

*Development of Web Quest Lesson Enhancing Thai Reading Skills
for Students with Down Syndrome at Lower Elementary*

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Abstract

The purpose of this research was to enhancing the Thai language oral reading skills of lower elementary students with Down syndrome using WebQuest lesson. The sample groups were the 5 lower elementary students, purposively selected from Watnonsaparam public school under the Office1 of Saraburi Educational Service Area, Thailand. The research instruments were the Thai language reading tests for students with Down syndrome, the WebQuest lesson with 12 units based on Thai language oral reading problems of students with Down syndrome, the two observation forms for Thai language oral reading tests. The findings revealed that Thai language oral reading problems of the students with Down syndrome varied greatly on the pronunciation of consonants, vowels, tone marks, different kinds of words and short sentences. Nevertheless, at first round of WebQuest usage, the four of five students with Down syndrome were able to correctly pronounce the Thai alphabets and show the understanding of basic reading skill. Most of them had problems with Thai vowels in terms of both the pronunciation and the meaning decoding; they took much more time than usual to read. The students' usage of WebQuest had led to the improvement of Thai oral reading lesson to suit more the needs of students with Down syndrome. The new menus for skill practices, resource searching and communication among students, parents and teachers were added, as well as some graphics and symbols. More sounds were put to accompany all words and sentences of WeQuest lesson.

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Reading and writing skills are important for everyday life and for access to the world of literature. They are also powerful tools for teaching speech and language to children with Down syndrome and for mediating their cognitive development. Reading and writing can support communication, enable children to achieve greater independence and enrich education and academic attainments across the curriculum (Antonarakis et al., 2006). Children with Down syndrome, like neurotypical children, are growing up with extensive exposure to computer technology. Computers and computer-related devices have the potential to help these children in education, career development, and independent living. Wood, (2004) purposed that computers and technology can play a big role in supporting learning, especially for students with special educational needs. Hardware such as digital cameras, scanners and printers can be used in conjunction with computers to develop personalized resources and enhance activities (Glenn & Cunningham, 2005). Computer-based learning is particularly suitable for students with Down syndrome, for a number of reasons. Advantages of computer-based learning are suits visual learners, allows for non-

verbal and non-written responding, allows pupil to be in control and move at own pace, provides immediate feedback, allows for practice and repetition of basic skills in a fun way, Provides fun and enjoyment, very motivating, errorless learning - pupil does not fail, but is supported to succeed and assistive technology can be used to adapt computer and/or activity for almost any level of ability. Furthermore, Ortega-Tudela & Gómez-Ariza (2006) revealed the extent to which computer-assisted teaching facilitates the learning of basic mathematical concepts and skills in children with Down Syndrome (DS). They found that the effectiveness of a multimedia teaching method is compared with a traditional one in the teaching of counting and cardinality abilities and concepts. In the study, two groups of DS children were trained. One of them was taught by using mathematical multimedia software whereas the other learned by means of pencil–paper-based tasks on the same material as the multimedia group. The children of both groups were evaluated before and after training sessions. The multimedia group showed a higher performance than the paper and pencil assisted teaching group on a variety of tasks and measures, suggesting a clear relation between teaching method and mathematical learning in DS children. However, Jinjuan & Jonathan (2010) revealed a large-scale survey that collected computer usage information from the parents of approximately six hundred children with Down syndrome. They found that the text responses collected in the survey and is intended as a step towards understanding the difficulties children with Down syndrome experience while using computers.

A WebQuest can be defined as an interactive learning exercise in which students have to use several Internet resources (Benz, 2000). According to Dodge (2001) defines a WebQuest as “an inquiry oriented activity in which most or all of the information used by learners is drawn from the Web. WebQuests are designed to use learners' time well, to focus on using information rather than looking for it, and to support learners' thinking at the levels of analysis, synthesis and evaluation.” March (2003), on the other hand, defines a WebQuest as “a scaffolded learning structure that uses links to essential resources on the World Wide Web and an authentic task to motivate students' investigation of a central, open-ended question, development of individual expertise and participation in a final group process that attempts to transform newly acquired information into a more sophisticated understanding. The best WebQuests do this in a way that inspires students to see richer thematic relationships, facilitate a contribution to the real world of learning and reflect on their own metacognitive processes” (March, 2003, p.43).

