

## Developing E-Materials for Teaching Synthetic Phonics to Elementary Students

*Watchalawalee Nensiri*

*Pornpimol Sukavatee*

*Chulalongkorn University Bangkok, Thailand*

*Email: watchalnens@gmail.com*

*pornpimol.s@chula.ac.th*

### Abstract

The objectives of this study were 1) to develop electronic materials for teaching synthetic phonics to elementary students; 2) to explore the effectiveness of values of electronic materials for teaching phonics; and 3) to investigate students' opinions toward e-materials for teaching phonics. The sample consisted of 30 students from grade 6. The instruments in this research were the developed website, the semi-structured interview, and the 80/80 standard for the effectiveness of value. The results illustrated that: 1) the developed website following ASSURE model consisted of the sounds of /s/, /a/, /t/, /p/, /i/, /n/, /m/, /d/, /g/, /o/, /c/, /k/, /ck/, /e/, /u/, /t/, /h/, /b/, /f/, /ff/, /l/, /ll/, and /ss/; 2) the result of the effectiveness of value of the developed material was 79.22/77.5 considered as the effective material; and 3) the positive opinions from

students towards the material stated that the developed website helped improve their reading aloud.

**Keywords:** Synthetic phonics, elementary students website, electronic material , the ASSURE model

## **Introduction**

Phonics reading is an extremely crucial learning method for students in all stages of their education. However, few parents understand the significance of phonics reading in their children's education. Many parents believe that children will naturally master the different sounds of human speech through the use of language during their studies and applications of their studies. Ifeoma and Ibiam (2013) stated that phonics is a part of linguistics where the sounds are studied, not just the meaning of those sounds strung together. It is integral for students to learn this in addition to their regular learning methodology. A report from the National Reading Panel illustrates that teaching phonics to students will help them in many ways with their English language study and learning context. For instance, phonics reading is very important in assisting students on learning how to spell words accurately. When teaching phonics, it is the duty of students to recognize sounds and apply their understanding to help spell words correctly. Ofsted (2011) stated that teaching phonics has increased significantly thanks in part to the implementation of the National Literacy Strategy. In raising the topic about the role and teaching of phonics, supporters of the 'Synthetic Phonics approach' only stated that the results were far in advance of those obtained by students utilizing a mixed phonics program, synthetic and analytic, or a mixed strategy approach. (Lewis & Ellis, 2006).

Synthetic phonics is a method of teaching reading and spelling through decoding and encoding words with a systematic approach. This method focuses on teaching the individual sounds of the 44 phonemes in the English language in addition to the letters (Ehri, Nunes, Stahl, & Willows, 2001). When the students recognize some sounds, they can use this knowledge to read and write words by decoding and encoding, allowing them build up the words themselves, rather than just memorize. The students are also taught to ‘synthesize’ the sounds in written words by blending each sound together. Johnston and Watson (2014) indicated that with Synthetic Phonics, there are 6 phases students need to follow step by step when learning Synthetic Phonics.

- **The first phase**

Letters and Sounds focuses on developing students' speaking and listening skills to build the foundation for the phonics work which begins in phase 2.

- **The second phase and the third phase**

These phases introduce sequences of letters and their sounds one at a time. Consonant and vowel digraphs and tricky words are also introduced at these stages.

Set 1: s, a, t, p

Set 2: i, n, m, d

Set 3: g, o, c, k

Set 4: ck, e, u, r

Set 5: h, b, f, ff, l, ll, ss

Set 6: j, v, w, x

Set 7: y, z, zz, qu

### •The fourth phase

In phase 4, no new letters are introduced. The main goal of this phase is to consolidate the students' understanding and assist them in learning to read and spell words. More tricky words are introduced for the students to continue acquisition.

### •The fifth phase

Phase 5 adds to the student's list of understood graphemes and phonemes. They are also given an introduction to alternative pronunciations for graphemes.

