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Comparisons of children's level of recall: Stories told through e-book and picture book

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Preschool period covers the years when the child is in a rapid change and development in every aspect. The learning experiences in this period affect children's development. The developments in knowledge technologies affect the child's environment and children's books. This rapid change brings with it some discussions. "Do either traditional methods or digital applications affect children's level of recalling more positively?" This question was the starting point of the research. Thus, the aim of this study is to compare the effect of stories told through e-books and picture books on children's level of recall. The research is based on random design with post-test control group from real experimental designs of quantitative research model. The groups were determined by simple random sampling method and each group consisted of 10 children. The research data were collected by asking the children various questions about the stories and the characters in the stories by the researchers after storytelling through e-book and pictures book. Mann Whitney U test was used to analyze the data. As a result of the study, it was discovered that the children in the group that the story was told by using pictures book have higher level of recall.

Key words: Preschool education, story, story book, e-book, recall.

INTRODUCTION

Preschool period covers the years when the child is in a rapid change and development in every aspect and the learning experiences in this period affect children's development. As a result of these learning experiences, the child discovers solutions to the problems s/he will face in her/his future life. In this sense, preschool years are considered as a critical period in acquiring basic knowledge, skills and habits (Elliott, 2006; Turla and Tür, 1999). However, the aim of teaching in this critical period in which development is the fastest should not be "transmitting knowledge to children, but getting them to gain the skills to access it (Arı, 2003). Among these skills that children can access knowledge, perception, thinking, problem solving and level of recall are represented by cognition processes (Messick, 1976). Cognition processes organize knowledge, and they involve many mental processes such as attention and level of recall (Leng and Hoo, 1997). These skills that are used to access knowledge can be improved through many experiences offered to children (Beyer, 1987). The fact that the knowledge and skills that are learned previously are remembered when the individual needs that knowledge

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is essential for learning. The process of recall is considered as the basic attribute for measuring whether knowledge is learned or not. Remembering the information shows the student's learning success. Students' individual differences, learning environment and the quality of the material that was learned have an influence on the level of recall (Woolfolk, 1990).

The environment, educational materials and especially books which are presented to children during preschool period and which contain rich stimuli are very important tools for supporting the development of the child (Turla and Tür, 1999). Books have been used to support the child's development over the years, and different ways of reading have been created. The most commonly used way for an adult to read to a child has been storytelling with a picture book. As a result of the study conducted by Chiong et al. (2012), it is recommended that parents and preschool teachers tell stories to children through picture story books. Reading activities carried out by adults in preschool period through story books have many benefits in the development of children's mental and academic skills (Deretarla, 2013). Researchers found a positive relationship between children's intelligence tests and their reading and language skills in their preschool period. This showed that reading story books has a positive effect on thinking, level of recall and learning levels (Deretarla, 2013).

Today, children are opening their eyes to a digital age and they are getting to know many electronic devices at an early age. Television, which is one of these tools, is used frequently in education because it addresses many senses. Technological tools like television provide different experiences to children by making learning fun (Christakis et al., 2004). According to Lamb (2011), the use of technological tools has also changed books. This process started when digital technology and books have come together and started to take place in our lives since 2000. These changes have led to the emergence of e-books. In its simplest form, an e-book can be defined as a book that allows readers to access the content of any book in electronic form (Hawkins, 2000). Although e-books were created in the late 1990s and in the early 2000s, they were less accessible to readers. Shiratuddin and Landoni (2002) classified electronic children's books as illustrated electronic books, audio electronic books and multimedia books. Thus, e-books with different classifications have started to be used in all areas of our lives. Today, people can easily access e-books from smartphones, tablets and computers. This situation changed the book phenomenon and reading activity. These changes have led many researchers to come up with different views on how adults should read to a child in preschool period. (Al Otaiba, 2004; Heather, 2004). The main difference between e-books and picture books is that an e-book contains moving images, verbal expression and sounds appropriate to the event / situation (Ihmeideh, 2014).

