifelong Learning and Gender, Pro-Vice Master of Teaching and Learning, Birkbeck, University of London, UK
Henton, Dean, College of Human Sciences, Auburn University, USA
Michael Hudson, President of The Institute for the Study of Long-Term Economic Trends (ISLET) & Distinguished Research Professor of Economics at the University of Kansas City
Vice-Consul, The United States Department of State, USA
Khalid, Deputy Director, SAARC Energy Center, Pakistan
Head Private Sector Fundraising, United Nations World Food Programme Japan, Tokyo, Japan
Kong Lee, Director, The National Institute of Education, Singapore
Liu, Associate Dean, Practicum and School Partnerships, Teacher Education, The National Institute of Education, Singapore
Barbara Lockee, Virginia Tech, USA
Geoffrey Lloyd, Senior Scholar in Residence, The Needham Research Institute, Cambridge, UK, Fellow and Former Master, Darwin College, University of
Fellow of the British Academy, Honorary Foreign Member, The American Academy of Arts and Sciences
Loge, Associate Professor of Computer Science, Osaka Gakuin University, Japan
McLoughlin, Associate Professor, Meiji University, Japan
Meita, General Manager, The National Institute for Research and Development in Construction, Urban Planning and Sustainable Spatial Development (INCERC), Romania
Miller, Schewe Professor of Computer Science, The University of Illinois Springfield, USA & Editor-in-Chief, IEEE Technology and Society
Hannele Mitsutomi, Professor & Executive Director, The English Language Education Institute, Osaka Gakuin University, Japan
Ka Ho Joshua Mok, Chair Professor of Comparative Policy, Associate Vice-President (External Relations) & Dean of the Faculty of Arts and Sciences, The Hong Kong Institute
Hong Kong SAR
Associate Professor & Director of the SALC, Kanda University of International Studies, Japan
Nakano, Professor of English, Director of the Distance Learning Center, Waseda University, Tokyo, Japan
Newby, Director, Par les mots solidaires, Paris, France
Michael Pronko, Professor of American Literature and Culture, Meiji Gakuin University, Tokyo, Japan
Richard Roth, Senior Associate Dean Medill School of Journalism, Northwestern University, Qatar
Monty P. Satiadarma, Former Deanof the Department of Psychology and Rector of the University, Tarumanugara University, Indonesia
Sakamoto, Interdisciplinary Artist, UCLA, USA
Salaheen, Director, The United Nations World Food Programme, Japan & Korea
Sheppard, Asia Pacific Director, HOPE International Development Agency, Canada/Japan
Sommers, Associate Professor of Economics, University of Wisconsin-Milwaukee, USA & Visiting Faculty, Stockholm School of Economics, Riga, Latvia
Dr Drago Stambuk, Croatian Ambassador to Brazil
Mary Stuart, Vice-Chancellor, The University of Lincoln, UK
Mary Swanson, Distinguished Journalist-in-Residence & Mildred S. Hansen Endowed Chair, The University of Northern Colorado, USA
Wilkinson, Associate Dean (International & External Programmes), Faculty of Law and Management, La Trobe University, Australia
Yoneoka Yoshida, Professor of English & Director of the Center for the Teaching of Foreign Languages in General Education
University, Tokyo, Japan
Zalewicka, Political Correspondent, BBC Political Programmes, London, UK

Journal Editors

IAFOR Journals are ex-officio Members of the International Advisory Board

French, Associate Professor, Ritsumeikan University, Japan, Editor of the IAFOR Journal of Arts and Humanities
Kennedy, Lecturer, The University of Vienna, Austria, Editor of the IAFOR Journal of Literature & Librarianship
Koh, Associate Professor, Pikesville University, USA, Editor of the IAFOR Journal of Education
Lees, Assistant Professor, Ritsumeikan University, Editor of the IAFOR Journal of Business and Management
Nolle, Post Doctoral Fellow, Chapman University, USA, Editor of the IAFOR Journal of the Social Sciences
O'Sullivan, Associate Professor, The Chinese University of Hong Kong, Hong Kong SAR, Editor of the IAFOR Journal of Ethics, Religion and Philosophy
Petrisor, Assistant Professor, The National Institute for Research and Development in Construction, Urban Planning and Sustainable Spatial Development (INCERC), Romania, Editor-in-Chief of the IAFOR Journal of Sustainability, Energy and the Environment
Rowlins, Lecturer, Singapore University of Design and Technology, Editor of the IAFOR Journal of Media, Communication & Film
Sanatullova-Allison, Professor & Chair of the Education Department, St. Lawrence University, New York, U.S.A. Editor of the IAFOR Journal of Cultural Studies
Yasimoto, Lecturer, The University of Sydney, Australia