Thus the objective of this article is to develop the WebQuest Lesson Enhancing Thai Reading Skills for Lower Elementary Students with Down syndrome and study the results of the implementation and the improvement of the WebQuest Lesson Enhancing Thai Reading Skills for Lower Elementary Students with Down syndrome.

Methodology

Population and Sample

Population. The populations used in this research were the students with Down syndrome at lower elementary.

Sample Group. The sample groups for the analysis of problems on Thai Reading Skills consisted of 5 students with Down Syndrome that were purposively selected from Wat Nonsaparam school under Saraburi Education Service Area Office 1 in educational year 2009 . The same sample group of 5 students with Down syndrome purposively selected from Wat Nonsaparam School in educational year 2010 was used for the implementation and the improvement of the WebQuest Lesson. None of them presented hearing problems and reported no history of hearing difficulty. All of them were monolingual Thai language speakers.

Research Instruments

The research tools consisted of the observation and screening forms for Thai reading skills problems of students with Down syndrome (Daranee, 2003). The WebQuest lesson enhancing Thai reading skills for students with Down syndrome and the observation forms for sound recording at the end of units in WebQuest lesson were developed by using the survey result from Nantawan K, & Maturros C.(2011). The frequency and the descriptive narration were used to analyze the data.

Procedure

1. The six specialized Thai teachers tested each student' reading abilities using the questionnaire and the observation form. The survey and observation were conducted from May to September 2008. The students were individually evaluated on the following reading abilities:
 - consonants and vowel
 - Thai tone marks
 - Thai syllables
 - Thai vocabulary
 - Thai short sentences
2. The researcher collected the survey results from 6 specialized Thai teachers and analyzed the data using the percentage. The problems on Thai Language oral reading were identified leading to the conclusion the content of Thai Language oral reading that should be used for making the WebQuest lesson for students with Down syndrome at lower elementary level.
3. The WebQuest lesson was then created, following by script writing on 12 WebQuest units and website creation. All of them were approved by the experts on curriculum and instruction and on ICT-based teaching and learning. They were uploaded on the site with the following URL:
<http://www.nonsaparam.ac.th/webquest/>
4. The 12 units of the WebQuest lesson were used in round 1 by the students with Down syndrome under the control of the researcher and 4 special education teachers.

5. The results were analyzed and the conclusion was made leading to the improvement of the WebQuest lesson and the website menus.
6. The students with Down syndrome tried again the units in problems of the WebQuest lesson under the control of the researcher and 4 special education teachers.
7. The results were then analyzed and the conclusion was made with success of the students with Down syndrome.

Findings

The finding of the results of the implementation and the improvement of the WebQuest lesson enhancing Thai reading skills for lower elementary students with Down syndrome were as follows:

1. The WebQuest Lesson containing 12 units on Thai language oral reading for lower elementary students with Down syndrome as presented in the figure 1-3. The WebQuest Lesson Enhancing Thai Reading Skills for Lower Elementary Students with Down syndrome consisted of the website for 12 units of Thai oral reading in 3 language levels: alphabets, words and short sentences, and the 2 testing tasks on students' sound recording and on the matching pairs between sounds and language symbols.
2. The round 1 and round 2 usage results of the WebQuest lesson on Thai Language Oral Reading were as presented the Table 2. Results of tests in round 1 had given the directions for the improvement of the WebQuest lesson and the results of the tests in round 2 had revealed the success of all students with Down syndrome at excellent levels of Thai oral reading skills.
3. The improvement of the WebQuest Lesson to meet more specific needs of the students with Down syndrome were the additional practice menu and the additional resources menu, the additional sounds for every alphabet, word and short sentence, and the additional communication tool for teachers, parents and students, the webboard menu.

Table1.

The Round 1 and Round 2 Usage Results of WebQuest lesson on Thai oral reading skills by 5 lower elementary students with Down syndrome.

