



EFFECTIVENESS OF E-BOOK IN IMPROVING OMANI KINDERGARTEN KIDS COMPREHENSION AND MOTIVATION TOWARDS STORIES READING

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Abstract:

Nowadays technology became an affective and worthy tool for learning and acquisition of knowledge. Although e-books have many facilities and tools which motivate children to read and develop their reading skills, most of the early childhood institutions in Oman are not using e-books for teaching children. Therefore, this study aims to investigate the difference between using e-books and printed books to motivate kindergarteners to read and enhancing their understanding of the text. This study compares between experimental group which use e-books and control group which use printed books. Findings show that there are no significant differences between the two groups with regard to motivation. However, children who read from paper books got better scores in the comprehension test. The study concludes with some future recommendations.

Keywords: e-book, Oman, comprehension, motivation, kindergarten kids

1. Introduction

Reading is priceless tool and essential instrument for lifelong learning, academic achievement and personal growth. It is important skill that must be considered in early stage because it has a critical role in helping children to acquire words and concepts and improving their language development which include reading and writing skills (Korat

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and Or, 2010). Moreover, reading is not only about improving child's language; it extends to make children in love with reading (Maynard, 2010). Previously, people tend to read paper books, packages papers that are collected under one cover (Kang, Wang and Lin, 2009), and considered as a way to deliver the information from the writer to the reader.

For a long time, paper books were the basic way to learn but this kind of book shows some limitations. The books' weight is considered as one of the limitations of the paper books, which leads to another disadvantage that appears in the difficulty of books portability. Moreover, the paper books need space for storage which requires in some cases to have special buildings for that purpose. In 1971, Michael S. Hart created the first e-book (Siegle, 2012) which overcame the limitations of paper books.

1.1 The Concept of e-book

The e-book is defined as electronic version of printed book (Siegenthaler, Wurtz and Groner, 2010) or written work in digital format which can be readable by using e-readers, personal computer or mobile phone (Kang, Wang and Lin, 2009; Annand, 2008). Many studies advocate that e-books are favorably requested by people more than the paper books. Sprague and Hunter (2008) revealed in their study conducted in Duke University Libraries that e-books received 11% more use than traditional paper books. Moreover, in United States e-books account has been increasing to 20% of total books sales (Siegle, 2012). This increase of e-books usage includes the educational field, where Ward (2014) stated that about \$73 million were spent on e-books in 2012-2013 in U.S. schools. In addition, a study applied in Auburn University Montgomery, and measured the increasing of e-books usage from 2000-2004; the results indicated that usage of the e-books increased over 5 years period compared to the decrease of the use of paper books (Sprague and Hunter, 2008). The reasons behind that is the availability of e-books and their rapid updating.

However, some studies show that some students prefer using paper book or print based materials to e-books despite the high price of the paper books (Annand, 2008; Kang, Wang and Lin, 2009). Slater (2009) concluded that 60% of the students prefer to use paper books whereas 21.5% prefer e-books and 80.4% have no reluctance for using both of them. Woody, Daniel and Baker (2010) mention that people preference to paper books is resulted from the familiarity with paper books and the lack of experience of using e-books which make them uncomfortable with using them. Annand (2008) added other reasons for that preference such as dependability, portability, and ease-of-use.

The argument about e-books and paper books comes from the variety of the advantages and disadvantages of both types. E-books are characterized by accessibility (Woody, Daniel and Baker, 2010; Kang, Wang and Lin, 2009), portability, and less space for storage (Kang, Wang and Lin, 2009). As well as the ability of adding some assistance tools such as videos, sounds, and links (Woody, Daniel and Baker, 2010; Siegenthaler, Wurtz and Groner, 2010); and the ease of updating, editing and adding new information (Siegenthaler, Wurtz and Groner, 2010). That what paper books are lacking.

1.2 Research problem

According to the researchers experience in early childhood education institutions, children have less motivation for reading. They noted that reading room at Childcare Center of Sultan Qaboos University (SQU) is usually neglected and rarely visited by children. The researchers assume that the reason can be poor stimulation of printed books for children to read and the use of traditional methods by teachers to motivate children to read. Research shows that children who practice reading as interesting activity tend to be more skillful in reading and become as a habit for them (Maynard, 2010).