Sunday Session 1: 9:00-10:30 **Room: Hana**

ACTC - Multimedia

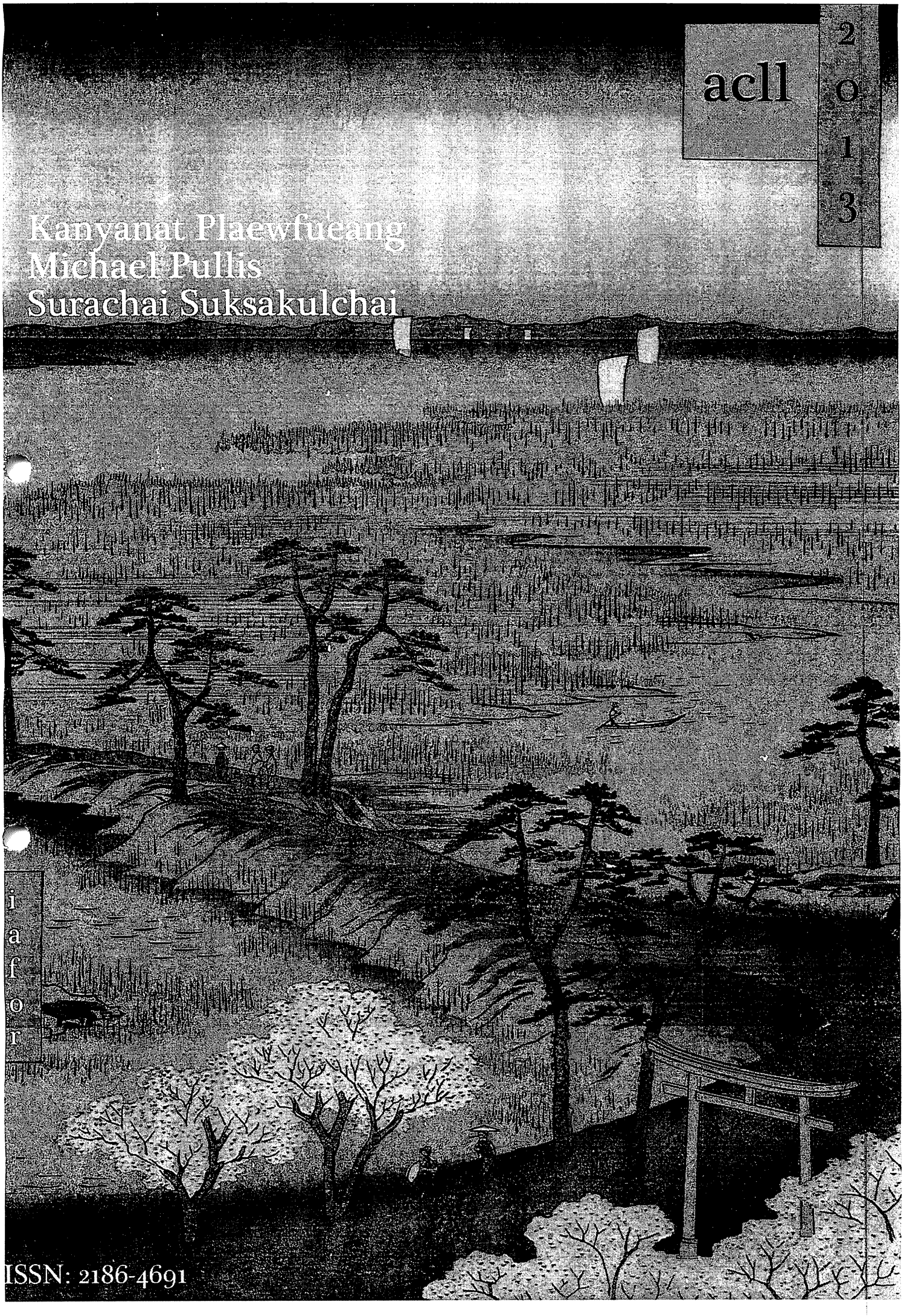
Session Chair: Kunthida Kunkhong

0073 – 9:00-9:30
Development of the Instructional Package Together with Augmented Reality, Pitsanulok, Naresuan University
Wiwat Meesuwan, Naresuan University, Thailand

0378 – 9:30-10:00
A Design of an Interactive Multimedia Learning Environment for Supporting Reading Skills of Deaf Individuals
Kanyanat Plaewfueang, Rajamangala University of Technology Thanyaburi, Thailand
Michael Pullis, University of Missouri, USA
Surachai Suksakulchai, King Mongkut's University of Technology Thonburi, Thailand

0154 – 10:00-10:30
Design System for Electronic Tale Book with Creative Activities to Enhance Creative Thinking of Elementary Students
Kunthida Kunkhong, Chulalongkorn University, Thailand
Noawanit Songkram, Chulalongkorn University, Thailand

Sunday



ISSN: 2186-4691

A Design of an Interactive Multimedia Learning Environment for Supporting Reading Skills of Deaf Individuals

Kanyanat Plaewfueang*[1], Michael Pullis*[2], Surachai Suksakulchai*[1]

*[1]King Mongkut's University of Technology Thonburi Bangkok, Thailand,
*[2]University of Missouri, USA

0378

The Asian Conference on Language Learning 2013

Official Conference Proceedings 2013

Abstract

Language learning is a process related to the skills in speaking, listening and learning to read and write. Reading is an activity in which humans acquire information and is therefore essential for deaf children. The purpose of this paper is to develop an interactive multimedia learning environment to promote reading skills for deaf children based on see and learn. The authors of this study focus on the idea that children should have the potential to develop learning to read based on the conceptual framework of see and learn which provides a framework for multi-media learning tools for deaf individuals. The main goal of this study is to incorporate first (sign language) and second spoken language skills as bilingual programs adapted from the hearing population model. Of particular interest is the nature of visual communication in relation to meaning, memory and identity. The study combines bilingual, visual and an interactive multi-media learning environment (tool) to improve individual - performance for deaf children. One mode uses text graphics to read Thai language by signing and with pictures. A second mode is used to recognize meaning from sign language and pictures.