E-book content created for children is increasingly being accessed from digital media and used by many people (Miller and Warschauer, 2014). However, using technology is recommended if it can have the same effect on skills development in learning (Plowman and Stephen, 2005, 2007).

In the study conducted by Kangal et al. (2019), the positive and negative features of e-books in the development of children were discussed; and it was emphasized that qualified e-books should be selected. Another study in the related literature examined e-book applications for children (Turgut, 2018). It is concluded that e-books have many advantages and that these materials need to be developed and should be perceived as additional materials rather than replacing printed books. It has been also suggested in the relevant literature that the effects of e-books should be investigated. Walton (2007) compared e-books with printed books, and stated that e-books have both good and bad sides. While e-books are evaluated as positive in terms of making life easier and accessible; they are considered as negative in that they cause eye fatigue, difficulty in reading and display addiction. It is stated that qualified picture children's books not only create love of books in children but also develop all areas of child's development in a positive way (Gönen and Arı, 1989). In addition, there are studies conducted on the future trends of e-books and printed books (Soydan, 2012) and examining e-books prepared for children based on their graphic design elements (Pektaş, 2018).

The aim of this study is to compare the effect of stories told through e-books and picture books on children's recall levels. The research is considered important because of the originality of the research subject and the evidence it provides for a new situation.

METHOD

The aim of this study is to compare the effect of stories told through e-books and picture books on children's level of recall. The research is based on random design with post-test control group from real experimental designs of quantitative research model. In the random test with post-test control group, firstly, two groups were formed from the subject pool randomly. The first group was determined as the experimental group the second one the control group. The experimental procedure was then applied to the experimental group. Post-test was carried out after the application, and the two groups were compared using appropriate techniques for the measurement results of the dependent variable (Büyüköztürk et al., 2018).

Sample

The study was carried out with two different groups of the same age and two different classes of a kindergarten affiliated with Ministry of National Education. The groups were determined by simple random sampling method, and each group consisted of 10 children. The main feature of random sampling method is the high power of the sample to represent the universe. In this method, the sampling

Table 1. Research design.

Group	Pre-test	Experiment	Post-test
Control	-	Picture story	X
Experimental	-	E-book story	X

Table 2. Mann Whitney U test on the difference between picture story and e-book groups (B1-hungry caterpillar).

Group	n	Mean	Sum	U	Z	p
Picture story method (G1)	10	14.00	126.00	18.000	-2.411	0.016
E-book method (G2)	10	7.64	84.00			

probability of sampling units is equal and independent (Büyüköztürk et al., 2018). When the examined Table 1, the research model can be seen of this study. The post-test control group design is also called the classic controlled experimental design. The design includes both a control and a treatment group. The control group which were told stories through the picture book was coded as G1 and the experimental group which were told through e-book (experiment) as G2.

Data collection procedure

Five books were selected randomly from preschool story books and the selected stories were digitized by the researchers. These books were named as B1(Book 1), B2, B3, B4 and B5. The stories that were digitized and converted into e-book format were told as e-stories using computer, projector, projector screen and sound system. The same stories were told to the control group using the picture story book by the researcher. One hour after the story-telling process, one-to-one interviews were conducted with each child in the group, and research data were collected using a semi-structured interview form. Data collection was performed under the same conditions for both the experimental and control groups.

The interview form was prepared by the researchers with the help of an expert's opinion. The questions in the interview form that were answered by the children are as follows;

Do you remember the name of the story book?
Do you remember the names of the characters in the storybook?
Do you remember the events in the story?
What are the features of the main character X in the story?
What was the story about?

In the process of collecting the research data, firstly, both groups were read / watched stories by the researcher on different days of the week and at the same time of the day. The picture story book was read by the researcher in a classroom setting in a way that all children could see the pictures. It took an average of 20 min to read the picture story book to the children. The children were allowed to watch e-book by using computer, projector, projector screen and sound system. It lasted about 20 min. One hour after the story telling process, one-on-one interviews were conducted with each child in the group and data were collected using a semi-structured interview form. The same process was repeated with the group where the story was told digitally via e-book.

