

A STUDY OF KINDERGARTEN 2 STUDENTS' ENGLISH PHONICS ACHIEVEMENT AND THEIR PERCEPTIONS TOWARDS THE USE OF ENGLISH PHONICS ONLINE GAMES AT ST. MARK'S INTERNATIONAL SCHOOL, THAILAND

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Abstract: This study aimed to compare the Kindergarten 2 students' achievement in English Phonics before and after the use of English Phonics online games and to find out their perceptions towards such games. Eleven Kindergarten 2 students of St. Mark's International School in the academic year 2015-2016 participated in the two-month study. This research used a mixed method design. A one-group pretest-posttest experiment was conducted to determine if there was a significant difference in the students' English Phonics achievement before and after using English Phonics online games. In addition, an interview on how the students' perceived the use of English Phonics online games was done. Analyses showed that Kindergarten 2 students' English Phonics achievement was very good before the use of online games, and it increased to excellent after the use of online games. Paired Samples t-test revealed that there was a significant difference between the pre- and post-tests scores of Kindergarten 2 students before and after using English Phonics online games at the level of 0.05. The interview results revealed that: 1) all Kindergarten 2 students had positive perceptions towards the use of online games in English Phonics; 2) the students had positive perceptions towards the use of English phonics online games because the games helped them learn how to spell and read and featured animations, colorful and attractive common objects, and interactive/hands-on and game/challenge components. Based on the findings, the use of online games in English Phonics is recommended in teaching and learning English Phonics, especially for young learners. Further relevant studies are also recommended.

Keywords: English Phonics Achievement, Kindergarten 2 Students' Perceptions, English Phonics Online Games.

Introduction

The use of computer technology in educational settings has become very common.

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Its popularity is even supported by research. There are three reasons why the use of computer technology is supported by some researchers. The first reason is the change in learner's profile. New generations are more familiar and dependent on Information and Communication Technology (ICT). Another is the distribution of technology in every part of society like having such technology in schools. The third reason is that effective technology use can provide for effective learning (Tokmak & Ozgelen, 2013).

One of the most common technologies used in education at present time is the Internet, which offers countless possibilities for learning. One of these Internet learning tools is educational games, specifically online games. These educational online games are beneficial because they help learners focus on learning, are engaging and fun, and provide sufficient feedback to learners (Philips, 2010). Moreover, Johnson, Christie, and Yawkey (1999) and Lisi and Wolford (2002) mentioned that they can stimulate visual scanning, auditory discrimination and spatial skills (as cited in Chuang & Chen, 2009). Playing these games, students develop soft skills like self-control, persistence, self-confidence and ability to work in a group (Banchero, 2013).

People have been influenced by technology for years. Computers, the Internet and smart phone applications are just some of the latest technological innovations and developments brought about by global competitions. With the growing popularity of online games and claims of their educational benefits, many educators believe that such technology should be incorporated in teaching-learning contexts. One such technology is online games in phonics.

With the interest of implementing technology-based teaching approach, specifically with the use of online games, to promote effective learning and to increase learner's motivation, the researcher wanted to investigate whether the use of online games in teaching phonics could improve students learning in English Phonics and produce positive views about such games. If it could, then this teaching approach (use of online games) can support the contention or the idea that it should be systematically incorporated in English Phonics of Kindergarten 2 students. Furthermore, the researcher believed that the study could be useful in her school, St. Mark's International School, where a major part of the Early Years curriculum focuses on the teaching of phonics: a tool in developing students' ability to recognize letter sounds and read (St. Mark's International School, 2016).

Objectives

This research aimed to:

1. identify the English Phonics achievement of Kindergarten 2 students before and after using English Phonics online games,
2. determine if there is a significant difference between the English Phonics achievement of Kindergarten 2 students before and after using English Phonics online games, and
3. identify the Kindergarten 2 students' perceptions towards the use of English Phonics online games.

Literature Review

Teaching and Learning English Phonics

Thorndike defined learning as habit formation. For him, learning was a matter of relating new learning to previous learning. He believed the following: 1) behavior was influenced by conditions of learning; 2) learners' attitudes and abilities could improve overtime through proper stimulus; 3) instructional experiences could be designed and controlled; and 4) it was important to select stimuli and learning experiences that were integrated, consistent and mutually reinforcing (Ornstein & Hunkins, 2009).