This paper posits that deaf individuals can learn Thai written language and Thai sign language at the same time. The researchers found that deaf individuals can learn to read using the sign language picture story technique. The context of the story can be perceived through the text meaning and help children learn another language through picture and sign language. This current paper studies deaf children aged 10-13 years. The results confirm the expectation that deaf individuals can learn Thai-written language and Thai sign language at the same time.

Keywords: Deaf Individual, Picture Story Sign language, Interactive Multimedia

Introduction

A deaf child begins life with a high potential for language learning. This child needs a bountiful learning environment that will enable the language germ to grow into a mature language sun flower (see Figure 1). This sun flower illustrates the process of language learning that includes picture text (stories) and sign language (visual). The initial core of the sun flower continues to grow, to time release growth hormones that simulate root and leaf development as the stem, branches and leaves of plant are shaped by the plant's ecology (Schirmer, 1994). Sign language and visual communication are the origin and the innate core for establishing a language for the deaf. As the root of the sun flower grows, language becomes stronger and more mature. This study used observation and a literature review and found that deaf children are capable of learning visually (Chamberlain, Morford, & May berry, 2000). This is consistent with the nature of a visual language like sign language for deaf children (Hattal & Mandes, 1995). Thus, educators can provide support and nourishment for developing the sun flower. Learning sign language or a first language for the deaf child should be the same process as when a hearing child learns a second language. (Mueller & Hurtig, 2009) This study focuses on the "See and learn" technique in which children learn Thai sign language and Thai language in a multi-media learning environment. (see Figure 2)

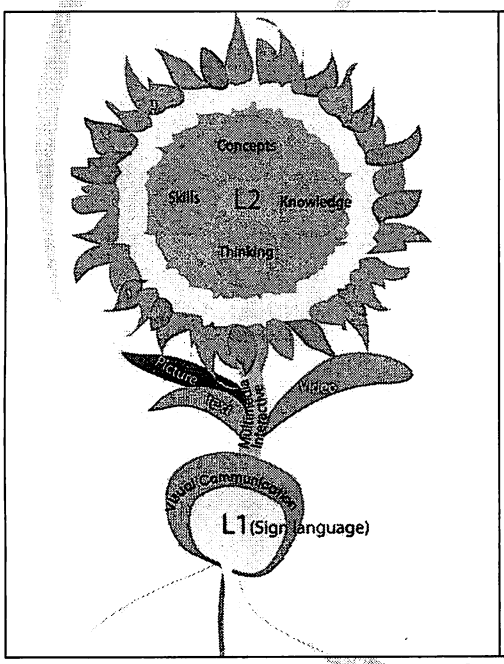


Figure 1 "See and Learns" Conceptual

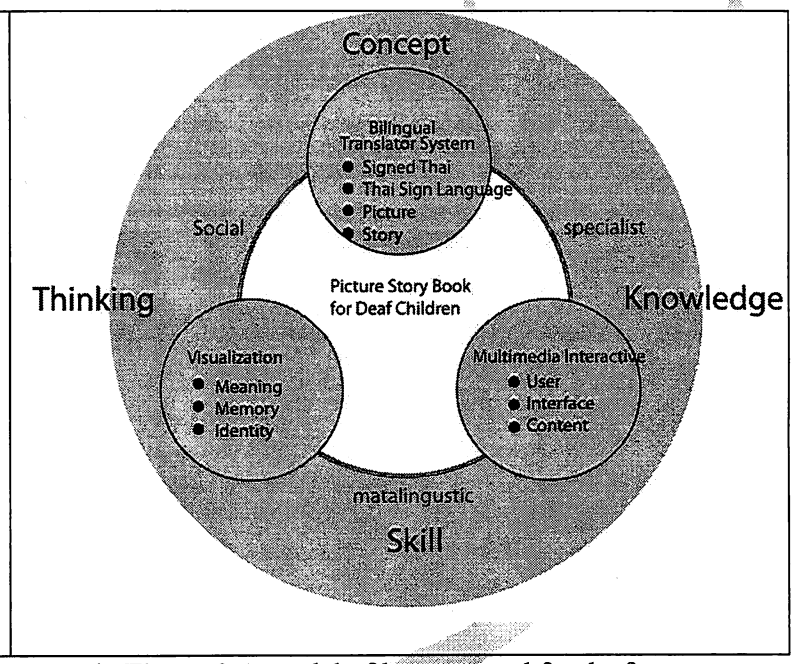


Figure 2 A model of learn to read for deaf children

The growth of language is shaped by a bilingual translator system; visualization and a multi-media interactive learning environment (see Figure 2). This paper has been on the development of reading skills in deaf children. Many educator according, Sign language such as American Sign Language (ASL) (Jr, 2005), Thai Sign Language (TSL) (Lam-Khong, Suksakulchai, & Kaewprapan, 2011) is well established as the LI, then literacy in written English (L2) can be achieved by means of reading and writing (Cummins, 1984). We have attempted to apply the theory of interdependence

language of bilingual-bicultural models of literacy education for deaf students (Hermans, Ormel, Knoors, & Verhoeven, 2008).

The authors have observed and a pilot test of the conceptual frame work with deaf children in the classroom found that the most children need to be encouraged to read, specifically deaf children. We provide user interface and content multimedia tools to support deaf children learning to read using the same approaches as teaching any new material. New learning has to be in manageable amounts, with the teacher using modeling, guiding student practice, helping student when they made errors (immediate error correction), providing for sufficient practice, and reviewing the basic material. (Marshal, M, & D, 2004/2005)This study suggests that strategies for reading skills practice need to focus on meaning, especially for deaf children. Learning to read increases the knowledge of spoken and written language and the knowledge of the topic of the text (Robertson, 2009).

