

Effects of Blind Students' Literacy Development through Concentrated Language Encounter and Traditional Instruction

Associate Professor Saowalak Rattanaich (Ph.D.)

Department of Curriculum and Instruction, Faculty of Education
Srinakharinwirot University, Bangkok, Thailand

Abstract

This paper is a summary of a study that compared two approaches to teaching literacy to blind students: the Concentrated Language Encounter (CLE), which has a strong functional orientation, and the traditional approach, which emphasizes structural skills. The results of the study revealed that (with the exception of one small group in Kindergarten) students taught through CLE performed significantly better in Thai language development than those taught through the traditional method. CLE students had more opportunities than the traditionally taught students in learning, participation, boldness of expression and demonstration of emotional intelligence. Teachers showed a greater range of student-centered teaching behaviors in the CLE classes than that in the traditional classes relative to modeling thinking, encouraging and allowing students to evaluate and improve their own work or achievements.

Introduction

Background of the study

According to the United Nations Decade for Human Rights Education (1995-2004; Office of the High Commissioner for Human Rights, 2003), it was recommended that the U.S. should strive to eradicate illiteracy and should direct education towards the full development of the human personality and the strengthening of respect for human rights and fundamental freedoms. All children have right to learn at all stages of their development, and to do so in ways that are appropriate and easily accessible to them. A report on World Statistics (UNESCO, 2000) stated that there were about 130 million primary school children in the world who do not go to school; ninety percent of these children live in Africa. Also, one in ten of the world's population is physically or

mentally disabled or has a learning disability. Furthermore, less than 2 percent of disabled children have the opportunity to go to school, and girls have fewer opportunities for schooling than boys. Students who are either visually impaired or blind have major problems in gaining educational or learning opportunities because of discrimination in education on the basis of gender, race, or disability. Illiteracy, which often results from a lack of opportunity, relegates many people to life as second-class citizens and sometimes even as non-persons (Blake, 2003).

Since literacy involves the ability to acquire information and communicate with others, the blind person's literacy skills involve many methods of acquiring, storing, and accessing information, and of communicating one's own ideas, opinions, and needs. Literacy includes the ability to use Braille, print, and computers as well as the ability to use readers and recorded materials to gain access to and acquire the most knowledge from information. Education empowers students to direct and control their own learning, to awaken their intelligence. Accordingly, teachers and families of blind children must strive to empower them to direct and control their learning, thus giving them an opportunity to move upward in society as full participants (Doake, 1995). A number of blind people are growing up illiterate and Braille literacy is one answer to the problem of illiteracy (Ianuzzi, 1999; Johnson, 1996; Mullen, 1990). Learning to read and write in Braille can make a dramatic difference in the life of the blind children or adults. Braille literacy has become an issue of great concern to blind adults, parents of blind children, and teachers of blind students. Some negative attitudes about Braille, such as the complexity of Braille codes and the lack of standardized Braille teaching methods, often inhibit the teaching and learning of Braille (Ianuzzi, 1999; Wittenstien, 1996; Blake, 2003).

Problems of organizing teaching and learning for blind students in Thailand

Thailand's National Educational Act of 1999, sections 10 and 55 (Office of National Educational Commission, 1999), states that any disabled person has the right to educational equity in order to live ordinarily and independently. Students with vision

impairment or who are blind are one of the groups of students who have the most problems in improving their lives. According to research studies on organizing teaching and learning for blind students in Thailand for the last decade (Office of National Research Council of Thailand, 2000), three aspects are of importance. They relate to students, teachers, and other aspects of instruction.

1.) Students: Blind students usually learn how to read and write more slowly than sighted students since much learning, concept development, and detailed discrimination is a function of sight. However, blind or vision-impaired students must learn by other sensory means; feeling, touching, smelling and listening. Anxiety about survival and safety needs cause shyness, lack of confidence, introversion, and moodiness because they cannot see and imitate others (Janaim, 1982:74-79; Kittiwattanakul, 1987:f).