Analyzing of data

In the interviews, each of the children were given one minute to answer the questions. The answers given to the questions were coded in the interview form according to G1 and G2 codes. Then, the responses were coded as "correct and detailed remembered (4 points)", "poorly remembered (3 points)", unremembered (2 points)", "incorrectly remembered (1 point)".

First of all, the normality of the distribution was examined in the analysis of the research data, and Shapiro-Wilks test was applied since the number of subjects was less than 30 (Seçer, 2013). The distribution of the normality test results was not normal, and therefore, Mann Whitney U test, a nonparametric one, was used in the analysis of the data.

FINDINGS

The findings are presented in the tables below. The responses of the children to the questions regarding the story books were illustrated separately.

The findings in Table 2 relating to the story of the Hungry Caterpillar show that there is a significant difference in the recall of the book contents between the group that were told stories through picture story and the group that were told stories through e-book (Z = -2.411; p = 0.016). The mean rank of children in the picture story group (mean rank= 14.00) was higher than the average number of children in the e-book story group (mean rank= 7.64).

The findings in Table 3 concerning the storytelling of the Brave Firfir display that there is a significant difference in the recall of the book contents between the two groups (Z =-2,395; p = 0.017). The mean rank of children in the picture story group (mean rank= 13.65) is higher than the mean rank of children in the e-book story group (mean rank= 7.35).

The findings regarding the storytelling of Tiny Seed illustrate that there is a significant difference in the recall of the book contents between the two groups (Z =-2,356; p = 0.018). As can be seen in Table 4, the mean rank of children in the picture story group (mean rank= 13.60) is higher than the average of children in the e-book story group (mean rank= 7.40).

The findings in Table 5 related to the story of The Most Ordinary Tree of the Forest show that there is a significant differenc e in the recall of the book contents

Table 3. Mann Whitney U test on the difference between picture story and e-book groups (B2-brave firfir)

Group	n	Mean	Sum	U	Z	p
Picture story method (G1)	10	13.65	136.50	18.500	-2.395	0.017
E-book method (G2)	10	7.35	73.50			

Table 4. Mann Whitney U test on the difference between picture story and e-book groups (B3-tiny seed).

Group	n	Mean	Sum	U	Z	p
Picture story method (G1)	10	13.60	136.00	19.000	-2.356	0.018
E-book method (G2)	10	7.40	74.00			

Table 5. Mann Whitney U test on the difference between picture story and e-book groups (B4-The most ordinary tree of the forest).

Group	n	Mean	Sum	U	Z	p
Picture story method (G1)	10	13.35	133.50	21.500	-2.165	0.030
E-book method (G2)	10	7.65	76.50			

Table 6. Mann Whitney U test on the difference between picture story and e-book Groups (B5-dinosaur came out of my seed).

Group	n	Mean	Sum	U	Z	p
Picture story method (G1)	10	13.30	133.00	22.000	-2.129	0.033
E-book method (G2)	10	7.70	77.00			

between that were told stories through picture story and the group that were told stories through e-book (Z =-2,165; p = 0.030). As can be seen in Table 4, the mean rank of children in the picture story group (mean rank= 13.35) is higher than the average of children in the e-book story group (mean rank= 7.65).

The findings in Table 6 related to the story of The Dinosaur Came Out of My Seed illustrate that there is a significant difference in the recall of the book contents between the two groups (Z =-2,129; p = 0.033). As can be seen in Table 5, the mean rank of children in the picture story group (mean rank= 13.30) is higher than the mean rank of the children in the e-book story group (mean rank= 7.70).