### •The sixth phase

At this point, the students should be fair at spelling and pronouncing words, albeit not perfectly. This phase acts as additional practice. It also works with prefixes, suffixes, and the doubling and dropping of letters.

Mano-im (1999) and Thaen-nga and Leenam (2016) stated that students in Thailand have encountered many difficulties with English pronunciations, as they are not given enough chance to practice both inside and outside the classroom (Ladkert, 2014). Ladkert (2014) also emphasized that Thai students usually carry Thai pronunciation rules

into English speech. As the result, the students tend to create certain pronunciations for English words not found in the speaker's first language. Dorkchandra (2010) found that the teaching methods and materials the teachers use for teaching pronunciations are unsuccessful, and those affect students' abilities in reading aloud. Nevertheless, there are numerous studies revealing satisfying achievement concerning the effectiveness of phonics instruction on Thai EFL learners. Phonics instruction can assist and improve Thai learners in learning to read and pronounce words effectively (Thaen-nga & Leenam, 2016). According to their results, the students were able to pronounce sounds of letters and blend them together as words. After teaching synthetic phonics, the students could sound out words they had not encountered before. Larkert's (2014) results clearly indicated that the implementation of phonics instruction can enhance the students' pronunciation such that the learners of English were able to benefit from it. Kodae and Laohawiriyanon (2011) also manifested that the phonics instruction under their study exhibited overall improvement in Thai students' ability to learn how to read aloud and pronounce words. The studies clearly affirmed that phonics is an effective method for improving students' reading aloud ability and pronunciation.

While there is a plethora of materials in education that the teachers can make use of for teaching Synthetic Phonics to their students, the popular materials normally used by teachers are songs and textbooks. While the phonics in

songs are memorable, they often lead to poor pronunciations of the sounds due to the necessity to follow a predesigned tonal pattern. Clarke (1989) stated that textbooks are the main teaching method that teachers have been searching for when teaching phonics. English teachers normally use available textbooks to teach their students, however suitable materials for the students' academic level is not always available or easy to find. This situation is not a major issue if the teachers have the objectives clearly outlined and are accustomed to the student's needs. They can develop their own materials for teaching their students in order to meet the objectives they have set and fulfill the needs of their students (Tomlinson, 2011). Teaching materials can refer to several approaches which are employed by teachers in order to facilitate the teaching of language. Furthermore, the materials can be classified to many categories, such as printed material, audio material, audio visual material, interactive teaching material, authentic material, created material, electronic material, and various other creative methods for achieving the outlined objectives.

Nowadays, teachers have to work especially hard to enhance the abilities of their students through the synthesis of standard and technological strategies, emphasizing the boundaries containing technology, pedagogy, and teaching strategies in order to open the door beyond the classroom to create virtual communities for long-term learning and professional development (Harasim, 1989). Brinkley

(2011) mentioned that electronic materials can make the lessons more proficient because electronic resources, such as computers - which are considered as the digital revolution - have come to play a crucial and central role in education. Many teachers would readily admit that many students are absorbed in it. However, this poses a great opportunity for teachers to develop electronic resources to serve needs of their students in a way approachable and recognizable to their interests. Electronic materials for instruction contain not only the text, but also a number of elements such as pictures, videos, and sound recordings, which are able to continuously motivate the students and retain attention for a longer period of time. Most multimedia elements are prepared in the forms of files and websites, with the benefit of the website providing engaging and relevant materials in an easily sharable and accessible form. In the digital age, there are several excellent interactive websites regarding Synthetic Phonics available. However, it is hard for teachers to find these aforementioned materials for their students, as they are often lost in a sea of lesser quality contents or content not suitable for the desired objectives. Therefore, the researcher decided to develop an electronic material, website, which contains steps of teaching Synthetic Phonics, videos of teaching and producing sounds, and other integral resources.