2.) Teachers: Teachers' lack of knowledge of appropriate teaching methodologies and techniques, their lack of enthusiasm, and an emphasis on learning content rather than processes negatively impact blind students' literacy development. There is an overuse of lecturing and rote memorization, so that instruction tends to be repetitive and boring (Wanawananon, 1985: 58; Meesri, 1997: 8). The traditional way of teaching Braille, starting with writing before reading, contrasts with literacy learning by normal students, in which reading precedes writing (Sathornsamritiphol, 1987: 67; Kasemsaichol, 1988: 96; Theepapan,1988:76; Meesri,1997: 61).

3.) Other Instructional Aspects: Problems that need to be solved regarding the teaching of literacy to blind students include the appropriateness of instructional media, students' levels of participation in activities, the availability of tools for measuring and evaluating of learning, and the trend to integrate blind students in mainstream classes (Kittiwattanakul,1987: e ; Sathornsamritiphol, 1989:69; Meesri, 1997: 61-62). Solutions to the above problems can be found in current research that seeks ways of developing blind students' spoken and written language communication as well as their body language.

Levels of Literacy and Illiteracy

To organize an appropriate program for teaching literacy for students who are blind, a complete cycle of the curriculum development process must be developed. The standard literacy levels defined by the United Nations can help us formulate the goal and objectives of such a program. That program, as noted by UNESCO (1990), defined literacy at 3 levels: basic literacy, functional literacy, and computer literacy.

Basic literacy refers to being able to communicate by using spoken and written language at an uncritical thinking level, for example, reading and pronouncing words by blending vowels and consonants, writing one's name but being unable to write to express what one thinks.

Functional literacy refers to being able to communicate by using both spoken and written language at a critical thinking level, being able to apply the communicative information to develop one's daily life (in earning a living and developing morality and ethics) and being able to learn about a range of subject areas. Functional literacy is mostly aimed at life development and can lead to computer literacy when the language is learned through critical thinking processes.

Computer literacy refers to being able to communicate and process data by using a computer. It also includes the comfort level someone has with using computer programs and other applications that are associated with computers.

A person's level of literacy has a direct impact on his/her physical and psychological well-being. It affects his/her ability to care for oneself, to read directions on a cleaning product, follow a recipe, and even hold a job (Ryes, 1996). It affects emotional well-being by enabling independence and confidence. These factors are what make literacy so important for blind and visually impaired students, their families, and their teachers. Developing functional literacy in terms of being able to communicate by using both spoken and written language through critical thinking processes was the main concern of this study .

The Concentrated Language Encounter Concept for Teaching Literacy to Blind Students

Gray and Walker (Walker et al., 1992) developed the notion of a “Concentrated Language Encounter” (CLE) to refer to generating significant learning situations in which students learn language in use. Working with a general model of language curriculum, Gray and Walker developed the teaching and learning contexts in which teachers and students negotiated the nature of the learning activity as well as the kind of language needed to deal with it. The teacher had a critical role in scaffolding appropriate models of language, and students were engaged in developing and using necessary language. CLE became the central organizing principle around which curriculum took place. Illustrations or photographs of contextualized learning activities and other related materials were developed and used in the classroom for continuing and further work. Around these materials, talking, reading, and writing were generated in many other concentrated language encounters.

Through the joint efforts of Srinakharinwirot University, the Thai Ministry of Education, and Rotary International, a lighthouse literacy project using CLE was conducted in Thailand’s Northeast schools in 1988-1997 and spread across the entire country within the National Primary Education Plan (Rattavich,1997; Walker et al.,1992).

CLE for blind students was initiated by Rattavich while working on a Rotary literacy project in Egypt in 1999. Egyptians sought the possibility of using CLE with some Egyptian blind students. Initial teaching to those blind students revealed that they were very interested in and enthusiastic about learning language. Some action research studies on CLE teaching with kindergarten, primary, and secondary level blind students in both Thai and English were later conducted at the School for the Blind in Bangkok (Rattavich, 2006).