This study found that, a) Many parents and caregivers haven't learned sign language and few use sign language. The result is that parents can't communicate with their deaf children. b) There is a lack of opportunity for both parents and their deaf children to learn sign language. c) Vocabulary learning in the classroom is difficult because deaf children need a great deal of individual education and classrooms and they have different levels of hearing. d) There is lack of material to practice reading skills in and out of the classroom with deaf children's parents. Moreover their parents and hearing peers can share learning in each language and make connections using the same tools and same time together.

This paper reports on research on "A design of an Interactive Multimedia Learning Environment for supporting reading skills of Deaf individual". This study is designed based on the characteristics of deaf individuals whose main focus is visual and sign language. This concept supports the development of a prototype learning environment for increasing reading skills of deaf children. This study combined three concepts: bilingual, visual communication and multi-media interactive learning environment using sign language picture stories. This prototype contains an environment that supports reading skills in two modes. Mode one is about understanding meaning in Thai writing stories using Signed-Thai. Mode two environments help the reader to understand Thai vocabulary based on Thai sign language. This environmental tool can also help deaf children understand the meaning and understanding Thai language sentences at the same time. How do children learn to read a second language, using visual sign language and stories story on their own? This paper will help deaf children and hearing people learn to read a second language together. Although each language has differences in form and characteristics, it can become on language environment with the "see and learn" concept.

A model of learn to read for deaf children based on "See and Learns" Conceptual

Deaf children develop reading skills at a slower pace in comparison to normal children. This is because deaf children lack direct experience in the learning of language by hearing sounds emitted by their parents and others from the time of birth (Johnson, Liddell, & Erting, 1989). Accordingly, Deaf children cannot learn language through the oral-acoustic-auditory nexus like those who can hear sounds (Ramsey &

Padden, 1999). As such, Deaf children use sign language for communication in lieu of oral speech (Chamberlain, Morford, & May berry, 2000); (Reeves, Wollenhaupt, & Caccamise, 1995). The spoken language differs from the written language (Hermans, Ormel, Knoors, & Verhoeven, 2008). Accordingly, all of these factors cause deaf children to have significant reading difficulties (Paul, 1996).

The reading problems of children who are deaf are thought to be linked to second language learning. Thus, if children cannot learn sign language, they often withdraw early from learning Thai spoken language, and also other associated linguistic deficiencies. Literacy skills have been essential concerns of educators of deaf children for decades. Regardless of learning how to apply language teaching techniques, educators' expertise is still delayed for deaf children (Schirmer, 1994), (Marshal, M, & D, 2004/2005). Children who are born deaf often do not have the cognitive and the language skills required to achieve reading fluency higher than the fourth grade level. A report published by The Center for Assessment and Population of Gallaudet University focused on the achievement of Stanford test scores from 1989 to 1990. The report compared the academic year scores of 15 year old deaf students with the same aged hearing students. This comparison indicated that the average of a hearing 15 year old students reading at the 10^{th} grade level and the average for a deaf or hard of hearing student was only the fourth grade level (Johnson, Liddell, & Erting, 1989). Deaf children grades 2-4 take a reading standard test of Thai language and the Ordinary National Education test (O-Net) .These children had scores below 50 percent which were lower scores than typical hearing children. (Lam-Khong, Suksakulchai, & Kaewprapan, 2011).

This paper applied the concept of learning to read in a second language, a bilingual, visual and multimedia interactive ideal based on concept of "see and learn" (SAL) of word-meaning. That is deaf students learn based on seeing the meaning not hearing (Chamberlain, Morford, & May berry, 2000). The author's Specific ASL Picture Story technique has a relation to reading skills in an environment that promotes reading skills and focuses on the characteristics of learners with visual perception not voice recognition or auditory perception (McAnally, Rose, and Quigley, 1987). This current study believes that the Hearing aid might do not fully compensate for deaf children's loss of sound. Deaf children, who lack of access to spoken language, do not hear and learn to read presumably by visual means (Reeves, Wollenhaupt, & Caccamise, 1995). This paper does not focus on the sound process. Deaf children are visual learners and communicate with gestures, which require vision. (Reeves, Wollenhaupt, & Caccamise, 1995) (Jr, 2005). Some deaf children do not understand the visual perception from their parents when acquired language (Nikolaraizi & Vekiri, 2011). Basic visual perception needs to develop a sequence and a sound. (Kauffman & Hallahan, 2004). Infants with hearing losses are sensitive to early visual experiences that form the basis of later language acquisition (Scherer, 2004). As hearing infants are particularly sensitive to the sound of language in the first few months of life they can become aware of the sentence (Klein, Learning: Principles and Applications (6th ed.), 2012).

This present study examined the literature and found that low literacy rates of deaf children affect their ability to learn in the classroom. Many studies have pointed to evidence that educators can compensate the loss of hearing by the adjusting materials (for example, by rewriting the textbooks to a lower vocabulary level) (Johnson,

Liddell, & Erting, 1989). Some reviews studied related literature and a preliminary survey of the development of deaf children indicated that they lack linguistic skills because they cannot adequately learn how to use language from their parents and others in their environment (Mueller & Hurtig, 2009). More importantly, more than 90 percent of H-I children have hearing parents who do not learn sign language on par with the natural language they learned as they matured (Swanwick & Watson, 2007). Moreover, Deaf children of hearing parents sometimes acquire ASL skills at school, although this is more prominent among native signers. This state of affairs also shows that learning language in the family setting and at educational institutions is discontinuous for these deaf children (Johnson, Liddell, & Erting, 1989).

