OPINIONS OF PROSPECTIVE PRESCHOOL TEACHERS ABOUT SMART BOARD USE FOR EDUCATION

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ABSTRACT

The aim of this study was to determine the opinions of prospective preschool teachers studying in education faculties at Turkey about smart board use for education. To achieve this aim, prospective preschool teachers in the Department of Preschool Teacher Education, DokuzEylül University were asked with five open ended questions through a semi-structured interview form. This is a qualitative study. Obtained data were analyzed with descriptive analysis and its results were expressed in numbers. The results showed that smart board use turned abstract concepts and subjects into concrete things during the learning process, helped to achieve meaningful learning and encouraged active learning. In addition, most of the prospective preschool teachers noted that they did not have sufficient information and skills about smart board use. In light of these findings, it can be recommended that students and teachers should be offered education about the effective use of smart boards and that smart boards should be available in all classrooms.

Keywords : Smart Board, Education, Prospective Teachers.

INTRODUCTION

At present, technological developments have remarkable effects on all parts of life and use of technology has rapidly spread. This has made it necessary to improve and renew services offered in educational organizations. In fact, use of educational technology has reached a maximum level in educational institutions since information and communication technologies have been rapidly produced and spread, which accelerates a social evolution (Bağcı, 2013).

Smart boards, an educational technology, have gained popularity in all countries recently. Also called interactive whiteboard and electronic whiteboard and known to be smart board in Turkey, this tool has a big touch screen and is connected to a computer and a projector. The board allows teachers and students to use information skillfully, to recall it, to interact with it and to respond what is taught (Dill, 2008). According to constructivism, it is important to teach how individuals can access knowledge, rather than to present it readily. Constructivists propose that students construct new knowledge in their minds with the help of their prior life experiences. They explain that learning is a process during which individuals change new cases into meaningful units in their minds by utilizing real life experiences (Kim, 2005). According to anchored instruction, a constructivist approach, students should be provided with a learning environment as rich as possible (Bransford, J.D. et al. 1990). Learning environments created by smart boards offer knowledge through visual and auditory channels and allow students to access a large amount of knowledge in shorter time.

1. Use of Smart Boards in Education

The first smart board was produced in 1991 (Shenton & Pagett, 2007). The literature about the tool started to expand after 2000 although reports and abstracts of many small-scale research projects about descriptions of and experiences with its use by teachers, schools and institutions had been available in newspapers, magazines and journals in Britain, before the United States of America, Canada and Australia (Smith, et al., 2005). It is a useful presentation tool which can replace almost all traditional and modern classroom resources and which allow access to many pieces of information. Its interactive touch screen gives students and teachers an opportunity to intervene

and make changes in things on its screen and save them. It makes classes more lively and full of visual material thanks to sound clips, videos, animations and highlighting things with colors, and magnification. It provides a totally new interactive learning environment for students and teachers to share ideas, information, images, sounds and videos. It also supports visual, auditory, spatial and kinesthetic learning styles and facilitates learning based on multiple intelligences (Xu, 2011).

Cogill (2002) reported that smart boards could be used to offer and restructure information, to present information through available resources and visuals, to make explanations and comment on subjects, to revise what has been learned, to give oral feedback about students' written work, to save what has been written with an electronic pen, to write on electronic media like photographs and videos and to guide classes through the internet.

2. Studies about Use of Smart Boards

The literature about evaluation of smart board use in classes have mostly based on opinions of students and teachers. Studies directed towards revealing opinions of teachers about the issue have focused on smart board use in different learning environments, attitudes, competencies and perceptions of teachers and educational importance and limitations of smart boards (Beauchamp, 2004; Glover, Miller, Averis and Door, 2007; Kennewell, Tanner, Jones and Beauchamp, 2008; Lai, 2010; Lau, 2011; Manny-Ikan, Tikochinski, Zorman and Dagan, 2011). In most of these studies, teachers have had a positive attitude towards smart board use and have been found to believe that they do or can make contributions to learning environments. There have also been studies focusing on smart board use in different learning environments and students' opinions, attitudes, competencies and perceptions about its use and motivation for learning. Similar to studies on teachers, these studies have revealed that, students have a positive attitude towards smart board use and increased motivation and that smart boards contribute to active learning and in class interactions (Amolo and Dees, 2007; Hall and Higgins, 2005; Lipton and Lipton, 2010; Roscoe, Derksen and Curtis, 2013).