List of Students	Success Unit Contents Round 1	Success Unit Contents Round 2
Student 1	Satisfy	excellent
Student 2	Good	excellent
Student 3	Good	excellent

Student 4	Good	excellent
Student 5	Good	excellent

Conclusion

In conclusion, student with Down syndrome can enhance their Thai language reading skills after studied following the WebQuest lesson. Both of the students enjoyed the WebQuest lesson, as many typical students do.

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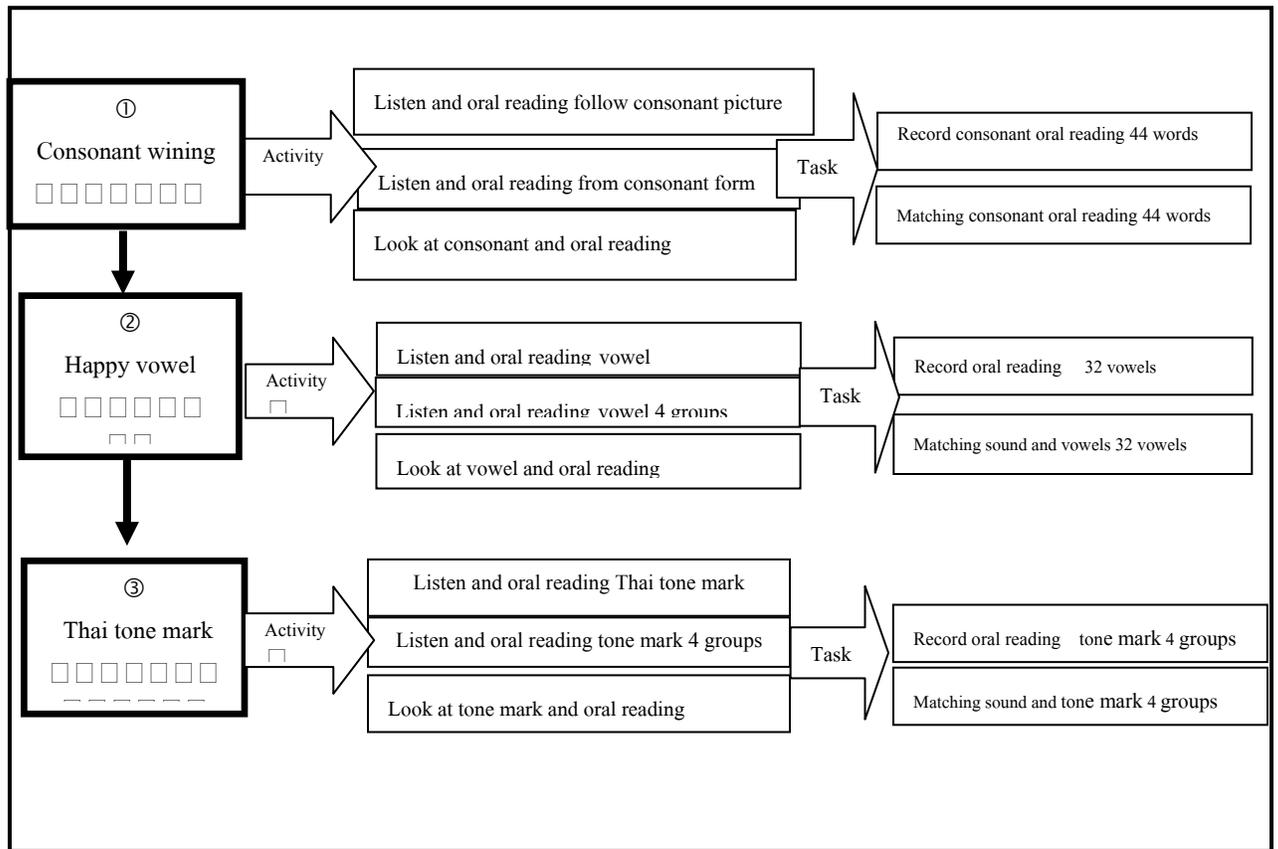


Figure 1. Structural of the activity menu in the learning on Thai consonant level of the WebQuest lesson enhancing Thai reading skills for lower elementary students with Down syndrome