The study of sign language commences at an early childhood level with practicing sign language vocabulary concurrently with practice using the Thai language. Children also practice speaking, writing and spelling in a manner duplicating the process of language learning which begins at an early age (Scherer, 2004). This study found that development for these deaf children is slow paced and so required guidelines and tools that can be used to widen the experience of these children in language learning. Although research has not yet guaranteed a success that this can make deaf children better readers. These factors are related to the ability of deaf children to learn to read. Sign language is necessary for reading and writing development in deaf children but sign language is not sufficient for teaching deaf children read (Chamberlain, Morford, & May berry, 2000).

Consequently the authors found that hearing parents lack interaction in the learning process of their deaf children. However, we believe deaf children's hearing parents need to connect, communicate learn together with their children (Mueller & Hurtig, 2009). Some research found deaf children and deaf parents have the ability to learn together similar to hearing parents with hearing children (Swanwick & Watson, 2007). Both deaf children and their hearing parents need to participate in language learning and learn how to use a shared communication system (McAnally, Rose, & Quigley, 1987). The author found there are some gaps that are essential for deaf children who are learning to read. Deaf children who started learning a first language (sign language) from a non-native language (hearing parent) need to master interpreting or translating using sign language (Klein, Learning: Principles and Applications (6th ed.), 2012).

Multimedia process with reading and deaf children

This paper explored the potential use of computers for implementing effective reading instruction found in the report of The National Reading Panel (2000). Various topics studied included the use of computer technology in instruction of vocabulary, word recognition, comprehension, and spelling (Marshal, M, & D, 2004/2005). The National Reading Panel suggests that computer technology can be used to guide the teaching of reading, especially in speech to computer-presented text. At the very least, computers can offer students the opportunity to interact with text more frequently than with conventional instruction alone (Trezek, Wang, & Paul, 2010). Although the multimedia programs are designed to support the teaching of reading with children, if these methods lack guidelines that support experiencing language for the reader they won't motivate children to learn to read (Mueller & Hurtig, 2009).

The research found that as indicated above, computer technology alone cannot be considered an effective reading instruction strategy; the effectiveness of computer technology in reading instruction should be examined within the context of how well it facilitates instruction such as vocabulary comprehension (National Reading Panel, 2000). Most research has recognized that in order to stimulate deaf children to learn to read, visual information and sign language used together can motivate deaf children to become better readers (Nikolaraizi & Vekiri, 2011). On the other hand, studies have found that using picture stories simultaneously with sign language and emotion can help deaf children learn more efficiently, especially when deaf children learn to read with parents (Epstien & Wolfson, 2005) (Yoon & Kim, 2011). Another study relating to technology-enhanced shared reading with deaf and hard of- hearing children examined the role of a fluent signing narrator creating reading experiences for deaf children (Mueller & Hurtig, 2009).

The role of the development of continued models of environment interactive multimedia in support reading for deaf children

This present paper explores the areas of reading that are associated with forming written words on page and not the entire sentence (Olson, 1994). The children's literacy experience refers to creating a conjecture or imaginative reading of a single word or phrase to allow memory (Epstien & Wolfson, 2005). The multimedia learning tool of this current study contributes significantly to the process of learning to read. The "Click to choose words" technique enables the reader to engage or interact with the text. However, the choice is not able to make a successful reader if the reader is not familiar with the text because there will be a lack of perceived meaning. Most research believes that cognitive learning needs motivation in order to use material to assist in the reading of the deaf individuals who have difficulties learning and have a lack language experience. There have been more problems with learning materials themselves (Mayer,2009) and research reports indicate that if learning content is composed only of visual materials (captioned sign language), the cognitive load increases (Yoon & Kim, 2011).

This multimedia environment wants to help deaf children learn a second language (Thai written language) and to continue simultaneously to learn a first language (sign language-Thai sign). And then Children acquire meaning in a second language (Thai language) with a first language (sign language-Thai sign language) for a second time. Deaf Children need to do some reading on their own, because they have less skill and lack opportunities to practice reading independently. The researchers are interested in modeling the interaction of the multimedia tool with parents and children. The multimedia programs for deaf children have been shown to be successful when deaf children and parents read a story and share together. The authors believe the multimedia environment for deaf children required participation in research through accessible designs.

However, this study reveals how this multimedia environment can be an advantage for deaf students with various learning needs. The development of the model for multimedia learning environment to support reading skill for deaf individual needs to provide multiple, flexible methods of meta linguistic (Meyer & Rose, 2002). This current study attempts to create a structured model which provides multiple and flexible methods for presenting the content as scaffold learning, that engages children using multimedia learning environments. This model incorporates opportunities for

deaf children and their hearing parents to learn to read and to gain knowledge, skills, and enthusiasm for learning together

The learning of sign language using videos makes the inner meaning cognitive in their first language as well as picture intermediate sign language and Thai language. This experiment of language used native language with stories as deaf children and their hearing parent learned to read together. This study created an important environment that allows interaction between deaf children and their hearing parents, learning sign language as a second language. The authors used two languages, Thai sign language and written Thai languages together. Windows are used to make contact with users. Applications are divided into three systems: the presentation of the sign language video in conjunction with written vocabulary; the presentation of pictures reflective of vocabulary and stories; and assistance in explaining meaning using sign language. Explanations are brief using simple vocabulary and making comparisons by showing how sentences differ. This system will allow children to experience language by presenting vocabulary in video form and in illustrations, as well as through using buttons allowing the viewing of vocabulary explanations using pictures.