Many research studies on teaching literacy to the blind showed that blind students require access to curriculum developed for sighted students. Although adaptations and modifications to the curriculum may be required, blind students should be treated in the same manner as all other students (Hatlen, 1997; Blatch, 1997; Arter, 1997; Gale, Kelly and d’Apice, 1998).

As the CLE teaching program for sighted students at the primary level throughout Thailand has shown significantly better results in literacy skill development than the traditional teaching program in most areas (Rattanavich, 1997), it was considered appropriate to adapt it for use with blind students with the same aims as indicated in the Thai national curriculum.

Objectives of the Study

The purpose of this study was to compare the effects of using the Concentrated Language Encounter and traditional instruction on blind students' literacy development at the beginning level (2nd year of Kindergarten, 1st and 2nd grade) in regard to the following:

- 1.) Development of students' literacy performance or Thai language use.
- 2.) Students' learning behaviors.
- 3.) Students' emotional intelligence.
- 4.) Teachers' teaching behaviors when stressing a student-centered approach.

(Refer to the Glossary of the Terms in the Appendix)

Methodology

Population and Samples

The population was students at the beginning level at The Bangkok School for the Blind in the 2nd semester of the 2001 academic year (November 2001-February 2002). Using random sampling techniques, students' names were drawn from each class of the 3 grade levels (14 students in kindergarten 2, 14 students in Grade 1, and 15 students in Grade 2) and randomly assigned to experimental and control groups as follows:

- 7 kindergarten students in each of the experimental and control groups
- 7 first-grade students in each of the experimental and control groups
- 8 second –grade students in the experimental group and 7 in the control group

Five steps of teaching through the **Concentrated Language Encounter** method were planned. These were delivered in sequence using appropriate teaching materials for blind students in different text types organized into text-based and activities-based units. One year before the study began, trail teaching to test instrument efficacy and their improvement was conducted with a non-sample group of blind students at each level (Kindergarten 2, Grade 1, and Grade 2). The five steps were as follows:

For a text-based unit

- 1.) Shared reading by using audio-tapes with realistic sound/voice supported by materials for feeling and touching to make the text comprehensible
- 2.) Reviewing the text, using role-playing, voice acting, and discussions.
- 3.) Negotiating the text orally and learning how to write and read Braille at the same time. Drawing by low-vision students and making imaginative models with play dough by totally blind students were included.
- 4.) Making a big book using Braille, illustrating (by low-vision students) or making play dough models (by totally blind students) and practicing reading from a group big book were included.
- 5.) Elaborating activities through games.

For an activity –based unit:

- 1.) Experiencing the materials by touching, feeling, smelling, and tasting as appropriate under the teacher's guidance. Demonstrating the steps of doing or making things.
- 2.) Doing or making things step-by-step under the teacher's supervision and assistance.

(Steps 3-5 are the same as those in the text-based unit)

The teaching steps based on **the Traditional Method** for the control group were:

Kindergarten level:

- 1.) Alphabet memorizing and practicing writing Braille.
- 2.) Practicing reading and writing isolated words and sentences.
- 3.) Practicing reading by blending consonants and vowels including tones.
- 4.) Practicing writing Braille in different words and sentences.

(Real objects and model materials are also used in teaching words)

Grade 1-2

- 1.) Reading the Braille text aloud individually or in chorus.
- 2.) Explaining vocabulary items or meanings of the words found in the text.
- 3.) Asking the students questions about the text.
- 4.) Students working on textbook exercises stressing spelling, conjugation of tones, and learning grammatical rules-the emphasis being on Braille writing and reading.

Criteria/Instruments used

1. Pragmatics tests on Thai language performance at each level consisted of dictation, cloze, and interview tests (for Kindergarten level), and dictation, cloze, composition writing and interview tests (for Grade 1 and 2 levels). For estimating the reliability of the tests, the Test-Retest method was used. The Pearson Product- Moment correlation coefficient are shown in Table 1.
2. A discourse analysis form was designed for recording observation and data collection regarding student and teacher behaviors, based on the standards of the National Education Reforms plan from the Ministry of Education, 2000 (Office of National Educational Commission, 2000), and emotional intelligence behaviors based on

recommendations of the Ministry of Health (Department of Public Health; Ministry of Public Health, 2001).