Smith, Higgins, Wall and Miller (2005) in their review noted that, there were studies about effects and potentials of smart boards but that most of them were based on opinions of students and teachers. In an experimental study by Weimer (2001), attitudes and motivation of students regarding smart board use were measured and the students in the class using a smart board were found to have increased motivation. In an experimental study by Hersh, Meng-Fen & Georgette (2003), technologically supported learning and teaching environments were found to have small, but positive effects on cognitive and affective behaviors of students compared to conventional methods.

3. Studies about Use of Smart Boards in Turkey

There have been studies about smart boards in Turkey recently. With the increased number of these boards at schools especially in primary and secondary education, studies have been performed to determine their effects. In a study by Şahin, Gökkurt and Soylu (2014) on smart board use by math teachers and high school teachers, they were found to have no technical difficulty in using this technology and the board was reported to be effective in learning different geometric patterns and figures. Çetinkaya Keser (2013) investigated the problems with interactive board use encountered by secondary school teachers and students and their recommendations to solve them. In their study, the problems mentioned by the students and the teachers were related to learning and teaching processes, hardware, software, course contents, ergonomic designs and health. Polat and Özcan (2014) performed a study to reveal how and for what purposes smart boards were used by primary school teachers and opinions and experiences of these teachers about positive and negative effects of the boards and to compare features of the boards used in the classes. In their study, the teachers reported that, using smart boards increased motivation and helped students to focus on classes better and allowed teachers to conduct classes involving more fun.

Kaya and Aydın (2011) in their study on primary school students found that, the students could better understand what was covered in classes and comprehend things more

quickly thanks to multiple intelligence based features allowing visual and auditory presentations of subjects and that internet connection of the boards had a positive influence on classes. Yıldızhan (2013) reported that, smart boards were more effective than conventional boards. Kırbağ Zengin, Kırılmazkaya and Keçeci (2011) in a study reported that, in a primary school on students' attitudes towards smart boards and effects of the boards on students' success, the students were found to prefer these boards to conventional classrooms.

4. Aim of the Study

The present study was performed to reveal what prospective preschool teachers studying in the Department of Preschool Education at Dokuz Eylül University think about smart board use. To achieve this aim, answers to the following questions were sought:

1. What do prospective preschool teachers think about advantages of smart boards?
2. What do prospective preschool teachers think about disadvantages of smart boards?
3. What problems with smart boards do prospective preschool teachers most frequently encounter?
4. For what purposes do prospective preschool students most frequently use?
5. What do prospective preschool teachers suggest regarding ways to use smart boards more efficiently?

5. Method

This study has a qualitative design. A qualitative study is directed towards examining what a phenomenon means and behavior of humans depending on the environment they live in and making detailed inferences (Merriam, 2013). Obtained data were analyzed with descriptive analysis. It is a qualitative data analysis which involves summarizing data collected with various methods according to predetermined themes and their interpretations. In this type of analysis, researchers often quote opinions of the individuals they have observed or interviewed so that they can present them in a striking way. The primary goal of this analysis is to present summary of obtained data with their interpretations (Yıldırım and Şimşek, 2003).

Descriptive analysis is made in four stages. In the first stage, researchers create a framework based on research questions, conceptual framework of the study and dimensions available at the interviews and in the observations. This helps to determine which themes obtained data will be categorized into. At this stage, it is important to organize data in a meaningful and reasonable order. Next, researchers describe the data which have been organized in an order. To achieve this, direct quotes may have to be supplied. Then, the researcher explains, associates and interprets the data which have been described in the previous stage. At this stage, the researcher also explains cause and effect of relationships between the findings to strengthen the interpretations and make comparisons with different cases when needed (Yıldırım and Şimşek, 2003).