The experiments and discoveries focus on the training of deaf children and their parents based on a perspective of understanding in language learning in which children learn Thai as a second language and parents learn Thai sign language as a second language in the same environment or classroom.

Period of the prototype experiment

In the second period, the prototype experiment was conducted using a sample population taken from H-I students enrolled at deaf schools at the sixth grade. The students under study were expected to have some command of vocabulary and sign language. They were completely unable to hear, but had no other deficiencies. The total sample population was comprised of eight students, six males and two females who were between the ages of thirteen and fifteen. The students were divided into two groups: one group read using a computer and the other group read using ordinary books. Teachers participated in the process of observation.

Guidelines in evaluating the use of this prototype are as follows: knowing only sign language may not be sufficient for students achieving full understanding of vocabulary. H-I children learn from seeing and memorizing the pictures seen. Therefore, the explanation of the meaning of vocabulary must fall under the categories of simultaneously occurring or related incidents. An example is provided by the word "museum" in this paper used to "พิพิธภัณฑ์". The vocabulary item is simultaneously presented with a picture of a museum. The sign language used in the explanation is in the form of incidents or representing in abbreviated meanings defining the word through such techniques as showing that this is a place where valuable and ancient things are collected and exhibited.

A survey of the classes at deaf school found that this model of storytelling in practicing reading can help students to develop a more complex vocabulary. Furthermore, the presentation as unfolding in various steps includes the presentation of pictures according to their temporal sequence of occurrence, learning from storytelling using sign language, or selecting situations in order to practice in real

circumstances. Students were trained to ask and answer questions and to construct short sentences, etc. Then, finally, they were guided in the actual process of reading.

The researcher conducted participatory observation in classes and found that the teaching of vocabulary from stories requires teachers who have command of sign language and the Thai language at a high level because they have to be able to explain vocabulary items for each section in an understandable manner.

The process of practicing reading on a single topic is time consuming and requires at least twelve hours solely for the memorization of vocabulary items. The children's understanding of what they read is limited. Therefore, tests and reviews were regularly conducted step by step. If constant testing and reviewing are practiced, reading outcomes will be improved and the readers will become more adept at reading. Materials for reading must be prepared beforehand.

In view of the aforementioned problems, the researcher concluded that a learning model promoting reading with a pictorial and sign language structure can be used for practice purposes through application of the appropriate technology on the foundation of a theoretical conceptual framework integrating inputs from learners, the environment, and technology. The researcher video-recorded the discussion which took place during the reading observation session and explained the basic use of the program. In the next step, each student was tested over a period of ten minutes. After testing was completed, the students were asked to complete an evaluation form and to discuss the reading model used for both groups.

In the survey investigation of the two techniques, the researcher found that the reading model using ordinary books showed that most students looked at the pictures and flipped through pages very quickly. If interested, they would look at glyphs. In regard to explanation of stories in this group, it was found that storytelling was based on illustrations using the technique of pointing at pictures. For those using the computer program, sign language, pictures, and stories, it was observed that students easily selected which stories to read, although there were difficulties at first. After explanations were made, they could continue.

The students were asked what their opinions were of the experiment after its conclusion and it was found that they were satisfied with reading using sign language and moving pictures. Finally, it was observed that while the clicking on glyphs during reading, some students paused and simultaneously practiced sign language. For those students with limited knowledge of sign language, this method can be used as a review so that this will benefit them in regard to reinforcing their knowledge of sign language as well.

Findings on the basis of the model used in this preliminary evaluation indicated that H-I students differ in their capacities to learn on their own, in paying attention to the reading task at hand, and yet remaining satisfied with reading activities. This model was applied as a pre-assessment guide. As an example on the first page, the researcher provided guidance before the subject was requested to read on his or her own. This guidance allowed the participant to observe reading behaviors, the applications, the selection of glyphs, and the understanding of meaning from sign language and pictures as shown in the sample pictures.

The concept guiding the researcher was how best to allow the children to access the computer program easily while being entertained. The meaning can be understood accurately by using clear pictures and sign language. The colors used must be easy to discern. Buttons to select for responding to content must be clear with easy-to-understand symbols that encourage joint learning between parents and H-I children. These techniques can also be applied in teaching sign language to normal children as well.

Discussion

Analysis of these based on three aspects of the basic method of this research used participant observation in a classroom with an instructor teaching Thai vocabulary and sentence structure to deaf students. This study found that Deaf children have different perceptions, experiences and knowledge in reading Thai language. These are the three groups this study observed; Children who can understand examples immediately, Children who can understand with further explanation. And finally children who find it difficult to understand because they don't know sign language and the teacher must use more sign language examples in order to get the children to understand.

The research questions for this study are intended to serve as a guide for further development in improving the child's ability to learn to read on their own. This current study found that children might lack the background knowledge in Thai sigh language. The study provides a guide to build a sign language background using pictures and stories so that children see images and text that are used by teachers to enhance their learning. Most of time children can learn Thai language and sign language simultaneously. Vocabulary by sight was designed to support deaf children's reading skills by construction of the visual experience. Stories were used to provide information and to help children remember and recognize vocabulary. Teachers used a method of introducing 6 to 8 word for children to learn and practice (McAnally, Rose, & Quigley, 1987). Guided reading by teachers was combined with the multimedia environment tool because deaf children need practical skills in order to build background knowledge working independently from a teacher or parent. Furthermore, in order to create an environment that encourages reading children need to be fully guided to access the information.