All tests were pilot tested with non-sample groups of students at the same levels at the same school, one academic year before the research project. All items on the discourse analysis form were evaluated for their content validity by three experts in literacy and the teaching of language to the blind. William A. Scott's formula was used for the reliability test between two co-observers ($r = .80$ up).

Table 1. Reliability Estimates of the Tests in the Study

Grade Level	Close Test	Dictation	Interview	Composition
K.2	.83	.81	.84	No test at this level
G.1	.98	.93	.91	.94
G.2	.97	.97	.93	.80

Data Collection Procedures

A randomized control group pre-test and post-test design was used in the study. Efficacy-verified pragmatic tests in Thai language use and discourse analysis of observation forms were used as the instruments for data collection (with reliability of .80-1.00). The data collection procedures were conducted as follows:

- 1.) An orientation meeting was held between the researcher and the teachers of the three sample classes (Kindergarten 2, Grade 1 and 2) to ensure understanding of the experimental process and also how to teach the experimental and control groups. Both groups were taught by the same teachers.
- 2.) Pretesting of the experimental and control groups was conducted during the first week of the study, using the pragmatic tests in Thai language Performance at each level.
- 3.) The teaching of the experimental and control groups for the study was carried out by trained teachers at the three levels. Although the same person taught both the experimental and control groups at each grade level, Concentrated Language Encounter instruction was used with the experimental groups, whereas traditional

instruction was used with the control group. The teaching of both the experimental and control group was also based on the same content and the length of teaching periods was identical.

- 4.) All the teaching of both groups at all grades was video tape recorded to allow analysis of the discourse and behaviors of students during learning, expressions of emotional intelligence, and teachers' teaching behaviors as related to a student-centered approach.
- 5.) Post-testing of both groups at each level was conducted at the end of the semester.

Data Analysis

Dependent and independent samples t-tests and Chi-Square analysis were used for data analysis (as shown in Table 2 and 3).

Table 2 Summary of the Comparison between the Experimental and Control Groups of Blind Students' Thai Language Performance Development (Literacy Skills), Using t-test (Dependent & Independent Samples)

\bar{X}_1	=	Average Scores of Experimental Group
\bar{X}_2	=	Average Scores of Control Group
S_1	=	Standard Deviation of Experimental Group
S_2	=	Standard Deviation of Control Group
MD_1	=	Average Different Scores of Experimental Group
MD_2	=	Average Different Scores of Control Group
S_{MD1}	=	Standard Deviation of Different Scores in the Experimental Group
S_{MD2}	=	Standard Deviation of Different Scores in the Control Group
t	=	Test of Significance
*	=	.05 Level of Significance