5.1 Study Sample

The sample included 60 third year students studying in the Department of Preschool Teacher Education at DokuzEylül University. Of 60 students, 30 were attending classes during daytime and 30 were attending evening classes. There were 52 female students and 8 male students. The reason for the lower number of male students was that preschool teacher education is mostly preferred by females. Only students volunteering to participate were included into the study.

Thirty students, participating in the study, used smart boards to teach five-year-old children in schools where they had practicums and at university where they received education. This means that they had opportunities to gain experience in smart board use in the education level at which they would work in the future.

5.2 Flow of the Study

Sixty third-year students studying in the Department of Preschool Teacher Education were asked to fill in a semi-structured interview form to elicit their opinions about smart boards. The form was created by the researcher and composed of five open-ended questions. These questions were as in the following:

1. "What advantages do you think smart boards have?"
2. "What disadvantages do you think smart boards

have?"

3. "What problems do you experience while you use smart boards?"
4. "For what purposes do you mostly use smart boards?"
5. "What should be done to use smart boards more efficiently?"

Expert opinion about these questions was requested. In accordance with suggestions made by the experts, appropriate revisions were made. The students were assured that obtained data would only be used for scientific purposes. They were asked not to write their names on the forms and to be objective while answering the questions. About 20 minutes after distributing the forms, they were collected back.

6. Data Analysis

Data were analyzed by the researcher. First, the students' responses to the questions were coded. These codes were arranged under themes and direct codes were taken when needed. To determine how many times a code was expressed by the participants, the symbol "x" was used. The codes under the same themes were presented in tables. In reliability, analysis made to reveal consensus between the coders, Miles and Huberman's formula (1994) was used. Turner and Carslon (2003) reported that, a mean coder reliability of 0.75 or higher can show intercoder agreement although it may vary. In the present study, the intercoder agreement was found to be .80.

7. Results

Results of the descriptive analysis were presented in words and numbers in tables. The participants' opinions about advantages and disadvantages of smart boards were presented in Tables 1 and 2 respectively. The participants' problems with smart board use were summarized in Table 3. For what purposes the participants used smart boards were supplied in Table 4 and what should be done to use smart boards more efficiently were outlined in Table 5.

The participants thought that smart board use provided effective learning (n=31; 51.66%), supplied more information in a short time (n=28; 46.66%), made learning fun (n=24; 40%), allowed instant access to information needed in a classroom atmosphere (n=16; 26.66%), and enabled students to be alert with what was covered in classes (n=12; 20%).

The participants reported that, there were problems due to insufficient knowledge about smart board use (n=23; 38.33%), and technical problems due to the device itself (n=20; 33.33). They also mentioned that the boards were used for purposes other than they were originally

	N	%	The Participants' Opinions
Provision of effective learning	31	51.66	"We don't forget what we have learned since it has been supported by photo graphs and films" (student 6)
Allowing presentation of a lot of information in a short time (saving time)	28	46.66	"We access a lot of information through visuals in classes" (student 14) "We learn a lot of things through visuals in a short time" (student 37)
Making learning fun	24	40	"We have a lot of fun in classes. We learn without getting bored" (student 18)
Allowing instant access to information needed in a classroom atmos phere	16	26.66	"We connect to the internet and we can immediately access information and images we need" (student 22)
Enabling students to be alert with what is done in classes	12	20	"It prevents distraction of students' attention in crowded classes" (student 29)

Table 1. The Participants' Opinions about Advantages of Smart Board Use

	N	%	The Participants' Opinions
Problems due to insufficient knowledge about smart board use	23	38.33	"The fact that not all people know how to use smart boards prevents their effective use" (student 41)
Problems with the device	20	33.33	"The device is not compatible with some software" (student 44) "We experience problems with the cables"(student 29)
Misuse	6	10	"Students use smart boards to watch films in their free time" (student 20)
Making teachers and students get used to facileness	6	10	"Although smart boards save time, they make us get used to facileness" (student 32)
Distracting attention when only words are used	4	6.66	"Since some lecturers only use words and phrases, our attention is distracted. However, if photographs and videos were used in presentations, we would watch more carefully" (student 11)
Missing what lecturers say when images be come the focus of interest	3	5	"When we only focus on visuals, we can miss what the teachers say" (student 22)
Regression in manual skills	2	3.33	"When education is offered only through smart boards, handwriting skills may regress" (student 33)

Table 2. The Participants' Opinions about Disadvantages of Smart Board Use

introduced for (n=6; 10%), caused facileness in teachers and students; i.e. using only shortcuts and being superficial (n=6; 10%), distracted attention when only words and phrases were used (n=4; 6.66%). In addition, they noted that they missed what teachers told when focusing on images (n=3; 5%) and that smart boards caused a regression in their manual skills (n=2; 3.33%).