The electronic material, website, for teaching Synthetic Phonics was developed through the use of ASSURE, an acronym with the following definition:

Analyzing learners

Stating standards and objectives

Selecting strategies, technology, media and material

Utilizing technology, media and material

Requiring learner participation

Evaluating and revising

To support student learning, Smaldino, Lowther, and Russell (2012) employed the ASSURE model and found it to be an important model for teachers to create appropriate learning materials. This model is a well-known instructional material design structure, integrating multimedia and technology to improve student learning and the learning environment (Faryadi, 2007). Darnawati, Jamiludin, Mursidin, and Yuniar (2016) emphasized that using the ASSURE model for developing instructional media assists students in overcoming learning problems. According to their result, it is clear that applying the ASSURE model for designing materials is integral in the creation of a successful learning curriculum. Sundayana, Herman, Dahlan, and Prahmana (2017) also found that the students studying through the instructional materials created by the ASSURE model tested better than those learning through the conventional materials. The creation of instructional materials relates to the decision-making processes that teachers use and the factors that teachers must balance. When teachers are in charge of material development, it becomes necessary for them to specify expected objectives and know their students on a personal

and academic level. Thus, it is the teacher's responsibility to select appropriate strategies and materials, utilizing available technology and media to promote student learning.

When developing the electronic materials to teach Synthetic Phonics for this website, this study will follow the ASSURE model which was found to be the most effective instructional media design method. The purpose of this study is to develop electronic materials for teaching Synthetic Phonics to elementary students.

### **Objectives**

In this study, there are three objectives as follows:

- 1.To develop electronic materials for teaching synthetic phonics to elementary students.
- 2.To explore the effectiveness of values of electronic materials for teaching phonics.
- 3.To investigate students' opinions toward e-materials for teaching phonics.

### **Research Questions**

The research questions to be answered are:

- 1.What are the components of electronic materials for teaching phonics to elementary students?
- 2.What is the effectiveness of value of electronic materials for teaching phonics?
- 3.What are the student evaluations towards electronic materials to teach phonics?

## Theoretical Framework

ASSURE is an instructional material design model developed by by Heinich and Molenda in 1999 (Faryadi, 2007). Its goal is to design materials by integration of multimedia and technology in order to enhance and produce more effective teaching and learning (Kurt, 2015). According to the model, the researcher followed six stages, which come from the acronym of the model's name "ASSURE". Those six stages are (1) Analyzing learners; (2) Stating standards and objectives; (3) Selecting strategies, technology, media and material; (4) Utilizing technology, media and material; (5) Requiring learner participation; and (6) Evaluating and revising. After following this model. An electronic material for phonics instruction, [www.phonicsclassth.com](http://www.phonicsclassth.com), was completely created.

# A. S. S. U. R. E.

Analyzing  
Learners

Stating  
standards  
and  
objectives

Selecting  
strategies,  
technology,  
media and  
material

Utilizing  
technology,  
media and  
material

Requiring  
learner  
participation

Evaluating  
and revising



Electronic Material for Teaching  
Synthetic Phonics  
([www.phonicsclassth.com](http://www.phonicsclassth.com))

## Research Methodology

The processes of conducting this study are divided into three phases. The first phase is the development of electronic material for teaching phonics, the second phase is material validation, and the third is the evaluation of the developed electronic materials for teaching phonics.

**Phase I:** Development of electronic materials for teaching phonics (Domain: <https://www.phonicsclassth.com>)



In this phase, ASSURE is used as a model for creating the instructional material. There are 6 steps in the ASSURE model: Analyze learners; State standards and objectives; Select strategies, technology, media and material; Utilize technology, media and material; Require learner participation; Evaluate and revise (Smaldino, Lowther, & Russell, 2012).

## **1. Analyze learners**

The participants in this study consisted of 30 students from grade 6 (Pratomsuksa 6) who studied at Marie Vitthaya School located in Nakhonratchasima province. The participants were selected by convenience sampling. In this stage, a questionnaire was distributed online to the participants for the researcher to collect the following information: 1) general characteristics; 2) entry competencies; and 3) personal learning styles.