DİSCUSSİON

The aim of this study is to compare the effect of stories told through e-books and picture books on children's level of recall. Early childhood researchers argue that it is important to improve the level of recall of children in this period (Dickinson and Smith, 1994). In order to provide learning and improve their level of recall, it can be considered as a way for teachers to ask children to remember what they learned during the day and the week (Dickinson and Smith, 1994). This study sought to answer the question of “which method is more effective on children's level of recall?”. This question has brought to mind the effect of electronic media, which is indispensable in the development process of children today. This research was conducted since there is a lack of research on the effect of electronic environments on the development of preschool children. There are studies comparing e-book with traditional books in the relevant literature; however, these studies were conducted on decoding skills, vocabulary and understanding the meaning of words. Moreover, unlike this research, they emphasized the positive features of reading e-books (Segers and Verhoeven, 2003; Verhallen et al., 2006). This study compared the level of recall by bringing a different perspective. Thus, it has shed light on those that are wondered about the effects of e-books and picture books in different development areas. Vandewater et al. (2007) stated that what is known in this field is much less than that of unknown ones, and supports the need for

much research on the effect of electronic environments on the development of children.

As a result of the research, a significant difference was found between the level of recall of the group which were told stories through picture story book and of the group which were told stories through e-book. For all the stories, the difference is in favor of the group whose stories were told in the picture storybooks. As a result of the research, the mean rank of the children in the picture book storytelling group was higher than that of the children in the e-book group. This shows that storytelling with picture story book is more effective on level of recall than storytelling through e-book.

This situation is thought to be related to teacher-child interaction during storytelling with picture story book; teacher's use of some strategies such as raising voice tone, asking questions, drawing attention, arousing curiosity and being more active in the children's story listening process. This can be shown as an evidence of what kind of knowledge has been learned. The primarily learned knowledge includes objects, sounds, touches, smells and flavors, and the knowledge collected by all these senses can be remembered. Then, the knowledge that is learned secondarily is the knowledge learned by living (Ersanlı and Uzman, 2008). It is easier to remember the knowledge collected by this method. When the story is told by the teacher through the picture book, it is thought that the children actively gathering knowledge with all their senses, and communicating and interacting with the teacher support the recall process.

Some researchers have argued that during storytelling through e-books, children actively participate in the storytelling and create their own learning. This was mentioned as an effective application for the learners to realize what and how much they learned. It is thought that it will be effective in its use in today's learning activities in terms of supporting the skills that the constructivist approach wants children to acquire (Barrett, 2006; Ohler, 2006; Tendero, 2006). Using technology in preschool education is not the main objective. It should not be aimed in the preschool period to ensure that children use technological tools that they will frequently use in their future lives. Integrating the use of technology with the preschool education program should be seen as a delicate issue that needs to be investigated (Wardle, 1999). Technology can have many benefits in the preschool period, but it is required not to make random choices without adequate examination and research. When using technological tools in the preschool period, it should be remembered that these tools cannot replace the face-to-face interaction between children and adults and materials in learning (Sayan, 2016). As seen in this study, the face-to-face interaction of the material helps the child to concentrate and remember.

There are studies which indicated that increasing the curiosity of children makes learning more active thanks to the computer-supported education environment. This was due to the fact that the computer took into account the interests and desires of children (Sevinç, 2003). However, technological tools have become ordinary for children over time. In addition, the fact that parents spend most of their time with social media during the day has been influential in children's spending most of the day in this way. Sapsağlam's (2018) study on social media awareness and use in preschool children confirms this effect.

In contrast to previous studies (Korat and Shamir, 2012; Segal-Drori et al. , 2009), this research has shown that technological tools do not facilitate children's understanding of the story, increase the sense of curiosity, and it may be inadequate to provide an effective learning environment in line with their interests and aspirations. In addition, this study supports the studies that indicate the importance of reading picture books in preschool period (Crozier and Tincani, 2007; Gönen, 1989).

Suggestions

As for the future research, researchers are advised to examine the effects of technological tools on children's development and learning skills. In addition, the effects of storytelling on different levels of children can be investigated with different materials and different methods.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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