The problems with smart board use reported by the participants were insufficient knowledge of board use (n=19; 31.66%), inappropriate hardware connection between the computer and the smart board (n=14; 23.33%), improper internet connection (n=13; 21.66%), waste of time since the smart board was locked (n=10; 16.66%), inactivity of the touchpad (n=8; 13.33%), incompatibility of some software with the smart board (n=7; 11.66%), freezing screen in some situations (n=5; 8.33%), inability to hear the sound from the smart board (n=5; 8.33%), and inability to use the smart board when there was a power cut (n=3; 5%).

	N	%	The Participants' Opinions
Problems due to insufficient knowledge about smart board use	19	31.66	"I have problems with starting a video and opening a page since I don't know how to use the board well" (student 40)
Problems with hardware connection between the computer and the smart board	14	23.33	"We experience problems with hard ware connection between some computers and the board, especially inappropriate cables" (student 42)
Problems with Internet connection	13	21.66	"We have frequent problems with connecting the Internet" (student 16)
Waste of time since the smart board is locked	10	16.66	"Since the smart board is locked, we cannot finish preparations before classes. We have to wait for the teacher, so it causes waste of time." (student 22)
Problems with using the touchpad	8	13.33	"Smart boards have a touchpad. Sometimes they get inactive, which disrupts flow of classes" (student 34)
Incompatibility of smart boards with some software	7	11.66	"We experience incompatibility problems when we use PowerPoint presentations we have prepared somewhere else" (student 41)
Images freeze in some situations	5	8.33	"Images sometimes freeze while watching a video" (student 16) "The screen of the smart board freezes. This disrupts flow of classes" (student 23)
Inability to hear the sound from the smart board at the back rows	5	8.33	"Since there are no sound systems in classes, we have problems with images and videos with sound" (student 33) "The sound volume causes problems for students sitting at the back rows" (student 3)
Inability to use the smart board when there is a powercut	3	5	"When the electricity cuts off, there can be delays in classes" (student 47)

Table 3. The Participants' Opinions about Problems they Experienced while Using Smart Boards

The participants reported to use the smart board to give a presentation (n=44; 73.33%), to watch a video related to what was covered in classes (n=28; 46.66%), to support classes with visuals (n=21; 35%), to receive information support when necessary (n=11; 18.33%), to watch lecturers' presentations (n=9; 15%), to listen to voice recordings related to classes (n=9; 15%) and to see charts, tables, graphs and numerical data (n=2; 3.33%).

The participants recommended that, teachers and prospective teachers should be educated about smart board use (n=35; 58.33%) and presentations should involve not only words and phrases but also videos and photographs (n=8; 13.33%). They also recommended that the internet connection should be strengthened (n=8; 13.33%) and that smart boards should be used in all courses (n= 5; 8.33%). Other recommendations made were prevention of smart board use for purposes other than teaching and learning (n=5; 8.33%), preparation of a manual for smart board use (n=4; 6.66%), being careful

	N	%	The Participants' Opinions
To give a presentation	44	73.33	"We use smart boards to give presentations. This makes classes more efficient and fluent" (student 6) "I use the smart board in presentations, activities and voice recordings" (student 51)
To watch a video about subjects taught	28	46.66	"We watch videos about things we cover in classes" (student 55)
To support information with visuals	21	35	"We look at photos and watch videos as visual support for classes. This helps us to record things in the long-term memory"(student 16)
To get information support by connecting to the internet when necessary	11	18.33	"We connect to the internet when we need to search for information" (student 17)
To watch lecturers' presentations	9	15	"Lecturers use the smart board to present subjects"(student 6)
To listen to voice recordings related to classes	9	15	"We listen to music related to our classes" (student 20)
To show charts, tables, graphs and numerical data	2	3.33	"We use the smart board to see geometric figures and graphs" (student 16)