An experimental study conducted by the National Reading Panel provided strong evidence that systematic phonics instruction makes a bigger contribution to children's growth in reading than alternative programs providing unsystematic or no phonics instruction (Popp, 2006).

Online Games

An online game is played in a form of computer network, normally called the Internet (Philips, 2010). Oftentimes, it refers to the Internet video games that were played by numerous players around the world (Schurman, 2014).

The first online gaming activities started in 1969. They became popular in the late 1970's and the online game players began playing during the time when the Dial-up Bulletin Boards became famous in the early 1980's.

Due to the state of the art Internet technologies in 1990, new websites started to emerge contributing great opportunities in interactive computing to the public. The advertisement for online gaming was widespread all over the world with tons of new players every year (Bizymoms, 1997).

Wang, Kinzie, McGuire and Pan (2009) noted that there are several interactive and educational applications that are implemented in the early childhood education subjects like mathematics, science, reading, language and social studies. Some of this software is designed for entertainment or for practice and drill purposes. However, there are suggested software games that are more educational.

Learning Theories That Support the Use of Online Games

According to Nikolopoulou (2007), behaviorism, constructivism and socio-cultural theories of learning are the three main theories that were adopted in developing the early childhood educational software. On the other hand, Gillani (2003) stated that Skinner's behavioral theory, Piaget's cognitive development theory, and Vygotsky's social development theory can be instrumental in the development of e-learning environments that are based on how students learn. In addition, Bandura's self-efficacy theory was also mentioned in this study.

In the behavioral theory, Skinner emphasized positive and negative reinforcements. According to this theory, there is an increased frequency of response when positive reinforcement is given because of the rewarding stimulus and there is an increased probability a response will occur followed by the removal or withdrawal of unpleasant stimulus in the negative reinforcement (Ornstein & Hunkins, 2009).

Piaget theorized the four stages of cognitive development: the sensorimotor

stage, preoperational stage, concrete operational stage and the formal operational stage. In this study, the focus is more on the preoperational stage (ages 3-7) where the language development is one of the major cognitive developments (Gillani, 2003; Ornstein & Hunkins, 2009).

Vygotsky introduced the zone of proximal development. The zone of proximal development is defined as the distance between the actual development levels of an individual to his or her potential development level (Gillani, 2003). Vygotsky believed that the child will be capable of achieving a task if given the proper support and assistance when the child is in the zone of proximal development.

Bandura defined self-efficacy as one's belief in his/her capabilities to achieve a certain task (as cited in Cherry, 2016). Bandura also mentioned that there are four main sources that develop people's self-efficacy. The first is through mastery experience where individuals' own self-efficacy increases when they master a task. The second is from social modeling or vicarious experience. When people see their role models who have the same capabilities as they do become successful, they increase their self-belief that they too have the capabilities to be successful in some areas. The third source is the social persuasion that individuals receive from people around them, giving additional effort and persistence required for those individuals to try harder to become successful. The fourth is from the emotional and physiological state in which the condition will determine how people handle situations. Positive emotions can increase one's confidence, whereas stress reaction and tension will result in poor performance (as cited in Cherry, 2016).

Benefits Brought About by Online Games

Playing online games is believed to provide advantages. E-learning (2012) mentioned that due to educational games some learning objectives are achieved: practice or rote memorization, practice particular skills, word practice in a foreign language, enable problem solving and memorize formula. It was also stated that some of the characteristics of educational games help learners focus on learning, are engaging and fun and provide sufficient feedback to learners. Moreover, Philips (2010) mentioned in his article that these types of games can give people relaxation from stressful life. According to Wang et al., (2009), teaching computer, which goes with playing online games, to early childhood education can support children's cognitive and metacognitive processes. It was found out in previous research that software that gives children great domination will motivate the children to explore more and build interest in finishing more tasks (Couse & Chen, 2010). Lin, Tsai and Chien (2011) suggested that entertaining games such as educational computer games are motivating. However, there is a need for proper guidance and planning on a selected task and an appropriate educator's guidance and monitoring.

