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A Study on student and teacher views on technology use

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Abstract

In our day, technology plays a major role in almost all walks of life. Individuals of all ages make use of it in their daily lives. Researchers have also studied this phenomenon (Wyk & Louw, 2008:246; Akpınar, 2005:39; Alkan, 2005:28; Deniz, 2000:150). The views of individuals on technology use offer clues about the tools they consume. These views may vary. Used in all aspects of our daily lives, technology has also become part of the instructional process at schools. Student and teacher opinions are crucial in the effective and efficient use of technology.
The aim of this study is to determine the views of elementary school pupils (grades 1-4) and teachers on technology use. The study group consists of pupils from grades 1 through 4 and their teachers.
This is a descriptive study based on the survey model and quantitative research method (Karasar, 2005:25). Data will be collected by using a 3-point Likert type questionnaire prepared by the researchers. Frequencies and percentages were used in the analyses.

Keywords: Elementary school student, elementary teacher, technology use;

1. Introduction

In our day, technology plays an important role in almost all walks of life. Individuals of all ages make use of technology in their daily lives. This swift increase in technology use has also affected educational systems and technology entered our schools for different reasons. Technological gadgets are the easiest way of reaching information and they have taken their place among the most commonly used educational materials in schools. Where we once used overhead projectors, videos, TV sets, and radios in the education sector, these have undoubtedly been replaced by computers, projectors and smart boards. Smart boards are defined as an educational tool that allows teachers and students to use their knowledge with skills, repeat, interact with knowledge and respond to instruction. The components of a smart board system are a computer, a projector and a

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panel with active surface that acts like a blackboard. Connected to a computer, the smart board and projector are used in conjunction with a smart board software. This software allows the use of many ready-made drawings, formulas, images, maps and shapes during class (Dill, 2008).

Smart boards offer many facilities such as presentations, viewing videos and graphics, as well as the opportunity to retrieve what was on the board at a later time (Smith et al., 2005). As stated by Levy (2002), smart boards have the advantages of presenting learning resources and knowledge, explaining concepts and ideas, and facilitating interaction and activities in the instructional process. They thus support the instructional process, draw students' attention and increase their motivation.

According to the British Educational Communications and Technology Agency (BECTA) report (2007), smart boards are a beneficial tool of presentation that can be used to replace traditional and modern classroom resources (such as the blackboard, flipchart, OHP, maps, images, graphs, books, calculators and players); and that give one-click access to teachers to a bank of resources that would otherwise take years to collect and much space to store. Lewin, Somekh and Steadman (2008) state that smart boards make classes more visual and lively with their touch-screen characteristics, the ability of students and teachers to interfere, change and record things and their other features such as sound, video and animations, colors, images, and zooming in or out. SMART Technologies (2006) report also states that smart boards increase active student involvement in the learning process and their interaction with the course, encourage them to learn and support different learning styles

Kennewell and Beauchamp (2007) argue that smart boards ensure more eye contact between students and teachers and thus ease classroom management, make learning fun, enhance involvement and enrich the environment. Cogill (2001) emphasizes that training is necessary if smart boards are to be used effectively in education, and that overuse can put students off learning. Adıgüzel et al. (2011) contend that if teachers use smart boards in the right way, students can develop more interaction with the course.

Looking at research results on smart boards, some state that, when used properly, they keep students happy to learn with them, make class time more efficient, help teachers maintain student interest and motivation, and ensure more effective instruction along with a cooperative learning environment (Sünkür, Arabacı and Şanlı, 2012; Ateş, 2010; Painter, Whiting and Wolters, 2005). However, there are other studies that discuss the problems that arise during the use of smart boards. Some of these are "lack of training on how to use smart boards for teachers, lack of support for teachers, lack of materials for use with smart boards, technical problems before and during smart board use, and the resulting fall in student motivation (Türel, 2011; Türel, 2010; Hutchinson, 2007; Hall and Higgins, 2005).