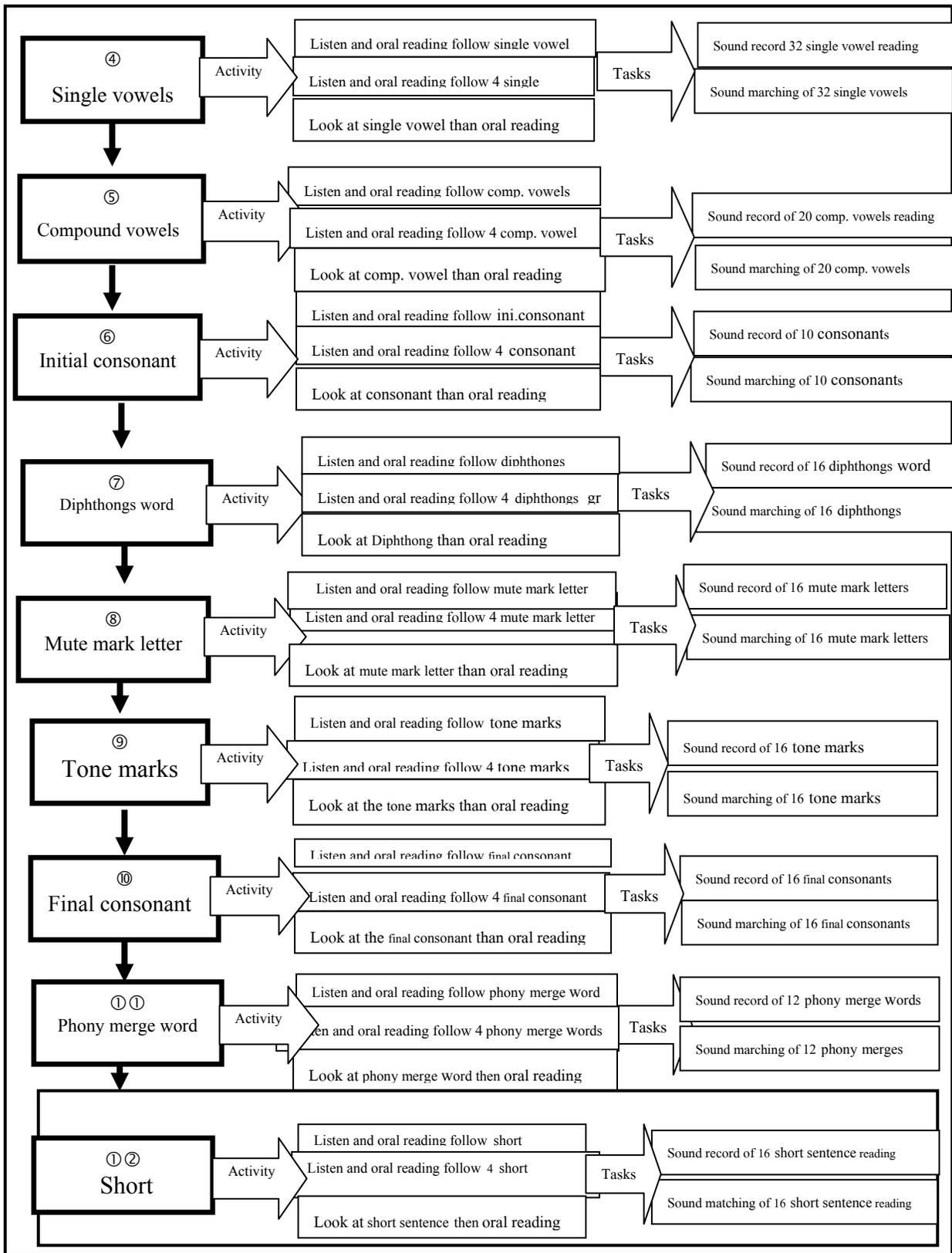


Figure 2. Structural of the activity menu in the learning on Thai short sentence of the WebQuest lesson enhancing Thai reading skills for lower elementary students with Down syndrome.