This study is a prototype concept to build language experience for deaf children. The research will develop an assessment tool to determine the level of the ability and skills in reading in part 2 of the study. The child's development will be based on the idea that children can practice and learn on their own. Moreover, this environmental learning tool will be used to support learning Thai sign language by hearing parents as part of the process of children's learning a second language.

Conclusion

The author believes that the bilingual book for deaf children can be used to increase the children's motivation to read whole stories. Deaf children who have a basic literacy in their first language (sign language) are different individuals. A learning system to read in a second language can be implemented to review children's knowledge of language learning in order to understand the efficiency and the effectiveness when learning to read Thai written language. The multimedia book

appears to make it easier to learn to read. In order for deaf children who have less skill and for whom it is more difficult to learn to read, guidance is best for teaching them.

Multimedia interactive environments can be used to promote children to reading skills because deaf children need motivation (Yoon & Kim, 2011). Whole stories show the concept and form of material and allow deaf children to identify the content clearly (Nikolaraizi & Vekiri, 2011). Deaf Children are different from hearing individuals (Hermans, Ormel, Knoors, & Verhoeven, 2008). Reading that illustrated the sequence of events are needed to provide a clear overview of the content and to show how many sign language picture stories are needed for children to learn to read (Marshal, M, & D, 2004/2005). The story book used in this study is a simulated learning experience for explaining the meaning of vocabulary with a teacher in the classroom (Mueller & Hurtig, 2009).

Moreover, deaf children need additional practice time in the classroom. This paper also represents the need for better communication between deaf children and their parents. Deaf children's social interaction is enhanced when they read with their parents. Deaf children need to have early visual experiences (signing) that form the basics of later language acquisition through reading. However, children are individuals and, a bilingual multimedia interactive environment can make the simultaneous acquisition of two languages possible. Educators need also to train parents to know and use sign language in the home in order for deaf children to succeed in regular school classrooms.

Deaf children will be better learners if the teacher is a role model. These children often have a dependent learning style and the teacher needs to show clear context in the classroom. Children have different skills in both Thai language and Thai sign language, so teachers must make sure that children understand the vocabulary and learn both Thai sign language and Thai language together. Although this is difficult, it is essential and teaching both sign and written language is what the multimedia interactive environmental tool accomplishes.

References

Chamberlain, C., Morford, J. P., & May berry, R. I. (2000). *Language Acquisition by Eye.* London: Lawrence Erlbaum Associates, Inc.

Cummins, J. (1984). *Bilingualism and special education: Issues in assesment and pedagogy.* SanDiego, CA: College-Hill Press.

Epstien, F., & Wolfson, S. P. (2005). The experience of story reading: Deaf children and hearing mother's interaction at story time. *American Annals of The Deaf*, 369-378.

Hattal, B. M., & Mandes, E. (1995). Enhancng Visual Thinking and Learning with Computer Graphics and Virturl Environment. *Comput & Graphics , 19*, 889-894.

Hermans, D., Ormel, E., Knoors, H., & Verhoeven, L. (2008). The Relationship Between the Reading and Signing Skills of Deaf Children in Bilingual Education Programs. *Journal of Deaf Studies and Deaf Education* , 518-530.

Johnson, R. E., Liddell, S. K., & Erting, C. J. (1989). *Unlocking the Curriculum: Principles for Achieving Access in Deaf Education.* Department of Linguistics and Interpreting. Washington, D.C.: Gallaudet University.

Jr, W. C. (2005). Sign Language Structure: An Online of the Visual Communication Systems of the American Deaf. *Journal of Deaf Studies and Deaf Education* , 1-37.

Kauffman, J. M., & Hallahan, D. P. (2004). *Exceptional learners: introduction to special education.* United States: Allyn and Bacon.

Klein, S. B. (2012). *Learning: Principles and Applications (6th ed.).* Washington DC: Sage Publication.

Lam-Khong, N., Suksakulchai, S., & Kaewprapan, W. (2011). The Learning Achievement in Thai Language for Hearing Imaparied Students in Thailand. *US-China Education Reviw* , 1023-1029.

Marshal, G. M., M, C. K., & D, M. R. (2004/2005). Effectiveness of multimedia reading materials when used with children who are deaf. *American Annals of the Deaf* , pp. 394-403.

Mayer, C., & Wells, G. (1996). Can the Linguistic Interdepence Theory Support A Bilingual-Bicultural Model of Literacy Education for Deaf Student? *Journal of Deaf Studies and Deaf Education* , 93-107.

Mayer, R. E., &. Anderson, R. B. (1992). The Instructive Animation:Helping Students Build Connections Between Words and Pictures in Multimedia Learning. *Journal of Educational Psychology , 84*, 444-452.

McAnally, P. L., Rose, S., & Quigley, S. P. (1987). *Language Learning Prictices with deaf childrent.* USA: College-Hill Press A Division of Little, Brown and Company(Inc.).

Mueller, V., & Hurtig, R. (2009). Technology-Enhanced Shared Reading With Deaf and Hard-of-Hearing Children: The Role of a Fluent Signing Narrator. *Oxford University Press* , 72-101.