Disadvantages of Playing Online Games

Although playing online games can be beneficial, some experts caution that it can also have negative impacts. Byron (2008) mentioned in her review that online gaming has the potential to contain inappropriate materials and bad language, and can lead to incidents like cyber bullying and addictive behaviors. It was also noted that there is a chance for learners to become passive rather than active learners when they play

online games (Ornstein & Hunkins, 2009). Furthermore, teachers' lack of knowledge on how to evaluate students' learning with technology and using computers as an incentive for good behavior are just some of the barriers to teacher assessment of student learning (Ntuli & Kyei-Blankson, 2012).

Previous Studies

English Phonics Online Games

In the Creative Research Pilot study, Benson, Bredosky, Hester and Singleton, (2004) in Memphis, Tennessee, attempted to identify the strengths and weaknesses of the Help Me 2 Learn Phonics Game in an elementary classroom. It also helped students identify vowel sounds as well as sight words. Moreover, learning vowels and letters on the computer allowed students to focus for longer periods of time. In addition, computer skills of the students were also developed by using the mouse to manipulate through the software. It had a positive impact on students' self-esteem where students were able to work at their own pace as well. The study also showed a significant difference between pre-test and post-test scores, which indicated that the computer-based Help Me 2 Learn Phonics Games was very beneficial in increasing academic achievement.

Perception and Online Games

Based on the study of Sahrir and Alias (2011), there was a positive perception among Arabic Language learners towards using an online educational game in enhancing learning and improving their attitude, motivation and achievement in Arabic language learning and a high level of needs and expectations towards the use of online games as a multimedia application in the classroom. As mentioned by Liu, Lee and Chen (2011) in their study, males had shown a highly positive attitude towards using computer games, while there was less positive or neutral attitude in the affective components, perceived control, perceived usefulness and behavioral components among female colleagues.

Relationship between Online Games and English Phonics Learning

Metis Associates (2014) and Starfall education worked together to investigate the implementation and overall impact of the Kindergarten curriculum. In their study, a comparative analysis shows that Starfall students outperformed non-Starfall students in reading proficiency. Ibrahim, Yusoff, Omar, and Jaafar (2011) pointed out in their pilot study that students using games had an optimistic attitude and were more encouraged to learn. Students were able to develop their thinking skills and test their knowledge about the subject in programming compared to conventional methods.

Conceptual Framework

The researcher wanted to investigate the difference between the English Phonics achievement of Kindergarten 2 students before and after using English Phonics online games and their perceptions towards these games. The figure below illustrates the conceptual framework of the study which indicates the assumptions that such games can have some influence on learning English Phonics, and that the students'

perceptions of these online games can be related to their use and the students' English Phonics achievement.

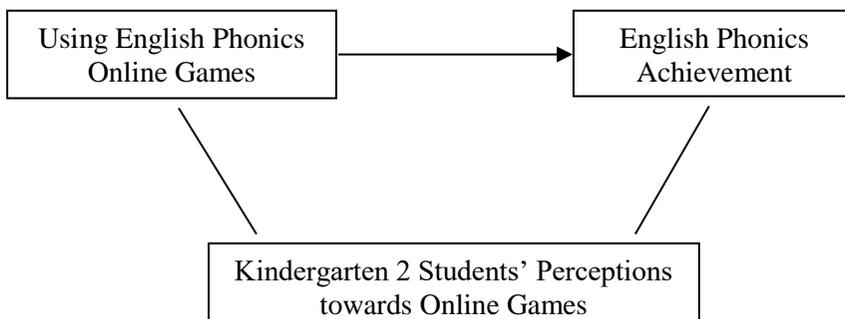


Figure 1: Conceptual Framework of The Study

Method

This research used a mixed method design, specifically the concurrent embedded strategy, as it employs two methods (Creswell, 2009). In this design, quantitative and qualitative data were collected simultaneously. An experiment, specifically a one-group pretest-posttest design, was the main method used to address the first two research objectives. The secondary method was an interview which concerns with the third research objective.

Population

This study represents the population of the Kindergarten 2 students of St. Mark's International School. Most of the students were female and have Thai nationality.