### **1.1. General characteristics**

This part was composed of six questions. The questionnaire was designed for 6th grade elementary school students. There were 30 students, 17 female students and 13 male, aged between 11 and 12 years old. All were Thai. 50% of the students had studied English for 7 to 9 years, meaning half of them had started their English education since kindergarten. Additionally, 83.3% of the students had spent 7 to 9 years at school, meaning the majority of them had been in school since kindergarten as well.

### **1.2. Entry competencies**

This section includes seven questions asking the students about entry competencies as well as attitude and interests toward reading and learning the English language. It showed that half of the students (50%) neutrally agreed

that it is difficult to read words and sentences correctly. Nearly half of them (40%) had already learned how to read and blend English words. More than half of them (60%) liked to learn and develop their reading skills online. For the question “I am willing to participate in this phonics course because the content is interesting,” some students (33.3%) rated “Strongly Agree” and some (30%) rated “Neutral.” More than half of them (66.6%) were willing to participate in this phonics course because the teacher intended to use a variety of teaching methods such as technology and internet. For the question, “I prefer studying reading and blending English words online more than with textbooks,” more than half of them (66.6%) neutrally agreed and strongly agreed. About half of them (50%) strongly agreed that using technology during English class makes the subject more enjoyable to learn.

### **1.3. Learning styles**

In this part, Visual, Auditory, and Kinesthetic Learning Styles Model (VAK) was used for discovering the learning styles of the students. 15 questions asked about how they learn best. This part was adapted from the work of Fewings (2015). Despite different learning styles, the majority of students in this class were found to be visual and auditory learners (60%). 40% of them were kinesthetic learners.

## 2. State standards and objectives

In this stage, this lesson was designed to meet Learning Standards and Indicators for Foreign Languages in Basic Education Core Curriculum B.E. 2551. The standard and the objective covered in this lesson plan included:

**Objective:** Students will be able to read real words and pseudowords correctly.

**Strand 1:** Language for Communication

**Standard F1.1.2:** Accurately read aloud texts, tales and short poems by observing the principles of reading.

## 3. Select strategies, technology, media and materials

**Strategies:** Self-directed learning and student-centered strategies have been designed for this class.

**Technology, Media, and Materials:** The results showed that most of the students were visual and auditory learners. They preferred learning and developing their reading skills online through a variety of teaching delivery methods, and blending English sounds online was more interesting than using textbooks to them. Therefore, a developed website was used as the main material for this class. The website, [www.phonicsclassth.com](http://www.phonicsclassth.com), includes videos, pre-recorded sounds, voice clips, a sound recorder application, 24-hour online chat with the teacher, and online lessons and exercises.

Students had to access to computers and internet to learn Synthetic Phonics through this website in order to meet the standard and objective.

To support the student's learning of enhancing their phonics skills and helping them achieve a proficient standard of word reading and spelling performance, the Phonics Screening Check from the Department for Education (DE) and Standard & Testing Agency (STA) was used as a diagnostic test in order to assess students' phonics proficiency. According to results from the Phonics Screening Check, most of the students had some difficulty pronouncing sounds with many letters, such as "s" sounded /s/ and "t" sounded /t/, covered in the early stages of teaching Synthetic Phonics. Based on the results of the Phonics Screening Check, the course had been designed to contain three main sections. These sections were created within the website and contained the following letters and sounds:

Unit 1) s, a, t, p, i, n, m, d

s = /s/	a = /æ/	t = /t/	p = /p/
i = /i/	n = /n/	m = /m/	d = /d/

Unit 2) g, o, c, k, ck, e, u, r

g = /g/	o = /ɑ/	c = /k/	k = /k/
ck = /k/	e = /ε/	u = /ʌ/	r = /r/

Unit 3) h, b, f, ff, l, ll, ss

h = /h/	b = /b/,	f = /f/,	ff = /f/,
l = /l/	ll = /l/		ss = /s/



The sets of letters and sounds in these 3 units were the primary phases from the Department for Education and Skills for phonics instruction. The sets of letters and sounds were arranged as the systematic program for teaching phonics skills to students, and these were appropriate for students since these units were designed for the students who need phonics help. The phonetic system, applied for teaching these lessons was IPA.