** = .01 Level of Significance

Class Levels	Tests	Within Groups Pre-post Experiment						Between Groups Pre-post Experiment					
			\bar{X}_1	S_1	t	\bar{X}_2	S_2	t	MD ₁	S _{MD1}	MD ₂	S _{MD2}	t
Kindergarten 2	Cloze Test	Pre	2.57	2.07	3.48*	.71	1.25	2.23	3.21	2.45	2.14	2.54	.80
		Post	5.79	1.87		2.86	2.85						
	Dictation	Pre	8.00	1.83	.87	6.00	2.45	.80	.50	1.53	.86	2.85	-.29
		Post	8.50	.58		6.86	3.69						
	Interview	Pre	3.07	.84	1.80	3.21	.70	-.23	.57	.07	.14	.84	1.44
		Post	3.64	.48		3.14	.38						
	Total Scores	Pre	13.64	3.15	3.99**	9.93	3.35	1.51	4.29	2.84	2.95	5.14	.61
		Post	17.93	2.42		12.86	5.96						
Grade 1	Cloze Test	Pre	5.43	2.82	8.56**	5.29	5.47	6.62**	9.29	2.87	7.14	2.85	1.40
		Post	14.71	3.90		12.43	2.99						
	Dictation	Pre	45.86	5.55	5.69**	48.71	7.63	2.49*	6.43	2.99	5.14	5.46	.55
		Post	52.29	4.35		53.86	4.56						
	Essay	Pre	14.43	3.60	4.38**	14.57	3.36	-.83	4.57	2.76	-1.43	4.54	2.99*
		Post	19.00	4.62		13.14	4.85						
	Interview	Pre	14.64	4.14	3.81**	15.86	3.85	1.80	5.93	4.12	2.71	3.99	1.48
		Post	20.57	1.81		18.57	2.15						
	Total Scores	Pre	80.36	11.28	8.43**	84.43	14.43	3.51*	26.21	8.23	13.57	10.23	2.55*
		Post	106.57	9.61		98.00	7.94						
Grade 2	Cloze Test	Pre	5.38	4.60	8.66**	10.86	4.67	4.73**	14.13	4.61	9.00	5.03	2.06
		Post	19.50	5.04		19.86	4.78						
	Dictation	Pre	53.75	6.04	3.61**	55.86	6.99	1.18	5.13	4.02	.71	1.60	2.86*
		Post	58.88	4.16		56.57	5.86						
	Essay	Pre	15.00	3.78	3.82**	13.29	6.99	.80	5.00	3.70	1.29	4.23	1.81
		Post	20.00	.93		14.57	3.69						
	Interview	Pre	7.19	.65	2.82**	6.29	1.58	2.21	1.19	1.19	1.57	1.88	-.48
		Post	8.38	.92		7.86	.69						
	Total Scores	Pre	81.31	11.87	9.90**	86.29	12.40	4.12**	25.44	7.27	12.57	8.06	3.25**
		Post	106.75	8.08		98.86	11.98						

Table 3 Summary of the Comparison between the Frequency of Students' Learning Behaviors, Emotional Intelligence and Teachers' Behaviors Stressing Student-Centered Approach in the Experimental and Control Groups using Chi- Square

Observed Behaviors	Kindergarten 2			Grade 1			Grade 2		
	O ₁	O ₂	χ^2	O ₁	O ₂	χ^2	O ₁	O ₂	χ^2
1. Learning Behaviors									
1.1 Classroom Participation	1183	757	93.54**	1235	793	96.33**	1110	969	18.89**
1.2 Boldness of Expression / Initiation	312	250	6.84**	119	73	11.02**	273	186	81.39**
2. Emotional Intelligence									
2.1 Self-Control	171	78	34.73**	298	253	3.68	45	16	13.79**
2.2 Sympathy to Others	1157	563	205.13**	714	480	45.86**	615	432	31.99**
2.3 Responsibility	101	37	29.68**	92	48	80.67**	31	11	9.52**
2.4 Self-Esteem	44	13	16.86**	20	8	5.14*	82	52	6.72**
2.5 Making Decision and Problem Solving	4	2	0.67	8	0	8.00**	8	1	5.44*
2.6 Learning Enjoyment	84	55	6.05*	63	7	44.80**	70	12	41.02**
3. Teachers' Behaviors Stressing Student-Centeredness									
3.1 Modeling Thinking	706	528	25.68**	694	445	54.43**	982	706	45.13**
3.2 Allowing students to independently apply their learning knowledge through their own thoughts	261	127	46.28**	361	155	82.24**	91	45	15.56**
3.3 Motivating Students in Learning	289	126	64.02**	154	74	28.07**	122	80	8.73**
3.4 Reinforcing Encouragement	200	190	0.26	141	67	26.33**	268	160	27.25**
3.5 Allowing students to evaluate / improve achievements / learning by themselves	20	10	3.33	15	10	1.00	140	42	52.77**

O_1 = Average Frequency of Experimental Group O_2 = Average Frequency of Control Group
 χ^2 = Chi-Square Value