1.3 Research aim and objectives

This research aims to investigate the difference between using e-books and printed books to motivate kindergarteners to read and enhancing their understanding of the text. It also explores the extent to which e-books can be used to motivate children to read because children are nowadays interested in using technology specifically portable devices such as tabs and mobile phones. In particular, this research aims to:

1. Compare the effect of e-books and printed books on children's understanding of the story.
2. Compare the effect of e-books and printed books on children motivation to read.

1.4 Research questions

This study attempts to answers the following questions:

1. How effective is the e-book in improving Omani kindergarten kids' comprehension of stories reading?
2. How effective is the e-book in improving Omani kindergarten kids' motivation towards stories reading?
3. Are there any significant differences between the experimental and control groups towards comprehension/motivation in terms of: gender and age?

2. Importance of the study

This study is important since it is one of the first studies to discover ways of improving reading among Omani children. The importance of the research goes under the concept that reading is one of the most important learning tools, acquired in early stages of human life. In fact, acquiring the habit of reading becomes an urgent highly needed habit in an era where technology is an essential part of life. It is observed that children in the current time are not motivated to read, and this is attributed to the scarcity of interesting reading sources that are appropriate to their preferences. Therefore, this study seeks ways to motivate children to read using electronic books as a tool to enhance children motivation and text understanding. To find out the best method that may increase children motivation to read, a comparison between e-books and printed books is conducted. Definitely, the improvement of reading level will generally lead to increase the level of efficiency of Omani people in the future.

2.1 Literature review

2.1.1 E-books in education

Recently, e-books used in educational field received great interest and attention by teachers and decision makers who work in education sectors. Many studies have highlighted the importance of including e-books in the educational process (Embong, Noor, Hashim, Ali and Shaari, 2012; Woody, Daniel and Baker, 2010; Chera and Wood, 2003). These studies indicate many advantages of e-books on students in many different aspects. One of these aspects is the healthy aspect because using e-books comfort students from holding the heavy bags that may cause back pain or spine bend (Embong, Noor, Hashim, Ali and Shaari, 2012). From the psychological point of view research says that the use of e-books in education increases students' motivation to learn and it attracts children attention (Embong, Noor, Hashim, Ali and Shaari, 2012; Chera and Wood, 2003). Chera and Wood (2003) have pointed out that e-books make learning more interactive because they contain many assistance tools, which would make it easier for teachers to link between the use of e-books and students activities (Chera and Wood, 2003).

It worth mentioning that there are limits to the use of e-books in education including (Embong, Noor, Hashim, Ali and Shaari, 2012):

- Storage of equipment;
- Operation of e-books capacity;
- Limited number of electrical sources in the classroom, and therefore difficult to run the devices at the same time;

- Teachers may not be eligible to involve this kind of books in their teaching process;
- Some students may not feel the same pleasure they experience when reading experience book;
- Some operators' devices for e-books lack tools that allow students to write notes, texts or even highlight text.

Studies indicate that it is important to put the students' opinion in mind when choosing the use of e-books in electronic education or other format (Woody, Daniel and Baker, 2010). In the latter study, results indicate that students who used e-books still prefer to use printed books. It shows that although the price of e-books is much less, than the price of printed books, 90% of the students prefer to buy printed books. This may be attributed to the stress e-books exert on the readers' eyes and the continuous need to charge electronic devices. This may hinder the frequency of students' use of e-books. Woody, Daniel and Baker (2010) study also shows no difference in academic performance between students who use e-books and those who use printed books.

2.1.2 E-books for young children

Although there are limited studies about e-books in early childhood education, most of existing studies (Underwood and Underwood, 1998; Korat and Shamir, 2007; Korat and Or, 2010; Luik and Mikk, 2008) mention that using e-books for children increase the motivation, and contribute in developing their language and acquiring writing and reading skills. Additionally, they help children to learn meaning of new words, word recognition and word reading (Korat, 2010). For instance, a four-week program in exposing kindergarteners aged 3-6 years for e-book showed significant improvement in their phonological awareness than in control group (Korat and Shamir, 2008). E-book made less effort for adults because kindergarteners became more independent in reading (Korat and Shamir, 2008). Korat and Shamir (2007) add that children who read e-books without adults' help have the same level as children who read printed books with an assistant. These advantages are a result of e-book's various features such as oral reading, written text, oral discourse, animation, music and sound effects (Korat, 2010; Korat and Shamir, 2008; Korat and Shamir, 2007).