Sample

This study involved eleven Kindergarten 2 students at St. Mark's International School in the academic school year 2015-2016. The students were four to five years old and of different nationalities.

Instruments

There were two research instruments used in this study: the English Phonics tests and the interview form. The content of the English Phonics tests for pre-test and post-test was taken from Chall-Popp Phonics A student book. Each English Phonics test consists of 20 items. The result of the Kindergarten 2 students' English Phonics achievement was interpreted based on St. Mark's International School's criteria for grading. Scores below 10 out of 20, or below 50%, mean "Needs improvement"; 10-11 out of 20, or 50%- 59%, are categorized as "Pass"; 12-13 out of 20, or 60%- 69%, are considered "Satisfactory"; 14-15 out of 20, or 70%- 79%, mean "Good"; 16-17 out of 20, or 80%- 89%, are categorized as "Very Good"; and 19-20 out of 20, or 90%- 100%, are considered "Excellent".

The questions in the interview form was adapted from Benson et al. (2004) and was modified by the researcher. There were 5 items in the original interview form.

As the researcher wanted to identify the students' perceptions towards the use of English Phonics online games, the researcher modified the original interview in order to fit this purpose and came up with the 8-item semi-structured interview form. The interview on the use of online games in English Phonics was conducted with each of the students after each set of 3-letter activities for their favorite activities and the rest of the questions in the interview were asked after the two-month treatment. A video recorder was used to record all the information given by the students. Each interview took about 8-10 minutes.

To identify the English Phonics achievement of Kindergarten 2 students, means and standard deviation of the pre- and post-tests were obtained. To determine if there was a significant difference between the English Phonics achievement of Kindergarten 2 students before and after using English Phonics online games, a paired samples t-test (two-tailed) was performed. To identify the Kindergarten 2 students' perceptions towards the use of online games in English Phonics, quantitative and qualitative analyses were done. In the quantitative analysis of perceptions, frequency and percentage were obtained to measure the "yes or no" answers to each of the structured questions, while the qualitative analysis was done to get a thematic description of the responses to open-ended questions following Creswell's (2009) suggestions.

Validity and Reliability

The English Phonics tests (pre and post-tests) for the Kindergarten 2 students were taken from the Kindergarten 2 English Phonics student book (Chall-Popp Phonics A). This book, as well as the English Phonics test, has been approved and provided by the school administration and has been used in this level for more than 10 years (from 2004 to the present) by the researcher. The book follows St. Mark's International School's curriculum in English. This book has been created based on the previous research on phonics learning among children (Popp, 2001).

The interview form was subjected to face and content validity. Its face and content validity was evaluated and approved by educators who have years of experience in research, psychology and English language education.

Experimental Procedure

Permission from the school principal and the school manager of St. Mark's International School was requested prior to the conduct of this study which followed an Eight-Week Course and Assessment Schedule covering the lessons in Unit 3 for 8 weeks (2 months). The schedule coverage of the lessons was based on the school's weekly course outline provided by the school administration. Upon getting the approval from the school principal and the school manager, the English Phonics pre-test was administered by the researcher to the Kindergarten 2 students at the beginning of the second semester of the academic year 2015-2016 (on January 11, 2016) before the introduction of English Phonics online games.

After the pre-test, the treatment was administered using the English Phonics online games from a specified website: *www.starfall.com*, together with the traditionally prescribed Chall-Popp Phonics Level A book in the English Phonics class. This book consists of 5 units, with a two-page Progress Check after each unit.

The two-page Progress Check in Unit 3 was used to determine the English Phonics Achievement (pre and post-tests) of the students in this study.

On March 7, 2016, two months after the treatment, the English Phonics post-test was administered. A one-on-one interview with each of the students from March 8-9, 2016 was also conducted. A video recorder was used to record all the information given by the students.

Findings

The findings of this study are detailed below.