Smart boards have become very popular in the field of education recently, particularly in countries such as the UK, USA and Australia, attracting huge allocations in their education budgets. While 90% of classrooms in Japan and the USA are adorned with smart boards, 70% of EU classrooms have them. The Italian Ministry of Education started a project called "Digital Schools" (www.digiscuola.it) in 2010, with which they are making a great effort to increase the number of smart boards across the country and ensure their effective use with teacher training (Lai, 2010; Türel, 2010; Torff and Tirotta, 2010 and Holmes, 2009). These countries mostly use tools that resemble a traditional board but has a touch screen to interact with the user, and are connected to a computer. In Turkey, smart boards have recently become a popular tool of learning and teaching especially in elementary schools, and their use is on the rise both in public and private schools. The Fatih project initiated in 2010 intending to bring a new vision to the Turkish education system defines its overall goal as bringing computer technology (CT) tools to classrooms by the end of 2013 (MEB, 2012). The components of the Fatih project include the following five headings: hardware-software, e-content, use of information technologies and in-service teacher training. The project embodies the transition from "a computer for each school to a computer for each classroom" (Adıgüzel et al. 2011).

1.1. Significance of the Study

As mentioned before, smart boards have become popular in Turkish education agenda and are being used in many institutions. However, every technological tool comes with both advantages and disadvantages. This study examines teacher and student views on smart boards that have a big cost for the country by referring to other studies in the literature and the Fatih project. Examining the success of previous practices and teacher and student views is crucial. The study was conducted with 5th, 6th and 7th graders from a school that has been using smart boards for the past three years, and the teachers of these children. The concept of technology in the study is limited to smart boards.

The study sought answers to the following questions:

Problem Statement

What are student and teacher views about smart boards used in their classes?

Sub Problems

    a.   What are student views about smart boards used in their classes?

    b.   What are teacher views about smart boards used in their classes?

2. Method

2.1. Study Group

The study group comprises 5th, 6th, and 7th graders from a school that was using smart boards during the 2012-2013 school year, as well as the teachers of these students. The distribution of the students by gender and grade level is shown below in Table 1.

Table 1. Distribution of students by gender and grade level

Gender	n	%	Grade Level	n	%
			5	69	37,7
Girls	105	57,4	6	65	35,5
Boys	78	42,6	7	49	26,8
Total	183	100,0	Total	183	100,0

Of the students in the study group, 57,4 % were girls and 42,6% were boys. Of these , 37,7% were 5th graders, 35,5% were 6th graders and the remaining 26,8% were 7th graders.

The distribution of the teachers by gender and subject area is presented below in Table 2.

Table 2. Distribution of teachers by gender and subject area

Gender	n	%	Subject Areas	n	%
Female	20	55,6	Turkish	6	16,7
Male	16	44,9	Science and Technology	7	19,4
			Social Science	6	16,7
			Mathematics	9	25,0
			Foreign Language	8	22,2

Of the teachers in the study group, 55,6% were female and 44,9% were male. Of these, 16,7% were Turkish teachers, 19,4% were Science and Technology, 16,7% were Social Studies, 25% were Mathematics and 22,2% were Foreign Language teachers.

The distribution of teachers regarding their smart board experience and use is given in Table 3.

Table 3: Distribution of teachers regarding their smart board experience and use

Smart Board Experience	n	%
3 years	18	50,0
2 years	12	33,3
1 year	6	16,7
Smart Board Use (Daily)	n	%
7 hours	7	19,4
5 hours	16	44,4
4 hours	13	36,1

Fifty percent of the teachers had been using smart boards for 3 years, while 33,3% had been using them for 2 years, and 16,7% for 1 year. On the other hand, 44,4% used it for 5 hours daily, 36,1% for 4 hours daily, and 19,4% for 7 hours daily.