Table 4. The Participants' Opinions about for What Purposes they Use Smart Boards

	N	%	The Participants' Opinions
Teachers and students should get training about how to use smart boards	35	58.33	"Teachers and prospective teachers should be educated about smart boards" (student 5)
Presentations should involve not only words and phrases but also videos and photographs	8	13.33	"Presentations should have visual elements rather than words and phrases. Those involving only words make classes boring" (student 39)
Internet connection should be strengthened	8	13.33	"It should be easy to access the internet when smart boards are used and the internet connection should be strengthened" (student 26)
Smart boards should be used in all courses	5	8.33	"Smart board use should be wide spread and should be used in all courses" (student 47)
Smart boards should not be used for purposes other than they are originally intended for	5	8.33	"Smart boards should not be used for purposes other than for in class purposes such as watching movies or listening to music not related to classes." (student 20)
A manual should be prepared for smart board use	4	6.66	"Teachers and students should be enabled to use smart boards more consciously. A manual explaining how to use a smart board should be prepared" (student 16)
Care should be taken with using smart boards	4	6.66	"Expert support should be obtained and care should be taken with its use" (student 45)
Smart boards should not be locked	2	3.33	"The key to the smart board should not only belong to the teachers. It should also be given to a student representative of the class" (student 42)

Table 5. The Participants' Opinions about What should be Done to Use Smart Boards More Efficiently

with its use (n=4; 6.66%) and not keeping it locked (n=2; 3.33%).

8. Discussion

In this study, prospective preschool teachers' opinions about smart board use were revealed. Advantages of smart board use reported by the students were that smart boards provided effective learning, offered more information in shorter time, made learning fun, allowed instant access to information needed in a classroom atmosphere and caused students to be attentive.

Önder and Aydın (2016) by using a semi-structured interview form in an experimental study with pre and post tests investigated effects of smart board use in biology classes on academic performance of tenth-year students in secondary education. In the study, education was offered through smart boards in the experimental group but through conventional methods without smart boards in the control group. The students in the experimental group had a higher academic performance at the end of the study.

Pamuk, Çakır, Ergun, Yılmaz and Ayaş (2013) found in their study that, smart boards increased interest, knowledge, experience and motivation, had positive effects on learning-teaching processes and improved interaction of teachers with students and other teachers. Beeland (2011) reported that, smart boards contributed to fulfillment of needs of students having different types of intelligence and participation of students in classes. Several other studies also showed that smart boards had potential to support learning and teaching (Kennewell & Beauchamp, 2007; Wall, Higgins & Smith, 2005) and made a contribution to involvement in learning activities (Akbaş & Pektaş, 2011; Herbert, 2012). In a report about results of a study on smart boards at Newcastle University, it was noted that students learned better thanks to classes involving visual contents resulting from smart board use. The report also revealed that students focused on what was covered in classes better (Higgins, S., et al. 2005). Schut (2007) reported that, smart boards were a valuable educational tool likely to be used in many classroom environments. They were found to have many benefits like causing students to focus on classes, increasing students' interest and interaction and improving visual materials. They were also reported to allow enrichment of classes with animations, sounds, pictures and games in diaries kept by students and at interviews. Smith, Higgins, Wall, and Miller (2005) determined that, smart boards improved the quality of teaching and supported learning. It is clear that the results of the present study are consistent with the literature.