Part 1: English Phonics Achievement of Kindergarten 2 Students

Table 1: Mean and Standard Deviation of English Phonics Achievement of 11 Kindergarten 2 Students before and after Using English Phonics Online Games

	M	S.D.
• Pre-test scores on English Phonics achievement of Kindergarten 2 students before using English Phonics online games	16.18	1.25
• Post-test scores on English Phonics achievement of 11 Kindergarten 2 students after using English Phonics online games	18.91	0.94

Table 1 shows that the English Phonics achievement of the Kindergarten 2 students in the pre-test was 16.18 out of 20 and 18.91 out of 20 in post-test . This means that, on average, the students English Phonics achievement before using the English Phonics online games was very good and was excellent after using the online games.

Part 2: Difference between the English Phonics Achievement of Kindergarten 2 Students before and After Using English Phonics Online Games

Table 2: Paired Samples t-test (Two-Tailed) on the English Phonics Achievement of 11 Kindergarten 2 Students Before and After Using English Phonics Online Games

	M	S.D.	t	Sig. (2-tailed)
• pre-test score before online games	16.18	1.25	-6.71	0.000
• post-test score after online games	18.91	0.94		

The paired samples t-test revealed that the mean post-test score is higher than the mean pre-test score, and that this difference is statistically significant at a level below 0.05 ($p = 0.000$). This means that the English Phonics achievement of the Kindergarten 2 students after using English Phonics online games was significantly higher than before using them.

Part 3: Kindergarten 2 Students' Perceptions towards the Use of Online Games in English Phonics

Part 3.1: Descriptive Statistical Results for the “Yes or No” Responses of Kindergarten 2 Students Regarding Their Perceptions towards the Use of Online Games in English Phonics.

Table 3 shows the results regarding the students’ responses to the “yes and no” interview questions.

Table 3: Frequency and Percentage of 11 Kindergarten 2 Students’ Responses to Yes or No Questions

Questions	Response	Frequency	Percentage
Did you enjoy playing Starfall online games in English Phonics?	Yes	11	100%
	No	0	0%
	Total	11	100%
Do you feel you know all the vowel and consonant sounds?	Yes	10	90.90%
	No	1	9.10%
	Total	11	100%
Would you want to play the Starfall online games in English Phonics at home?	Yes	9	81.80%
	No	2	18.20%
	Total	11	100%
Do you use other online games at home?	Yes	9	81.80%
	No	2	18.20%
	Total	11	100%
Would you like to continue developing your reading skills with Starfall?	Yes	10	90.90%
	No	1	9.10%
	Total	11	100%

All five findings regarding the “yes” and “no” responses of the 11 Kindergarten 2 students reveal higher than 81.80% in favor of “yes”, indicating that in general, all students have positive perceptions towards the use of online games in English Phonics because they enjoyed the games.

Part 3.2 Responses to Open-ended Questions on Kindergarten 2 Students’ Perceptions towards the Use of Online Games in English Phonics

Table 4 presents the Kindergarten 2 students’ responses to the open-ended question.

Table 4: 11 Kindergarten 2 Students’ Responses to Question 2, “Why Did You Enjoy or Not Enjoy Playing Starfall Online Games in English Phonics?”

Responses	Frequency
The Kindergarten 2 students enjoyed playing Starfall Online games in English Phonics because:	
- it made them happy.	4
- it was fun.	5
- it was funny.	1
They enjoyed playing Starfall Online games in English Phonics because it made them:	
- learn how to spell	8

Table 4: 11 Kindergarten 2 Students’ Responses to Question 2, “Why Did You Enjoy or Not Enjoy Playing Starfall Online Games in English Phonics?”

Responses	Frequency
- know the letters	4
- learn how to read	1
They also enjoyed playing Starfall Online games in English Phonics because of the following features of the game.	
1. Animation	
- dancing fish	2
- puppy	3
- funny motorcycle	1
- pig dancing ballet	1
2. Colorful Objects	
- apple and balloon	1
- rainbow	2
- great color	1
3. Interactive/Hands-on and game/challenge components	
- pressing	1
- matching activity	3

These findings signify that the students had positive perceptions towards the use of Starfall online games in English Phonics because they believed that the games helped them learn how to spell and read, and because they found the animations, colorful common objects and the interactive/hands-on and game/challenge components of the activities enjoyable and interesting.