2.2. Data Collection Tools

Student data were obtained by using the tool developed by Beeland (2002). This is a 4-point Likert type scale with 20 items with the following: 1: Completely Disagree, 2: Disagree, 3: Agree and 4: Completely Agree. Test reliability was ensured by a Cronbach Alpha coefficient of .71. Also, the researchers added the following questions at the end of the scale: "When a smart board is used, what are your favorite aspects of class?", "Is there anything you don't like about smart boards? What?" and "Do you think you learn better when a smart board is used in class? Why?" and obtained the views of 18 (10%) randomly selected students from each class.

Data from teachers, on the other hand, were collated by the researchers by using a survey based on Beeland's (2002) measurement tool, which was a 5-point Likert type scale with 20 items. The points were as follows: 1: Completely Disagree, 2: Disagree, 3: Undecided, 4: Agree and 5: Completely Agree. Test reliability was ensured by a Cronbach Alpha coefficient of .69. The survey included questions such as: "How many years have you used smart boards?", "How many hours daily do you use smart boards?", "What difficulties do you face when using smart boards?" and "What are the advantages of using smart boards?".

3. Findings

The findings were considered and interpreted in the same order as the questions used in the study.
   a)   *What are student views about smart boards used in their classes?*
Student views about smart board use were examined and the results are offered in Table 4.

Table 4: Student views about smart boards used in their classes

	$\overline{X}$	sd
I enjoy learning with smart boards	3,66	,611
I don't like being taught through smart boards*	3,21	,467

Using technology well helps finding a good job	3,79	,588
When smart boards are used during education, I focus better	3,81	,599
If my teacher used smart boards more often, I would study more	3,46	,557
I know that learning how to use technology gives me the opportunity to learn many new things	3,49	,663
I can learn many things when my teacher uses a smart board	3,75	,611
I enjoy courses taught through smart boards	3,89	,755
I believe that the more teachers use smart boards, the more I enjoy school	3,56	,550
I believe that it is important for me to learn how to use a smart board	3,87	,676
I feel comfortable using a smart board	3,78	,487
I enjoy using a smart board	3,87	,539
I don't think that learning will take longer when my teacher uses a smart board *	3,68	,599
I'm no longer apprehensive of using a smart board	3,91	,296
Using a smart board makes me nervous*	1,87	,536
Using a smart board is not nerve-wrecking	3,38	,616
By using technology, I can study as little as possible*	3,57	,622
It is difficult to use a smart board *	1,87	,911
I can learn more from books than I can from smart boards *	2,82	,627
I panic when I think about using a smart board *	1,86	,474
Total	3,36	,591

* Items 2, 13, 15, 17, 18, 19 and 20 are negative and inversely coded

It can be understood that students generally embrace the use of smart boards as they have mostly chosen the alternative *"Completely Agree (*$\bar{X}$* = 3,36, sd=0,591)"*. The items for which the students chose "Agree" and "Completely Agree" were: "I enjoy learning with smart boards", "Using technology well helps finding a good job", "When smart boards are used during education, I focus better", "If my teacher used smart boards more often, I would study more", and "I enjoy courses taught through smart boards."

Students chose "Agree" for smart boards encouraging participation, making classes fun and interesting, and using time efficiently. Overall, they seem to think that technology use facilitates learning and is influential in finding a good job.

These results suggest that students are satisfied with learning through smart boards. This finding is in line with those of previous studies about using smart boards in the instructional process (Beeland, 2002 and Lewin et al., 2008).

The responses of students to the open-ended questions were as follows:

When a smart board is used, what are your favorite aspects of class?

Most students stated that they enjoyed the interactive feature of smart boards and the option of being able to write on them by using a marker or their fingers, and that they did not get bored during smart board use. They also said that learning through videos and other visuals is beneficial, and that smart boards enable them to use the Internet when there is a new concept they want to learn about.

"We learn by seeing and listening." A.K

"We learn without being overloaded with information, we can use the net when we want to". K. D

"We can copy what we do and share them with other classes or view them again ourselves" A. F

Is there anything you don't like about smart boards? What?