In this current study, the disadvantages of smart board use determined by prospective preschool teachers were problems related to insufficient information about use of the boards, technical problems with the device, using the boards for purposes other than learning and teaching, directing students to facileness, distracting attention when presentations included only words and phrases, missing what teachers told when attention was paid to images and regression in manual skills. In a study by Yılmaz and Usta (2015), teachers usually reported that smart boards

contributed to teaching, but they admitted that they could not use the boards properly due to their insufficient technical knowledge. Demircioğlu and Yadigâroğlu (2014) emphasized that, in-service training which could enable teachers to utilize information and communication technologies effectively should be designed. In a study by Altın and Kalelioğlu (2015), students suggested that teachers should receive education about use of technology and that technical support remained insufficient to fulfill their needs on time. However, teachers included in the study by Altın and Kalelioğlu commented that, they were satisfied with the use of interactive boards and used them efficiently in classes but still needed in-service education. In a study by Korkmaz, Aktürk, and Karimi (2013) on prospective primary school teachers, the participants had a positive attitude towards computer assisted education, but emphasized that courses directed towards use of technology were inadequate. They recommended that, in addition to prospective teachers' interest, computer and technology courses would be more effective and should be incorporated into the curriculum. Kayaduman, Sarıkaya and Seferoğlu (2011) underlined serious deficiencies in teachers' use of information and communication technologies. In view of the results of the abovementioned studies and the present study, it is clear that smart board users do not have sufficient knowledge of smart board use.

In this present study, the prospective preschool teachers were found to experience problems with the use of smart boards resulting from insufficient knowledge, connection between the boards and the computers, internet connection, touchpad, incompatibility of the boards with some software, freezing screen, inability to hear sounds from the boards at the back rows and power cuts and waste of time due to keeping the boards locked. In Wall, et al.'s study (2005), the students mentioned some negative aspects of smart boards. They complained that the boards created technical problems like other technological tools and required waiting for it to turn on and off. They also admitted that they were anxious about using the board, since they thought it could easily become out of order. A few students claimed that it could not replace teachers and books. Wall, et al. concluded that smart board users should be knowledgeable about it due to abovementioned problems (Wall, et al. 2005).

In this present study, the prospective preschool teachers reported that smart boards were used to give a presentation, watch a video about what was covered in classes, support classes with visual materials, support information by connecting to the internet, see lecturers' presentations, listen to voice recordings for classes and show charts, tables, graphs and numerical data.

So that smart board could be more efficient. The prospective preschool teachers recommended that, the teachers and preservice teachers should be educated about how to use them and that presentations should involve not only words and phrases but also videos and photographs. They also added that, internet connection should be strengthened and that smart boards should be used in all courses. Other recommendations were to prevent their misuse, to use them carefully, to prepare a manual for smart board use and to avoid keeping them locked. The results pointed out to the prospective teachers' lack of knowledge about smart board use. The participants also asked for preparation for manuals to provide the users with knowledge of their use. Büyüköztürk, Ş., KılıçÇakmak, E., Akgün, Ö.E., Karadeniz, Ş., & Demirel, F. (2012) in their study on opinions of social sciences teachers about smart board use found that 60% of the teachers did not have sufficient knowledge and skills to use the boards.

In view of the results of this study, it is obvious that smart boards increase effectiveness of learning through visual materials and provide students with fun in classes.

However, it is clear that both teachers and prospective teachers do not have adequate knowledge to use the boards and need a manual to use them. In addition, the prospective teachers use the boards to give a presentation. They experience problems with connection of the boards with the device.

9. Recommendations

- Prospective teachers should be educated about how to use smart boards and guides about their use should be available in the internet to all students and lecturers.
- The balance between words/phrases and visual

materials should be well adjusted and interaction should be continued throughout the classes.

- Smart boards should not only be used as projectors and both lecturers and students should be made aware of interactive function of the boards as well.
- Problems with sound systems, compatibility with all software and internet connection in smart boards should be solved.
- Smart boards should be used as boards in addition to their projector functions and lecturers should be educated about it.
- Smart boards should be used in all classes.

Conclusion

In light of the results of this study, the following conclusions were drawn. Smart boards help record what is learned in the long-term memory and make classes fun. They are utilized to support presentations with videos and voice recordings when necessary to record new information in the long-term memory. They also allow access to additional information needed in classes through the internet, thus providing an opportunity to get more information in short time. However, they may have problems with compatibility with software used for presentations, cables, connection and the internet. Besides, presentations given through smart boards might have problems with the sound system. In addition, the boards are mostly considered as projectors and are not used for interaction purposes. They are not found in all classes, which causes problems.

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