Table 5: Frequency and Percentage of 11 Kindergarten 2 Students’ Responses to Their Favorite Activity on the Phonics Game on Letters s, m and t

Letters	Frequency	Percentage
s	3	27.27%
m	5	45.45%
t	3	27.27%
Total	11	100.00%

Table 5 shows the frequency distribution of Kindergarten 2 students’ responses regarding their favorite activity on the phonics game on letters *s*, *m*, and *t*. The results reveal that out of 11 students, three (27.27%) liked letter “*s*”, five (45.45%) answered “*m*” and also three chose letter “*t*”. This implies that most of the students had fun playing the activities in letter “*m*”.

Table 6: Frequency and Percentage of 11 Kindergarten 2 Students’ Responses to Their Favorite Activity on the Phonics Game on Letters b, f, and r

Letters	Frequency	Percentage
b	2	18.18%
f	5	45.45%

Table 6: Frequency and Percentage of 11 Kindergarten 2 Students' Responses to Their Favorite Activity on the Phonics Game on Letters b, f, and r

Letters	Frequency	Percentage
r	4	36.36%
Total	11	100.00%

Table 6 shows the frequency and percentage of Kindergarten 2 students' responses as to their favorite activity on the phonics game on letters *b*, *f*, and *r*. Out of 11 students, two (18.18%) answered letter “b”, five (45.45%) answered “f” and four (36.36%) answered letter “r”. This implies that many of the students had fun playing the activities in letter “f”.

Table 7: Frequency and Percentage of 11 Kindergarten 2 Students' Responses to Their Favorite Activity on the Phonics Game on Letters n, p, Song-Short a Sound , Make a Word with an and Make a Word with at.

Letters	Frequency	Percentage
n	0	0.00%
p	7	63.64%
Song-Short a sound	4	36.36%
Make a word with <i>an</i>	0	0.00%
Make a word with <i>at</i>	0	0.00%
Total	11	100.00%

Table 7 illustrates the frequency distribution of Kindergarten 2 students' responses regarding their favorite activity on the phonics game on letters *n*, *p*, Song-Short a sound, Make a word with *an* and Make a word with *at*. Out of 11 students, nobody answered letter “n”, Make a word with *an* and Make a word with *at*; seven (63.64%) answered “p”; and four (36.36%) answered letter “Song-Short a sound”. Based on the results in table 17, students preferred the activities in letter “p” than the activities on letters *n*, Song-Short a sound and make a word with *an* and make a word with *at*.

Additional Finding: Frequency and Percentage of 11 Kindergarten 2 Students' Usage of Online Games at Home

Table 8: Frequency and Percentage of Responses of 11 Kindergarten 2 Students to the Usage of Online Games at Home

	Frequency	Percentage
Once a week	2	18.18%
Two to three times a week	4	36.36%
Every day	3	27.27%
Does not play	2	18.18%
Total	11	100.00%

Table 8 shows the frequency and percentage of 11 Kindergarten 2 students'

responses to question 7 “*How often do you use online games at home?*”. Out of 11 students, two (18.18%) answered “once a week”; four (36.36%) answered “two to three times a week”, three (27.27%) replied “everyday” and two (18.18%) answered “do not play”. This finding indicates that students varied in terms of playing online games at home, from not at all to every day. However, when asked whether they played Starfall online games or other English phonics games, they said “no”. They said they played other games such as car racing, princess games, house hold chores games and dress up games.

Discussion

The Use of Online Games in English Phonics and English Phonics Achievement

The results of this study indicate that the English Phonics achievement score of Kindergarten 2 students in the post-test was significantly higher than in the pre-test. This means that the Kindergarten 2 students improved their English phonics achievement after using the online games in English phonics.

This finding can be corroborated by another finding of this study in which students who played online games at home once a week, two to three times a week, and every day, and those who never at played all had almost similar English phonics achievement scores. This can be because the online games they played at home were not the Starfall games nor related to English phonics.

This finding indicates the positive influence of the use of online games in the students’ English Phonics achievement. The positive influence of online games in learning can be explained by the concept of discovery learning where the role of computer, together with Internet technology, is to provide the technological environments for constructive learning (Gillani, 2003).