Nikolaraizi, M., & Vekiri, L. (2011). The Design of software to enhance the reading comprehension skill of deaf student: An integration of multiple theoretical perspectives. *Education and Information Technologies* , DOI: 10.1007/s10639-011-9152-1.

Olson, D. R. (1994). *The world on paper: the conceptual and cognitive implications of writing and reading.* NY: Cambridge University Press.

Paul, P. V. (1996). Reading Vocabulary Knowledge and Deafness. *Journal of Deaf Studies and Deaf Education , 1* (1), 3-15.

Ramsey, C., & Padden, C. (1999). Reading Ability in Signing Deaf Children. P.1-40.

Reeves, J. B., Wollenhaupt, P., & Caccamise, F. (1995). Deaf Student as Visual Learners: Power for Improving Literacy and Communication. *Education of the Deaf* , 1-10.

Robertson, L. (2009). *Literacy and Deafness Listening and Spoken Language.* UK.

Scherer, M. J. (2004). *Connecting to Learn Educationl and Assistive Technology for People With Disabilities.* Washington, DC: American Psychological Association.

Schirmer, B. R. (1994). *Language and Literacy Development in Children Who Are Deaf.* USA: Macmillan Publishing Company.

Swanwick, R., & Watson, L. (2007). Parent Sharing Books With Young Deaf Children in Spoken English and in BSL: The Common and Diverse Features of Diffrent Language Settings. *Oxford University Press* , 385-405.

Trezek, B. J., Wang, Y., & Paul, P. V. (2010). *Reading and Deafness: Theory Research and Practice.* NY: Delmar.

Yoon, J.-O., & Kim, M. (2011). The effects of caption on deaf students's content commprehension, cognitive load and motivation in online learning. *American Annals The Deaf* .

กำหนดการโครงการศึกษาดูงานและแลกเปลี่ยนเรียนรู้ การพัฒนากระบวนการ การเรียนการสอนในรูปแบบ
การบูรณาการการเรียนการสอนกับการทำงาน (Work-integrated Learning : WiL)
วันที่ ๖-๘ กุมภาพันธ์ ๒๕๕๗ ณ โรงแรมสีมาธานี จังหวัดนครราชสีมา

<u>วันที่ ๖ กุมภาพันธ์ ๒๕๕๗</u>

๐๗.๐๐-๑๑.๐๐	เดินทางไปยังโรงแรมสีมาธานี จังหวัดนครราชสีมา
๑๑.๐๐-๑๒.๐๐	พิธีเปิดและบรรยายพิเศษเรื่อง "การจัดหลักสูตรการบูรณาการการเรียนการสอนกับการทำงาน" โดย ผู้ช่วยศาสตราจารย์ ดร. สมหมาย ผิวสอาด รองอธิการบดีมทร.ธัญบุรี
๑๒.๐๐-๑๓.๐๐	รับประทานอาหารกลางวัน
๑๓.๓๐-๑๖.๐๐	ศึกษาดูงานและแลกเปลี่ยนเรียนรู้ *ณ โครงการบูรณาการการเรียนการสอนกับการทำงาน มหาวิทยาลัยวงษ์ชวลิตกุล*
๑๘.๐๐-๑๙.๐๐	รับประทานอาหารเย็น

<u>วันที่ ๗ กุมภาพันธ์ ๒๕๕๗</u>

๐๙.๓๐-๑๑.๓๐	ศึกษาดูงานและแลกเปลี่ยนเรียนรู้ *ณ สถานประกอบการที่ร่วมโครงการบูรณาการการเรียนการสอนกับการทำงาน ของมหาวิทยาลัยวงษ์ชวลิตกุล แห่งที่ ๑* บริษัท สงวนวงษ์ 1994 จำกัด
๑๒.๐๐-๑๓.๐๐	รับประทานอาหารกลางวัน
๑๓.๓๐-๑๖.๐๐	ศึกษาดูงานและแลกเปลี่ยนเรียนรู้ *ณ สถานประกอบการที่ร่วมโครงการบูรณาการการเรียนการสอนกับการทำงาน ของมหาวิทยาลัยวงษ์ชวลิตกุล แห่งที่ ๒* บริษัท เอ็น เค เม็คคาทรอนิกส์ จำกัด
๑๘.๐๐-๑๙.๐๐	รับประทานอาหารเย็น

<u>วันที่ ๘ กุมภาพันธ์ ๒๕๕๗</u>

๐๘.๓๐-๑๒.๐๐	นำเสนอผลสะท้อนกลับจากการศึกษาดูงาน
๑๒.๐๐-๑๓.๐๐	รับประทานอาหารกลางวัน
๑๓.๐๐-๑๔.๓๐	สรุปผลการศึกษาดูงาน/พิธีปิด โดย ผู้อำนวยการสำนักสหกิจศึกษา มทร.ธัญบุรี
๑๔.๐๐-๑๔.๓๐	พิธีปิด โดย ผู้ช่วยศาสตราจารย์ ดร. สมหมาย ผิวสอาด รองอธิการบดีมทร.ธัญบุรี
๑๔.๓๐-๑๘.๓๐	เดินทางกลับมหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรีโดยสวัสดิภาพ

หมายเหตุ :
๑. รับประทานอาหารว่างและเครื่องดื่ม ช่วงเช้า ๑๐.๐๐ – ๑๐.๑๐ น. ช่วงบ่าย ๑๕.๐๐ – ๑๕.๑๐ น.
๒. กำหนดการ/สถานที่ศึกษาดูงาน อาจมีการเปลี่ยนแปลงตามความเหมาะสม