**4. Utilize technology, media and materials**

The developed website consists of three units of Synthetic Phonics. Each unit contains three steps with the

directions both in Thai and English for students to follow. These three steps are explained as follows:

### Step 1: Learn the sounds

The students learn about the sounds in each unit through the use of video and voice clips created by the researcher. In this step, the students will become familiar with each sound and how it is pronounced.



## Step 2: Blend the words

The students watch the videos created by the researcher to learn how to blend the sounds into words. An exercise with answers is available in this step as well, in order to give the students a chance to practice blending sounds and reading words accurately.

**step 2**

1. Watch the video to learn how to blend words.

2. Blend each word and then click to listen to the correct answers.

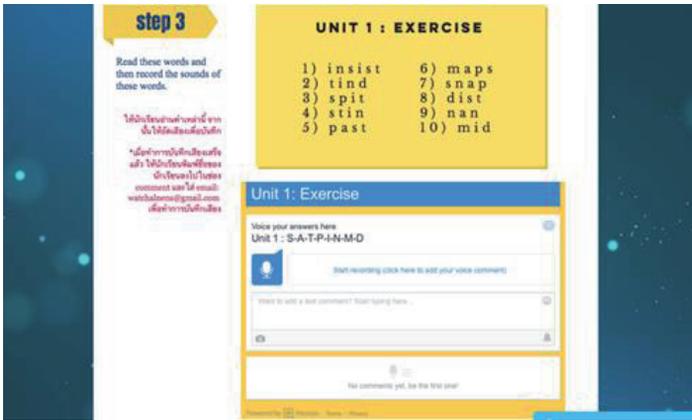
**Blending words - Unit 1**

**Blending words.**

s	s		
a	as		
t	at	sat	tas
p	past	tap	stap
i	tip	pit	spit

### Step 3: Read the words aloud

In this step, there is an exercise with the sound recorder application available in this section. With this, students can read words aloud while recording their voices. After they finish recording, they can submit their recordings to the teacher immediately. Students can also use chat application on the website to ask the teacher questions.



### 5. Require learner participation

For the Require learner participation stage, the teacher needs to give feedback to the students on their reading aloud to help the students see their mistakes and allow them opportunities to make a change. Throughout the course of each unit, students will participate in a variety of ways, including listening to the accurate sounds of words, practicing blending words, and recording their voices.

This individualized method of participation ensures that students have equal and important opportunities for participation.

## **6. Evaluate and revise**

A post-test was given to the students in order to assess student proficiency of the objective. Additionally, a semi-structured interview, conducted in Thai language, was performed to evaluate the material, teaching methods, and how the website impacted their ability to learn.

### **Phase II: Validation of materials**

Material validation was completed through the evaluation of three experts in the field of English language teaching and instructional material development using the Index of Item-Objective Congruence (IOC). There are five areas being validated in this study: 1) the questionnaire in the Analyze learners stage; 2) the pre-test and post-test; 3) the developed website; 4) the lesson plans; and 5) the semi-structured interview questions. The evaluation form presented on a rating scale ranging from -1 to 1. Items with scores higher than or equal to 0.5 were considered appropriate, while items with scores less than 0.5 were considered inappropriate and needed to be revised based on suggestions from the experts.