Results of the Study

Kindergarten 2 level

- 1.) There was a significant difference in the overall development of Thai language performance of the blind students in the experimental group at the .01 level and at the .05 level in reading and writing, but no significant difference of those in the control group between the pre- and the post – experimental stages. When comparing both groups, it was found that there was no significant difference in the development of Thai language performance between them.
- 2.) The experimental group of blind students showed a significantly higher frequency of learning behaviors in regard to learning participation, boldness of expression or initiative than those of the control group students at the .01 level.
- 3.) The experimental group of blind students showed a significantly higher frequency of emotional intelligence at the .01 level in regard to self-control, sympathy toward others, and self-esteem. The level was .05 in regard to learning enjoyment, except for making decisions and problem-solving.
- 4.) Teachers' teaching behaviors stressing a student-centered approach in the experimental group showed a significantly higher frequency level than those in the control group at the .01 level in regard to thinking, modeling, allowing students to apply their knowledge through their own thoughts and motivating them. The level was .05 in regard to using consoling words, correcting individual mistakes, and allowing students to evaluate their own work, a form of self-learning.

Grade 1 level

- 1.) There was a significant difference between the pre-and post-experimentation stages in Thai language performance of the experimental group in every aspect at the .01 level and at the .05 level in the control group, except for composition writing and listening-speaking,. When comparing both groups, the experimental group of blind students showed a higher significant difference in overall Thai language performance and composition writing than those in the control group at the .05 level, especially in conveying meaning, language structure, grammar and initiative, except for writing organization and spelling.
- 2.) The experimental group of blind students showed a significantly higher frequency in learning behaviors than those in the control group at the .01 level in regard to learning participation and boldness of expression or initiative.
- 3.) The experimental group of blind students showed a significantly higher frequency in emotional intelligence behavior than those in the control group at the .01 level, in regard to showing sympathy towards others, responsibility, making decisions, and problem-solving as well as learning enjoyment ,and at the .05 level, in regard to self-esteem.
- 4.) The teachers showed a significantly higher frequency level in their teaching behaviors when stressing a student-centered approach in the experimental group than in the control group at the .01 level in regard to modeling, allowing students to evaluate their work, and motivating and encouraging them. There was also a significant difference at the .05 level in sub-behaviors in regard to encouraging, correcting individual mistakes, allowing students to evaluating their own work with friends or on their own.

Grade 2 level

- 1.) There was a significant difference in Thai language performance of the experimental group in every aspect at the .01 level; especially in writing composition, conveying meaning, and creative thinking, except for language usage, structure, grammar and

spelling. There was also a significant difference in Thai language performance of the control group at the .01 level, except for listening – writing, listening-speaking and composition writing. When comparing the experimental and control groups, the blind students in the experimental group showed significantly higher development in Thai language performance than those in the control group at the .01 level, especially in listening –writing , composition writing, and reading-writing.

- 2.) The blind students in the experimental group expressed a significantly higher frequency of learning behaviors in aspects of learning participation, boldness of expression, and initiative in thinking than those of the control group at the .01 level.
- 3.) The blind students in the experimental group showed a significantly higher frequency in emotional intelligence than those in the control group at the .01 level in the areas of conveying sympathy toward others, responsibility, self-control and learning enjoyment, The level of significance was .05 in making decisions and problem-solving
- 4.) The teachers' teaching behaviors when stressing a student-centered approach in the experimental group were significantly higher than those in the control group at the .01 level.

Recommendations:

- 1.) Concentrated Language Encounter instruction should be adopted in teaching blind students at the beginning level by emphasizing the use of media such as audio-tapes and materials organization so that students are able to experience through touching, hearing, smelling, and tasting (real things) associated with different texts in a variety of different contexts, especially procedural texts and activities with which they're concerned. Students need more opportunities in listening-speaking along with continuous practice in Braille. Problem words for the blind students, such as homonyms and spellings should be taught in the context of language use. Kindergarten students need more experiences in listening and speaking about things around them because of their comparative lack of world knowledge.