Vygotsky’s concept of zone of proximal development (ZPD) explains the relationship between learning and development and giving children with suitable assistance when they are in their ZPD will enhance them to achieve learning tasks (Gillani, 2003; McLeod, 2010). The English phonics achievement tasks in this study were in the students’ zone of proximal development.

The behavioral theory of learning can also help explain the improvement in the students English Phonics achievement. The online games provide drills that students could repeat in order to master the tasks and concepts. The games also offered positive reinforcements in the form of rewards, i.e. stars and positive feedback like “you did it!” that motivated the students to continue the tasks.

The students’ significant learning in this study can also be related to their positive perceptions towards the use of the online games. Interview results noted that students believed playing the games helped them learn spelling and reading. This belief appears to be supported by their improved post-test scores. Bandura’s concept of self-efficacy (as cited in Cherry, 2016) can also explain such improvement. It is possible that the students developed their self-confidence as they used the online games. Taking on the challenges posed by the games led to their mastery of the learning tasks and concepts which resulted in their positive attitude. Moreover, they were motivated to exert effort and perseverance in the achievement tasks since they enjoyed the activities in the online games and they believed the games helped them

learn. Such positive perception of themselves and of the use of online games probably helped them achieved significant learning in the targeted English phonics concepts.

This finding is also similar to the previous research findings of Benson et al. (2004) regarding the increased academic achievement of the students in the elementary classroom and the improvement of the students' phonics skills, especially in recognition of consonants and long and short vowel sounds, after using online games. The finding in this study about the positive influence of online games in learning supports the contention of Ibrahim et al. (2011) that the use of educational games as a language approach improved student's learning of various learning domains: cognitive, affective and psychomotor. In addition, it is also similar to the findings of Metis Associates (2014) that claimed that Starfall students outperformed non-Starfall students in reading proficiency. In that study, they mentioned that a great number of Kindergarten students achieved reading proficiency after the school adopted the Starfall curriculum.

This research finding is also supportive of the previous study of Tuzun, Soylu, Karakus, Inal, and Kizilkaya, (2008) which found that students made significant learning by participating in a computer game-based learning environment. In another study, Ibrahim et al. (2011) pointed out that students using online games had an optimistic attitude and were more encouraged to learn. In that study, students were able to better develop their thinking skills and test their knowledge about the subject in Programming compared to conventional methods. Finally, this finding corresponds to Sahrir and Alias's (2011) findings that the use of educational online games encourages students to learn and leads to enhanced academic achievement.

Students' Perceptions towards the Use of English Phonics Online Games

This study also reveals that the Kindergarten 2 students' had positive perceptions towards the use of online games in English Phonics. The positive perceptions can be due to the students' belief that playing the games helped them learn how to spell and read and the enjoyment they experienced while playing those games.

Students could have noticed that they were learning letter sounds and symbols and how they were applied in reading and writing words, and that they could actually spell and read words using the English Phonics concepts they had learned. Based on self-efficacy theory of Bandura, this mastery of English phonics concepts could have developed the students' self-confidence (as cited in Cherry, 2016). Such confidence could have led them to continue with the learning tasks resulting in more achievement.

Moreover, the students' positive perception of the use of English Phonics online games could have been brought about by their enjoyable experience in playing such games. As stated in the literature review, some of the characteristics of educational games help learners focus on learning, engaging and fun and provide sufficient feedback to learners (Philips, 2010).

This finding about the students' positive views about online games support the study of Lin et al. (2011) in which students had shown highly positive attitudes towards using computer games in learning, demonstrated confidence, and enjoyed these kinds of activities both inside and outside the classroom settings. It also corroborates the findings of Sahrir and Alias (2011) that the use of educational online

games relate to students' positive attitudes towards the use of such games, enhancing their learning motivation.

It should be noted, however, that this study was conducted with only 11 students with no control group. Moreover, the students' backgrounds, i.e. family, nationality, social status, were not taken into consideration. Thus, the implications of the study findings should be interpreted cautiously, considering the mentioned limitations.

Recommendations

Based on the findings, this study recommends the following.