For the study, the IOC index level at 0.5 and above is considered acceptable. The findings from the experts' validation on the pre-test and post-test found that they were acceptable at an IOC index level of 0.77. The summary of findings from experts' validation toward the developed website, the IOC Index toward the developed website was acceptable at IOC index level 0.88. The summary of finding from experts' validation toward the lesson plans, the IOC Index toward the lesson plans was acceptable at IOC index level 1.00. The summary of finding from experts' validation toward the questionnaire, the IOC Index toward the questionnaire was acceptable at IOC index level 0.61. The summary of finding from experts' validation toward the semi-structured interview, the IOC Index toward the semi-structured interview was acceptable at IOC index level 0.72.

### **Phase III: Evaluation of the developed electronic materials for teaching phonics**

The material developed for this study was experimented with the 30 students who study in grade 6th (Pratomsuksa 6) at Marie Vitthaya School located in Nakhonratchasima province. To complete the course, the students needed to complete three units lasting fifty minutes each. The steps in conducting the experiment are explained as follows.

### **1. Pre-Test**

Before having the students learn Synthetic Phonics through the website, a pre-test was given to every student in order to assess their ability of reading aloud concerning the Synthetic Phonics. The pre-test was tape-recorded for evaluation purposes.

### **2. Website (The developed electronic material)**

The students learned Synthetic Phonics through the developed material created via wix.com, a web development platform. The website, [www.phonicsclassth.com](http://www.phonicsclassth.com), contains three units with three steps each. The students watched the video in Step 1 to learn the sounds of the letters. In Step 2, the students learned how to blend the sounds by watching the video, which lasts 7 minutes and 23 seconds. Then, they practiced blending sounds by reading the words given, followed by listening to the answers. In the last step, the students completed an exercise by reading the words aloud while recording their sounds using the sound recorder application provided on the website. In this step, all students practiced the words in the exercise prior to recording their sounds. After that, they sent the recordings to the teacher. The students repeated these steps for all three units.

The lessons lasted for 3 weeks. The website, including the videos and the lessons, could be done and repeated at home, using as much as the students desired. Every recording submitted by the students was stored on the

website and rated by two Thai inter-raters specializing in English. The value of inter-rater reliability is 0.924, which indicates excellent reliability.

### **3. Post-Test**

After the students finished the three units, they were asked to complete a post-test, which had the same contents as the pre-test. This post-test was given to the students to read aloud in order to learn whether their proficiency had improved. The post-test was tape-recorded for evaluation purposes.

### **4. Semi-Structured Interview**

At the end of the experiment, every student underwent a semi-structured interview, conducted in Thai language, for the researcher to obtain an evaluation towards the electronic material used when teaching phonics. The interview consisted of both general and specific questions including eight main questions and ten additional questions. The interviews took approximately 5 to 7 minutes each. The interviews were also tape-recorded for evaluation purposes.

## **Results**

The results of the study were based on the three research questions: 1) What are the components of e-materials for teaching phonics to elementary students?; 2) What is the effectiveness value of electronic materials for

teaching phonics?; and 3) What are the student evaluations towards electronic materials to teach phonics?

**Research Question 1: What are the components of electronic materials for teaching phonics to elementary students?**

The instructional material development for the study is the website with three units of synthetic phonics lessons available online. Three units consist of:

Unit 1: s, a, t, p, i, n, m, d

Unit 2: g, o, c, k, ck, e, u, r

Unit 3: h, b, f, ff, l, ll, ss

Each unit contains three steps. The first step was learning the sounds of each unit. The second step was learning how to blend the sounds. The last step was the exercise that checks the understanding of the content. This exercise was used for assessment as well. Each step can be explained in detail as follows.

**Step 1**

In Step 1.1, the students watched a video developed by the researcher to learn the sounds of the unit. Steps 1.2 and 1.3, the students listened to the sounds and then repeat them.

**Step 2**

In step 2.1, students watched a video to learn how to blend the sounds. Step 2.2 allowed the students to attempt to blend each sound themselves and then listened to their answers to check for accuracy.

**Step 3**

In step 3, the students read the words in the exercise and recorded their voices by using the sound recorder application, and then submitted to the teachers. The voices of students were stored on the website so that the teacher could check the students' answers and provide feedback.