- 2.) Teachers should practice more scaffolding techniques in helping blind students in the interactive process of learning in order to help them to be more courageous and successful in communicating with friends and teachers especially the practice of listening and reading.
- 3.) Better library facilities for the blind stocked with a variety of books in various fields of knowledge in Braille should be organized so that they can spend their time reading and writing with pleasure. The big books in Concentrated Language Encounter classes can be displayed for students to read in appropriate places.
- 4.) Homework for individuals to practice particular skills can help blind students more effectively in remedial teaching programs.
- 5.) It would be beneficial to conduct research on Concentrated Language Encounter programs for blind students stressing the effect of learning subjects across a curriculum, and attitudes towards reading and writing after the treatment.

Implications of the Study

This research, especially the reported use of the CLE model of teaching, can be adapted to other language teaching situations involving both disabled and able-bodied children. The Concentrated Language Encounter process can assist students to learn in enjoyable settings enhancing creative thinking and humanistic attitudes.

Research Result Implementation and Dissemination

The results of the study have been disseminated through various seminars and workshops for teachers or key personnel training to teach literacy to blind students. They have been conducted in both the Thai and English languages at local, national and international levels. The Bangkok School for the Blind has adopted Concentrated Language Encounter instruction in teaching language classes, and has become a center for training in CLE literacy for other institutions for blind people.

References

- Arter, C. (1997). English. In H. Mason and S. McCall, (Eds). *Visual Impairment: Access to education for children and young people*. London: David Fulton.
- Blake, S.J.(2003), The Importance of Braille Literacy.
<http://blindness,growingstrong.org/ed/aa010101a.htm>
- Blatch, P. (1997). Current practices and future directions. In P. Kelley & G. Gale, (Eds). *Towards excellence*. Sydney: Royal Institute for Deaf and Blind Children.
- Department of Public Health; Ministry of Public Health. (2001). *Emotional Intelligence and Families*. Bangkok: Ministry of Public Health.
- Doake, David. (1995). *Literacy Learning: A revolution in progress*. Bothell, WA: The Wright Group.
- Gale, G., Kelley, P., & d' Apice, P. (1998). Accessing the curriculum. In P. Kelley & G. Gale, (Eds). *Towards excellence*. Sydney: Royal Institute for Deaf and Blind Children.
- Halten, P. (1997). The core curriculum for blind and visually impaired students including those with additional disabilities. *ANZAEVH Conference Proceedings: Staying ahead in changing times*. Adelaide: InPrint.
- Ianuzzi, J.W. (1999). Braille Literacy in America: A student's view. Online:
Available from *Other Visions* e-zine.
- Janaim, S. (1982). *Psychology for Special Children*. Bangkok: Aksornbandit Printing Company.

- Johnson, L. (1996). The Braille Literacy Crisis for Children. *Journal of visual impairment and blindness*, 90 (3).
- Kasemsaichol, Jaran. (1988). *A Study on the State of Learning and Teaching Thai Language in a small-size secondary school improvement project*. Master's Thesis, Department of Secondary, Graduate School, Chulalongkorn University.
- Kittiwattanakul, Pecharat. (1987). *The State of Educational Organization in Elementary Mainstreaming Schools for Blind Students*. Master's Thesis, Department of Elementary Education, Graduate School, Chulalongkorn University.
- Meesri, L. (1997). *A Study on the State of Instructional Organization for Blind Students at Mattayom Suksa I level in the Inclusive Schools*. The Office of General Education. Research and Evaluation in Special Educations Section, Department of Special Education. The Office of General Education, Ministry of Education. (Mimeographed)
- Mullen, E.A. (1990). Decreased Braille literacy: A symptom of a system in need of reassessment. *RE: view*. 22 (3): 164-169.
- Office of the High Commissioner for Human Rights. (2003, October). [Summary of national initiatives undertaken within the Decade for Human Rights Education \(1995-2004\)](#). Geneva, Switzerland.
- Office of National Educational Commission. (1999). *Thailand's National Educational Act, 1999*. Bangkok: Prikwan Graphic Ltd. Company
- .(2000). *Thailand's National Education Reforms 2000*. Bangkok: Prikwan Graphic Ltd. Company