On the other hand, e-books have their disadvantages. For example, student effort, differences in processing, and eyestrain from computer screen can decrease comfort-ability and differential usage (Woody, Daniel and Baker, 2010). In addition, the rich interactive e-books distract children and interfere with their understanding of the story (Korat, 2010; Grimshaw, Dungworth, McKnight and Morris, 2007) such as over adding video, sounds, animation. A study shows that e-books, which contain about 19

hotspots, could interrupt story line (Korat, 2010). The findings of National Literacy Trust's 2012 annual literacy survey shows also those young children who included some print papers daily reported greater motivation and enjoyment toward reading than those who reads from e-books (51.3% vs. 11.81%). (Picton, 2014)

2.1.3 E-books and comprehension

Several studies suggest that reading from e-books contributes to improve children's comprehension and the understanding of the text. Korat (2010) indicates that children who read from e-book exhibited a progress in understanding the words meaning, he mentioned that understanding word meaning and increasing vocabulary considers one of the essential vehicles for reading comprehension. However, it is important to mention that the different features of e-books play a significant role in improving children's reading comprehension. Grimshaw, Dungworth, McKnight and Morris (2007) indicate that features of e-books such as narration, word pronunciation, animation, and sound effects, which support the content, make the reading and understanding of the text becomes much easier. Korat and Shamir (2008) mention that the hotspots of the e-books foster children's understanding. Further, Ward (2014) reveal other e-books features that help children's comprehension such as searching hyperlinks, using an audible thesaurus or dictionary. Moreover, Ward (2014) finds that the struggling readers have improved their reading habits and the reading comprehension after using e-books and they have benefited from the features.

This research investigates the effect of the e-book in improving Omani kindergarten kids' comprehension of stories reading by considering children previous experience with technology. We hypothesized that children who use e-books show better performance in comprehension test.

2.1.4 E-books and motivation

The connection between motivation and successful reading has recognized recently by educationalist and teachers (Grimshaw, Dungworth, McKnight and Morris, 2007). Studies show that reading from e-books increases children motivation toward reading. Ward (2014) finds that students who have difficulties in reading have improved their attitudes toward reading when they turn to use e-books instead of paper books. The attractive features of e-books play an essential role in increasing students' motivation. Ward (2014) finds that students are motivated to read e-books and establish enjoyment with high level of engagement due to the ease of downloading and updating books. The parents of these students were surprised because their children prefer to read from e-

books instead of watching television. Moreover, Maynard (2010) finds that e-books improve children's literacy besides amusing and motivating them.

The following sections explain the design of this national research project, which was funded by the Omani Research Council in 2014 under Faculty Undergraduate Research Award Program (FURAP).

2.2 Population and sample

The research population includes 28 students with 5 and 6 years old children at Al-Aisary's Reading Development Center, where the experiment is applied. The sample includes two groups; Group (A) includes 14 children and they are considered as control group taught using printed books. While the group (B) includes 14, children and they are considered as experimental group taught using e-books. The children groups are all Omanis, both males and females who came from different backgrounds and geographical regions.

2.3 Research instruments

To achieve the study objectives, the following instruments are prepared, validated and used:

2.3.1 Comprehension test

To measure children's understanding of the reading text, the researchers designed two pre-post comprehension tests for two stories; one test for each story. Each test contained five different questions. Each test is designed according to each story's content. Both experimental and control groups' children are exposed to those tests four times, two pretests before reading the two stories and the other posttests after reading the two stories to compare the findings.

Validity and reliability

Several academic experts and the research mentor measured the test validity. After collecting the returns, amendment and the additions made by the experts were included. The experts viewed that the scale is appropriate to achieve the purpose, which was designed for. The researchers then used SPSS to find the reliability coefficient (Cronbach's Alpha equal to 0.651) which indicates that the instrument is reliable.

B. Motivation scale

The motivation scale is designed to measure children's motivation toward reading. The scale contains 23 questions; each question has three choices (happy face, normal face, sad face; see Fig. 1 below). The child chooses the answer that represents his/her opinion.

The researchers apply the scale before the experiment to measure the children's motivation towards reading, and again after completing it to compare the results and find if any differences exist.