The website also contains an online chat application that the students can use to communicate with the teacher when they have difficulties and would like to ask questions.

**Research Question 2: What is the effectiveness of value of electronic materials for teaching phonics?**

E1/E2 standard identifies the effectiveness value of the instructional material. The efficiency criterion can be referred to as E1/E2, where E1 is the efficiency of the process, and E2 is the efficiency of the result. The efficiency of a process is illustrated at 80% of the practice done in the process, whereas the efficiency of a result is illustrated at 80% of the post-test. E1/E2 standard requires an efficiency score of 80/80 (Tuptim, 2016).

Practice				Post-Test
Unit1 (300)	Unit2 (300)	Unit3 (300)	Total Score (900)	Post-Test (1200)
222	252	239	713	931

Trial Run	Practice			Post-Test		
	Total Score	Scoring	Percent age	Total Score	Scoring	Percent age
	900	713	79.22%	1200	931	77.58%

The result of the trial run showed that the effectiveness of value of electronic material was 79.22/77.58 which was a bit lower than 80/80 standard. According to Brahmawong (2013), if the deviation of the E1/E2's percentages is  $\pm 2.5\%$ , the material, however, still meets the E1/E2 standard which is 80/80. That means the developed material is effective.

### **Research Question 3: What are the student evaluations towards electronic materials to teach phonics?**

A semi-structured interview was used as an instrument in this study to answer this question. This question is to investigate the students' opinions toward the e-material used for teaching phonics. According to the interview results, the participants in this study had a positive opinion toward the material. The interview revealed that most of the students found the developed website to be advantageous as it helped improve their reading aloud. More than half of the students mentioned that the phonics class was satisfying and beneficial because they could see their improvement in reading aloud. Moreover, these students concluded that they enjoyed learning phonics through the website and they also would like to continue studying phonics by using the website. Most of them stated it would be good if the website were used for teaching them about reading aloud. However, a few students commented that they did not like the website and did not want to continue studying the phonics with the reason being primarily laziness. From the question, "What are the things that you like and don't like on the website?" many students said that they did not like the poor internet connection and the microphones of the school which did not pertain to the developed electronic material. Another thing that they did not like was that the video clips were too long. The students said that more pictures should be

added to the website in order to retain attention. The students suggested that the website itself should have provided more pictures in the videos as well. The contents on the website helped them to produce the sounds quite well.

## **Discussion**

In discussion part, two issues from the findings would be mentions. Those issues are the quality of the website ([www.phonicsclassth.com](http://www.phonicsclassth.com)) and students' opinions toward e-materials for teaching phonics.

### ***The quality of the website “[www.phonicsclassth.com](http://www.phonicsclassth.com)”***

**Content** -The results of the diagnostic test emphasize the importance of learning phonics, as it shows that they have difficulty with the primary sounds which are covered in the early stages of phonics instruction. The sounds taught to the students include s/, /a/, /t/, /p/, /i/, /n/, /m/, /d/, /g/, /o/, /c/, /k/, /ck/, /e/, /u/, /r/, /h/, /b/, /f/, /ff/, /l/, /ll/, and /ss/. Synthetic Phonics allows students to learn and practice pronouncing and blending sounds themselves to simplify the process of acquiring new words. This is congruent with the work of Ashby and Rayner (2006), who state that Synthetic Phonics instruction enables learners to self-teach, as they learn to cope with new words by sounding them out and blending the sounds.

**Process** - The students learned to blend sounds and pronounce words using the developed website and they really enjoyed it because they could access to the website whenever they wanted. This is similar to what Kelly (2007) mentioned, stating that the participants accessed the internet as a primary resource when learning something new due to the speed and ease of access. The students mainly acquired the knowledge and enhanced their pronunciations through the videos on the website, which students found interesting and helped retain their attention. Furthermore, they could repeat the videos as many times as they would like.

This is congruent with Botirca (2007), stating that videos can promote student learning owing to attractiveness and ability to repeat the videos.