- Office of National Research Council of Thailand. (2000, July). “*Activities and Office Information: Seminar in Research for the Blind*”. (41): 433.
- Rattanavich, S. (1997). *A Research Report on the Development of Thai Language Training through the Concentrated Language Encounter Project, 1988-1995*. Bangkok: Prayoonsanrongse Printing Ltd.
- . (2006). *Concentrated Language Encounter Teaching: Strategies towards Literacy Development for All*. (2nd edition). Bangkok: Wichai Printing.
- Ryles, R. (1996). The impact of Braille reading skills on employment, income, education and reading habits. *Journal of Visual Impairment and Blindness*, 90 (3).
- Sathornsamritphol, S. (1987). *Opinions of Thai Language Teachers and Blind Students Concerning Thai Language Instructional Organization at the Secondary Education Level in Schools for the Blind and Mainstreaming Schools for Blind Students*. Master’s Thesis in Education. Department of Secondary Education, Graduate School, Chulalongkorn University.
- Theepapan, T. (1998). *Opinions of Administrators and Teachers of Thai Language on Learning and Teaching Thai in Private Islamic Religion Schools at the Elementary Level, The Southern provinces*. Master’s Thesis, Secondary Education Department, Graduate School, Chulalongkorn University.
- UNESCO. (1990, 4-5 March). World Declaration on education for all and framework for action to meet basic learning needs. *World Conference on Education for All, Jomtien, Thailand*.
- UNESCO. (2000, 26-28 April). *The Dakar Framework for Action. The World Education Forum on Education for All: Meeting Our Collective Commitments*, Dakar, Senegal.

Wanawananon, W. (1985). *Opinions of Teachers and Students on Business Thai Language Teaching and learning in Vocational Colleges*. Master's Thesis, Department of Secondary Education. Graduate School, Chulalongkorn University.

Walker, R., Rattanavich, S., & Oller, J. (1992). *Teaching all the children to read: Concentrated language encounter techniques*. Buckingham: The Open University Press.

Wittenstein, S.H, & Pardee, M.L., (1996). Teachers voices: Comments on Braille and literacy from the field. *Journal of Visual Impairment and Blindness*. 90 (3): 201-209.

Appendix

The Glossary of Terms Used in the Study

Thai Language Performance refers to the ability of blind students in the study's experimental and control groups to communicate daily in both spoken (listening and speaking), and written language (reading and writing) at a level of critical thinking by conceptualizing their own ideas. It also includes being able to learn other knowledge areas as measured by the pragmatic test, dictation, cloze test, essay test and interview test, at different levels.

Students' Learning Behaviors refers to blind students in both experimental and control groups showing how often they are involved in learning activities and expressing their feelings confidently as measured by an analysis of videotaped classroom discourse between the teacher and students. The behaviors pertained to 1.) participation in learning such as answering questions, following teachers' direction/instruction and doing activities independently and 2.) volunteering to do activities, asking the teacher questions, asking friend(s) questions, and expressing personal ideas to the teacher /friend(s).

Students' Emotional Intelligence refers to blind students' ability to control themselves in working with friends, sympathizing with others, being responsible for their learning tasks, being able to make decisions to solve problems, having self-pride and enjoying learning activities. All behaviors were measured by the analysis of videotaped classroom discourse between the teacher and students tape in terms of the frequency of each type. All analyzed behaviors represent the students' tendency to be good (controlling themselves, sympathizing with others, being responsible); being smart (being able to make decisions and to solve problems), and being happy (being proud of themselves and enjoying learning and activities). (Department of Public Health, Ministry of Public Health, Thailand, 2001).

Teachers' Teaching Behaviors refers to teachers' teaching performance in the experimental and control groups showing how often they are involved in using a student-centered approach through thinking modeling, allowing students to independently apply their leaning knowledge though their own thoughts, motivating students in learning, reinforcing encouragement and allowing students to improve achievement and learning by themselves.

Text-Based Unit refers to the learning unit in which story and factual texts are used as teaching materials.

Activity-Based Unit refers to the learning unit in which activities or how (procedural) texts are used as teaching materials.