		
Applies to me	Not sure	Dose not apply to me

Figure 1: Motivation scale choices

Validity and reliability

For validity, the scale is presented to several academic experts from different departments of the Collage of Education at Sultan Qaboos University, namely; Early Childhood Education, Psychology, Instructional and Learning Technologies, and Curriculum and Instruction. They make sure of the clarity and accuracy of the scale's statements. They also make sure of the extent to which the scale is related to the study questions and objectives. They give their opinions on it. All their recommendations and modifications are inserted in the final form of the scale. The researchers then used Cronbach's Alpha coefficient to measure the instrument's reliability. The result was 0.862, which indicates that the instrument is highly reliable.

C. E-books

Two stories have been chosen according to children reading level and their developmental stage. A specialist in early childhood education linguistically reviews and approves the two stories. After selecting the stories and ensure their appropriateness for the children, e-books are designed after taking permission from stories' publisher (Al-Aisary's Reading Development Center) according the following criteria:

1. Using the same stories for both groups.
2. Using the same pictures (black and white pictures)
3. The book size and clarity are similar to the paper book.
4. The font size and type are similar to the paper book.

The following features were also considered in the e-book design:

1. Coloring features.
2. Narration
3. Highlighting (the child can highlight the text) (see Fig. 2 below)



Figure 2: Screenshot of the e-book with its features

2.5 Research design

The experimental study design is used for this study. This type of research seeks to find whether the approach or the program had the intended effect in the study samples.

Children were randomly assigned to two groups: experimental and control group. Both groups were taught the two stories during four weeks with one story in two weeks. The experimental group used e-books for reading. On the other hand, the children in the control group read the same stories from the traditional paper book. During the school day, both groups can read the stories during 15 minutes allocated for reading.

Children motivation to read stories was measured by using motivation scale that is designed by the researchers. Text understanding was measured by weekly comprehension test for children who read a particular text. Table 1 below summarizes the research design:

Table 1: The research design

Group	Pretests	Experimental treatment	Posttests
Experimental group	Comprehension test Motivation scale	E-book use	Comprehension test Motivation scale
Control group	Comprehension test Motivation scale	Use traditional method of teaching (without e-book)	Comprehension test Motivation scale

2.6 Variables

In this research, the followings are the variables:

- Dependent variables: age and gender
- Independent variable: effect of e-book, comprehension, and motivation

2.7 Procedures

The research designed as an experimental study, comparing the findings of the experimental group (who read from the e-book) with those of the control group (who read from the paper book). It finds out whether there are differences between the two groups in their motivation toward reading and comprehension of the story, and figures out if there are differences related to age and gender.

The field study began before using the e-book, where the researchers applied the motivation scale and the test for both groups to examine children motivation and comprehension before the use of e-book. However, after that both groups have started reading the same story for 15 minutes per day, the experimental group read from e-books on the tablets while the control group read from the traditional paper book. After two weeks, both groups were tested to measure their understanding of the story.

Thereafter, the researchers changed the story and again they gave both groups the same story but the experimental group read it from using the tablets and the control group read it from the traditional paper book. After two weeks, the researchers measured children comprehension and motivation by the tools they designed.

After data collection, the researchers entered data in SPSS to analyze them and find the results. Finally, they compare the results between the two groups to find out whether there are significant differences between the two groups in term of group variables: gender and age.

2.8 Limitations

This research is bound to the following limitations; and generalizability of its findings should be approached with restraints to the Omani and other contexts.

1. Children learning reading during spring semester 2015.
2. Variables of comprehension and motivation to read.
3. Private school's kindergarten settings at Al-Aisary's Reading Development Center.

3. Research findings and discussion

This chapter shows the findings of this study which designed to answer the main research questions. The presentation of data starts with the research question and then shows the tabulated findings with comments explaining these findings. The chapter also discusses the findings and draws the research main results in scope of the reviewed literature and the Omani context.

3.1 E-Book effect on comprehension

To answer the first research question: *“How effective is the e-book in improving Omani kindergarten kids’ comprehension of stories reading?”* the results of both posttests of the comprehension test were analyzed using t-test. Table 2 below summarizes the findings.