**Product** - After learning Synthetic Phonics through the website, it is obvious that students' performance in pronunciation was improved. The results of the post-test show that students could pronounce many words more accurately and clearly. This is agreeable with Brinkley (2011), who reported that learning via websites is a successful methodology, as the technology already plays a crucial role in education.

### ***Students' opinions toward e-materials for teaching phonics***

In this issue, there are two themes will be mentioned: 1) the suggestions for the website and 2) the remarks regarding website used in the phonics class.

**The suggestions for the website** - Many students suggested that more pictures and games should be added on the website in order to better retain students' attention and interest. These opinions are congruent with Ciaffaroni (2006) which mentioned that websites should provide fun content, such as funny pictures and games for increased student engagement. Furthermore, most students also stated that the length of the videos were too long. This suggestion is similar to the findings of Gou's work (2013). He remarked that short videos are more effective and found that the appropriate length of videos is 6 minutes or shorter.

**The remarks regarding website used in the phonics class** - Most students stated that the website applied in the phonics class was beneficial for them, as they could see improvement in their pronunciations. Eshiet (2014) emphasized that Synthetic Phonics improved student proficiency and enhanced their pronunciation.

## **Recommendations**

### ***Recommendations for instructional material developers:***

To use a website as instructional material, there are several issues to bear in mind. First, the design for the website should be interesting and suitable for the targeted participants in order to maximize student focus and retention. For example, if the participants are elementary students, the developers should add games, pictures, and short videos, as these are the things that the students expect to find on websites they regularly visit. Secondly, more exercises with varying levels of difficulty should be added to the website. Due to natural differences in student proficiency, exercises with multiple difficulty levels will create an approachable but attainable challenge for them.

### ***Recommendations for future studies:***

Since the participants in this study were students in an English Program (EP), the words taught and provided in the developed material might not be too difficult for them to read aloud as they had already become familiar with some words and sounds. Despite their occasional mispronunciation of some words, the results showed improvements had been made regarding pronunciation. The results would be clearer and more satisfactory if participants in future studies came from students in standard programs. This would help to clearly determine the quality of the developed electronic material, as students would not have previous experience to use as a crutch through a difficult section.

### ***Limitation of the Study***

The limitation of this study lies within the representation of the sample. The participants in the sample is not representative for all grade 6 students, as well as for all elementary students, as this experiment was conducted with only one group of students in a single class. However, removing randomization from the recruitment of participants in the sample by hand selecting a group of students from an English Program does not have a major impact regarding equal representation of the sample. For one, all children in Thailand are required to take English classes from a young age. The difference with children in the English Program is that their parents chose to expose them to a greater degree of the English language than students in a standard program. This is well known to not have a great effect on the quality distribution within the classroom, as the distribution of skilled students within the program is similar to those of classrooms outside of the English Program. By selecting the classroom as a whole, and not just a skilled subset of the classroom, the research retains representation, while ensuring that all participants have interest in the topic of the study, as it is the primary subject where they have the most to gain.

## Conclusions

On the basis of the findings of this study, the following conclusions were drawn. The developed electronic material has been found to be an effective website for teaching Synthetic Phonics to elementary students.

In the research, it has been discovered that learning Synthetic Phonics through the developed website was successful and effective on account of the 15.23% increase in the post-test scores. This means that the website is able to improve student's ability in English pronunciation. By means of using 80/80 as E1/E2 criterion to explore the effectiveness of value of electronic material, 79.22/77.58 was found as the effectiveness of value. This result suggests that the website developed by the researcher is effective. As has been seen in the research, the students garnered positive opinions toward the developed material. They believe that the developed website is important and advantageous and the content on the website is useful since they could see their improvement in reading aloud.

As a result of this research, we can state that the developed electronic material is a successful tool for teaching synthetic phonics to elementary students, and it can be used further for an advancement of reading aloud with English pronunciation.

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