For Teachers. Teachers, especially English Phonics teachers and English teachers of young learners, can integrate or use Starfall and other English phonics online games in classroom activities. They should also try other suitable educational online games as a teaching-learning tool. Moreover, they should be adventurous enough to discover new teaching and learning approaches that will best fit their students' needs, promote effective learning and increase motivation in learning. Finally, they should apply a variety of activities that can maximize student learning, as well as make use of the available technology common in the 21st century.

For School Administrators and Curriculum Developers. Administrators and Curriculum Developers may experiment on the use of online games, not only Starfall but also other educational online games, as integrated teaching-learning tools.

For Research. First, Researchers should further investigate the role of English phonics and other educational online games in students' learning in a larger context, i.e. bigger sample sizes, various student levels and backgrounds, desirably with control and experimental groups, in normal class settings. Second, they should study further the implementation of the use of online games to determine their impact on kindergarten curriculum. Third, they should conduct relevant studies at the beginning of the school year and for a longer period of time, preferably in a whole semester or school year, in order to get a clearer picture about the influence of online games in children's education.

References

- Banchero, S. (2013). Now teachers encourage computer games in class. *The Wall Street Journal*.
- Benson, T., Bredosky, C., Hester, E., & Singleton, J. (2004). *The impact of the help me 2 learn phonics game in the early childhood classroom*.
- Bizymoms. (1997). *Online gaming history*.
- Byron, T. (2008). *Safer children in a digital world*.
- Cherry, K. (2016). *Self-Efficacy: Why believing in yourself matters*.
- Chuang, T., & Chen, W. (2009). Effect of Computer- Based video games on children: An experimental study. *Educational Technology & Society*, 12 (2), 1-10.
- Couse, L.J., & Chen, D.W. (2010). A tablet computer for young children? Exploring its viability for early childhood education. *Journal of Research on Technology in Education Vol. 43 Number 3 p.75*.
- Creswell, J.W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd Ed.). L.A., California: SAGE.
- E learning (2015). *Educational games*.

- Gillani, B. (2003). *Learning theories and the design of e-learning environments*. Lanham, Maryland, United States of America: University Press of America, Inc.
- Ibrahim, R., Yusoff, R., Omar, H., & Jaafar, A. (January 2011). Student's perceptions of using educational games to learn introductory programming. *Computer and Information Science Vol. 4, No. 1*.
- Lin, G., Tsai, T., & Chien, P. (2011). Computer games functioning as motivation stimulants. *International Conference on Computer Assisted Language (CALL) in 2011*.
- Liu, E., Lee, C., & Chen, J. (2011). Developing a new computer game attitude scale for Taiwanese early adolescents. *Educational Technology & Society, 16 (1), 183-193*.
- McLeod, S. (2010). Zone of proximal development. *Simply Psychology*.
- Metis Associates. (2014). *Evaluation of Starfall Kindergarten Curriculum in Roaring Fork School District*.
- Nikolopoulou, K. (2007). Early childhood education software: Specific features and issues of localization. *Early Childhood Education Journal vol. 35 No. 2*.
- Ntuli, E., & Kyei-Blankson, L. (2012). Teacher assessment of young children learning with technology in early childhood education. *International Journal of information and Communication Technology Education, 8(4), 1-10*, October-December 2012.
- Ornstein, A., & Hunkins, F. (2009). *Curriculum: Foundations, principles, and issues* (5th Ed.). Boston, United States of America: Pearson Education, Inc.
- Philips, M. (2010). Playing games online is just fun and entertainment. *Articles factory*.
- Popp, H.M. (2006). *How research guided the development of Chall-Popp phonics*.
- Sahrir, M. S., & Alias, N. A. (2011). A study on Malaysian language learners' perception towards learning Arabic via online games. *GEMA Online Journal of Language Studies Volume 11(3)*.
- Schurman, K. (2015). *What is online gaming?*.
- St. Mark's International School. (2016). *Early Years Program English Curriculum*.
- Tuzun, H., Soylu, M., Karakus, T., Inal, Y., & Kizilkaya, G. (2008). The effects of computer games on primary school students' achievement and motivation in geography learning. *Computer & Education*.
- Wang, F., Kinzie, M., McGuire, P., & Pan, E. (2009). Applying technology to inquiry-based learning in early childhood education. *Early Childhood Educational Journal (2010)37:381-389*.