Table 2: t-test for the means of student in posttests

Test	Group	N	Mean	St. Deviation	df	t	Sig.
Posttest1	Control Group	14	3.4643	1.85498	26	-.883	.385
	Experimental Group	14	4.2500	2.76482	22.732	-.883	.386
Posttest2	Control Group	14	5.4286	2.15600	26	2.048	.051
	Experimental Group	14	3.6071	2.53573	25.345	2.048	.051

The above Table indicates that there is no significant difference in means (3.46) and (4.25) of the control and experimental groups at $\leq .05$ level due to treatment of the posttest1. This means that the treatment does not affect the test 1 scores of the groups. Therefore, the scores of the two groups is similar and there is no effect attributed to the e-book on the comprehension of the children. On the contrary, Table 2 above shows that there is a significant difference in means (5.42) and (3.60) of the control and experimental groups at $\leq .05$ level in favor of the control group due to treatment of the posttest2. This means that the treatment does not affect the test 2 scores of the experimental group that is to say the scores of control group are better than experimental group.

3.2 E-Book effect on motivation

To answer the second research question: *“How effective is the e-book in improving Omani kindergarten kids’ motivation towards stories reading?”* the results of the motivation scale for the control and experimental groups were analyzed using t-test. Table 3 below summarizes the findings.

Table 3: t-test for the means of the motivation scores

Group	N	Mean	St. Deviation	df	t	Sig.
Control Group	14	2.7847	.24188	26	.503	.619
Experimental Group	14	2.7422	2.0355	25.263	.503	.619

The above Table shows that there is no significant difference in means (2.78) and (2.74) of the control and experimental groups at $\leq .05$ level due to treatment. This means that the treatment does not affect the experimental group's motivation. Therefore, the motivation of the two groups is similar and there is no effect attributed to the e-book.

3.3 Comprehension vs. gender

To answer the third research question, each variable was treated separately. Therefore, Table 4 below summarizes the findings of the following question: "Are there any significant differences between the experimental and control groups towards comprehension in terms of: gender?" where the results of both posttests of the comprehension test in terms of gender were analyzed using t-test.

Table 4: t-test for the means of gender

Test	Gender	N	Mean	St. Deviation	df	t	Sig.
Posttest 1	Male	11	3.5000	2.26936	26	.641	.527
	Female	17	4.0882	2.43179	22.587	.641	.522
Posttest 2	Male	11	4.6818	2.52262	26	.276	.785
	Female	17	4.4118	2.53867	21.603	.276	.785

The above Table indicates that there is no significant difference in means (3.5) and (4.08) of the males and females at $\leq .05$ level due to treatment which means that the treatment does not affect the comprehension of the experimental group. That is to say, the comprehension of males and females is similar and there is no effect attributed to the e-book. In addition, the above Table shows that there is no significant difference in means (4.68) and (4.41) of the males and females at $\leq .05$ level due to treatment which means that the treatment does not affect the comprehension of the experimental group. That is to say, the comprehension of males and females is similar and there is no effect attributed to the e-book.

3.4 Comprehension vs. age

Table 5 below summarizes the findings of the following question: "Are there any significant differences between the experimental and control groups towards comprehension in

terms of: age?" where the results of both posttests of the comprehension test in terms of age were analyzed using t-test.

Table 5: t-test for the means of age categories

Test	Age	N	Mean	St. Deviation	df	t	Sig.
Posttest1	5 yrs.	12	2.8750	2.43203	26	-2.027	.053
	6 yrs.	16	4.5938	2.05117	21.401	-2.027	.061
Posttest2	5 yrs.	12	3.4583	2.01650	26	.266	.049
	6 yrs.	16	5.3125	2.56824	25.916	-2.139	.042

The above Table indicates that there is a significant difference in means (2.87) and (4.59) of the 5 years and 6 years age categories at $\leq .05$ level in favor of the 6 years age category due to treatment. This means which mean that the treatment affects the comprehension of the experimental group. That is to say, the comprehension of 6 years old children is better than 5 years ones due to the e-book. Further, the above Table indicates that there is a significant difference in means (3.45) and (5.31) of the 5 years and 6 years age categories at $\leq .05$ level in favor of the 6 years old children at $\leq .05$ level due to treatment. This means that the treatment affects the comprehension of the experimental group. That is to say, the comprehension of 6 years old children is better than 5 years old ones due to the e-book.

3.5 Motivation vs. gender

Table 6 below summarizes the findings of the following question: "Are there any significant differences between the experimental and control groups towards motivation in terms of: gender?" where the results of gender of the motivation scale were analyzed using t-test.

Table 6: t-test for the means of the gender

Gender	N	Mean	St. Deviation	df	t	Sig.
Male	11	2.6983	.23537	26	-1.272	.215
Female	17	2.8056	.20630	19.415	-1.235	.231

The above Table indicates that there is no significant difference in means (2.69) and (2.80) of the males and females at $\leq .05$ level due to treatment which means that the treatment does not affect the motivation of the experimental group. That is to say, the motivation of males and females is similar and there is no effect attributed to the e-book.

3.6 Motivation vs. age

Table 6 below summarizes the findings of the following question: “Are there any significant differences between the experimental and control groups towards motivation in terms of age?” where the results of age of the motivation scale were analyzed using t-test.

Table 7: t-test for the means of the age categories

Age	N	Mean	St. Deviation	df	t	Sig.
5 yrs.	12	2.7670	.17870	26	.071	.944
6 yrs.	16	2.7609	.25302	25.941	.075	.941

The above Table indicates that there is no significant difference in means (2.76) and (2.76) of the 5 years and 6 years age categories at $\leq .05$ level due to treatment which means that the treatment does not affect the motivation of the experimental group. That is to say, the motivation of 5 years old children and 6 years old ones is similar and there is no effect attributed to the e-book.

4. Discussion

This research project investigates the difference between using e-books and printed books to motivate kindergarteners to read and enhancing their understanding of the text. It also explores the extent to which e-books can be used to motivate children to read.

In terms of comprehension, the findings indicates that there are no significant differences in children understanding of the story in terms of gender, where both males and females showed the same level of understanding in both control and experimental groups. Interestingly, the findings indicate that comprehension of the control group is better than experimental group, which means that children who read from paper books have better understanding than children who read from the e-books. This could be attributed to the fact that children had no enough time to read the story and other media on the e-book distracted them. It was observed in many instances that children open other applications and play with the tablets instead of reading. The previous findings are substantiated with many reviewed studies such as Korat (2010) who explains that the rich interactive e-books distract children and interfere with their understanding of the story. Other researchers found that children learn better, when they read from paper books than reading from e-books. (Picton, 2014; Annand, 2008; Kang, Wang and Lin, 2009; Woody, Daniel and Baker, 2010; Korat and Shamir, 2007; Grimshaw, Dungworth, McKnight and Morris, 2007). It is obvious that this findings The

findings contradicts other previous research that shows that children who had read an e-book felt that e-books have a positive effect on their motivation toward reading (Embong, Noor, Hashim, Ali and Shaari, 2012; Woody, Daniel and Baker, 2010; Chera and Wood, 2003; Ward, 2014; Maynard, 2010).

The findings concerning motivation scale have shown that there are no significant differences between control group and experimental group in terms of their motivation and in relation to age and gender. The researchers believe that the reasons behind these results could be attributed to that children, although observed to enjoy the e-book, used to read from paper books for long time, which made the change to the new book format un-preferred over a short time and, thus, their motivation remains the same to both formats. These findings are consistent with other research (Wang and Lin, 2009; Woody, Daniel and Baker, 2010).

Finally, this study showed that there are significant differences in term of age, which mean that the comprehension of 6 years old children is better than 5 years old ones in the experimental group. The reason is perhaps that 6 years old children are more mature with the use of electronic devices than their 5 years old colleagues are. This finding is corroborated by research accounts of (Embong, Noor, Hashim, Ali and Shaari, 2012; Chera and Wood, 2003; Maynard, 2010).

5. Conclusion

Findings show that there are no significant differences between children who read from e-books and those who read from paper books; with regard to both comprehension and motivation. While children who read from paper books got better scores in the comprehension test. This means that printed books and e-books could have the same effect on students' comprehension and motivation towards reading. However, it seems that older children who read from e-book got better scores in the comprehension test. It can be argued that at a certain school setting in Oman, specifically those with pre-controlled traditional learning environment such as the one this research was conducted in, children may prefer to stick with their preferences of old methods of printed book reading to comprehend text and be motivated toward reading.

6. Research implications

The researchers found a variety of limitations while conducting this study. One limitation was the stories that children will read. Those stories should be new for children because comprehension will be affected if children were familiar with the

stories. Researchers chose children who did not read the stories before since they were part of their curriculum. However, the researchers discover while applying the pre comprehension test that some children already know the stories. This new fact compelled researchers to stop the experiment, re-plan, and use new stories out of the Center's curriculum.

Another limitation was the difficulty to find someone to monitor in-class experimental treatment on continuous basis with children. Researchers chose the Center's teachers to do that but they were unqualified enough to do systematic monitoring and this maybe affect the results.

7. Recommendations

A. General

1. E-books could work for Omani schools' settings with less traditional constraints.
2. The traditional printed books can be supported with the e-book features to improve reading comprehension and motivation among children.
3. E-books could work better for older students.

B. Design

1. If tablets will be used for reading from e-books, it could be better to install an application, which limits children use of tablets to e-books only.
2. Multimedia need to be used to the least extent in e-books.

C. Future research

1. The sample in this research was small to generalize study results. It is recommended to conduct a research with a larger sample.
2. The public schools' setting needs to be researched.

References

1. Annand, D. (2008). Learning Efficacy and Cost-effectiveness of Print versus e-Book Instructional Material in an Introductory Financial Accounting Course. *Journal of Interactive Online Learning*, vol. 7, no. 2, pp. 1541-4914.
2. Chera, P., and Wood, C. (2003). Animated multimedia 'talking books' can promote phonological awareness in children beginning to read. *Learning and Instruction*, vol. 13, no. 1, pp. 33-52.

3. Embong, A., Noor, A., Hashim, H., Ali, R., and Shaari, Z. (2012). E-Books as Textbooks in the Classroom. *Procedia-Social and Behavioral Sciences*, vol. 47, pp. 1802-1809.
4. Grimshaw, S., Dungworth, N., McKnight, C., and Morris, A. (2007). Electronic books: children's reading and comprehension. *British Journal of Educational Technology*, vol. 38, no. 4, pp. 583-599.
5. Kang, Y., Wang, M., and Lin, R. (2009). Usability evaluation of E-books. *Displays*, vol. 30, no. 2, pp. 49-52.
6. Korat, O. (2010). Reading electronic books as a support for vocabulary, story comprehension and word reading in kindergarten and first grade. *Computers and Education*, vol. 55, no. 1, pp. 24-31.
7. Korat, O., and Or, T. (2010). How New Technology Influences Parent--child Interaction: The Case of e-book Reading. *First Language*, vol. 30, no. 2, pp. 139-154.
8. Korat, O., and Shamir, A. (2007). Electronic books versus adult readers: effects on children's emergent literacy as a function of social class. *Journal of Computer Assisted Learning*, vol. 23, no. 3, pp. 248-259.
9. Korat, O., and Shamir, A. (2008). The educational electronic book as a tool for supporting children's emergent literacy in low versus middle SES groups. *Computers and Education*, vol. 50, no. 1, pp. 110-124.
10. Luik, P., and Mikk, J. (2008). What is important in electronic textbooks for students of different achievement levels? *Computers and Education*, vol. 50, no. 4, pp. 1483-1494. doi:10.1016/j.compedu.2007.02.001.
11. Maynard, S. (2010). The Impact of e-Books on Young Children's Reading Habits. *Publishing Research Quarterly*, vol.26, no. 4, pp. 236-248.
12. Picton, I. (2014). 'The Impact of eBooks on the Reading Motivation and Reading Skills of Children and Young People', [online] Available at: www.literacytrust.org.uk
13. Siegenthaler, E., Wurtz, P., and Groner, R. (2010). Improving the usability of E-book Readers. *Journal of Usability Studies*, vol. 6, no. 1, pp. 25-38.
14. Siegle, D. (2012). Embracing e-Books: Increasing Students' Motivation to Read and Write. *Gifted Child Today*, vol. 35, no. 2, pp. 137-143.
15. Slater, R. (2009). E-books or print books, "big deals" or local selections—what gets more use? *Library Collections, Acquisitions, and Technical Services*, vol. 33, no. 1, pp. 31-41.

16. Sprague, N., and Hunter, B. (2008). Assessing e-books: Taking a closer look at e-book statistics. *Library Collections, Acquisitions, and Technical Services*, vol. 32, no. 3-4, pp. 150-157.
17. Underwood, G., and Underwood, J. (1998). Children's interactions and learning outcomes with interactive talking books. *Computers and Education*, vol. 30, no. 1-2, 95-102.
18. Ward, D. (2014). 'E-Reading and Children: Is New Technology Improving Reading Skills? A Look at the Recent Research', *Reading Today*, 10-11, [online] Available at: <http://www.reading.org>.
19. Woody, W., Daniel, D., and Baker, C. (2010). E-books or textbooks: Students prefer textbooks. *Computers and Education*, vol. 55, no. 3, pp. 945-948.

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