Students replied that visibility was compromised due to glare in sunny weather, they were not able to read materials written on A4 paper, they sometimes changes the screen upon touching the board accidentally, videos sometimes did not load and wasted their time, and teachers sometimes went over things too quickly.

"Videos shut down, which leads to time waste. When I'm writing on them my other fingers touch the board and cause problems" A.K

"Print sometimes moves, restarting the board after a power cut can take time, and using a marker can be difficult." K.D

"It can give us eye strain. Glare during early hours makes it hard to see the board. Our teachers sometimes teach too quickly, which tires us and makes it difficult to follow class." A. F.

Some teachers going over materials too quickly, the headache and eye strain that some students mentioned, and possible technological problems are similar to the difficulties mentioned in previous studies (Wall et al., 2005; Hennes, 2007).

Do you think you learn better when a smart board is used in class? Why?

Most students stated that smart boards are audio-visually rich and lead to better learning, and that their teachers come to class better prepared which leads to more interesting classes where they can learn better.

"The smart class facilitates our teacher's work and makes drawings clearer. I learn better with the smart board. Its Internet connection also supports our learning." A.K.

"I learn better with the smart board than with books. I understand things more quickly and find learning fun" K. D.

"Our teachers prepare for class, and we use the internet to reach videos and images and thus learn better." A. F.

In sum, students stated that they understood subjects more easily with a smart board owing to its print and drawing features, audiovisual opportunities and the internet connection. Considering student interest in visual, aural and tactile course materials, these findings are not surprising.

However, one student said during the interview that he was not able to learn with a smart board and that using it was a loss of time and led to some problems.

"I think it's a time waste to use a smart board, it gets noisy at times and stops me from learning. Instead of writing things down, we just view them on the board. Those with eye problems suffer. Also, I don't like it that my work or assignments are shared with the whole class on the smart board." C. B.

b.   What are teacher views about smart boards in their classes?

Teacher views on the topic were also examined and the results are given below in Table 5.

Table 5: Teacher views on their smart board practices

Smart boards...	$\overline{X}$	ss
help me use time efficiently	3,78	,663
interest and motivate students	4,21	,629
make my classes more interesting	3,98	,576
help me have more time for my students	3,43	,654
visualize the learning environment and bring concrete learning	4,50	,586
help me use computers and projectors more effectively than before	4,01	,473
encourage my students to participate more in my lessons	3,78	,417
help my students learn better	3,97	,473
have helped me change my instructional method	3,67	,668
are time consuming*	3,51	,554
help me enjoy my classes more	4,13	,581
are not appropriate for every subject*	4,28	,583
waste time when there are technical problems*	4,04	,630
help students understand topics better by using audiovisual materials	4,15	,595
are not significantly different from regular boards*	2,63	,710
make my classes more planned and organized	4,63	,531
are difficult to use*	2,50	,505
make classroom management more difficult*	2,65	,481
require too much time and effort for materials development*	3,71	,455
reduce student interest when overused*	3,65	,481
Total	3,76	,654

* Items 10, 12, 13, 17, 18, 19 and 20 are negative and inversely coded

It can be seen that teachers generally chose between *"undecided"* and *"agree" ($\overline{X}$ = 3,76, ss=0,654)"*. Those items that were marked as "Agree" and "Completely Agree" were: "interest and motivate students", "visualize the learning environment and bring concrete learning", "make students understand better with audiovisual materials", and "make my classes better planned and organized". However, teachers also stated that smart boards were not appropriate for every course and that they led to time loss when technical problems arose.

The responses of teachers to the open-ended questions are summarized below.

All teachers in the study group said that they made use of smart boards.

What are some difficulties you face when you use smart boards?

Similar to any technological system, problems may also arise when smart board systems are used. Teachers listed these problems as technical problems, the time needed to prepare materials, and their mismatch with some subject areas.

"They frequently require calibration, and their overuse may cause headaches or restlessness in students. It can sometimes take time to technically solve problems, which leads to a hubbub in class and waste of time, as well." A. K.

"I don't think they are very effective in courses such as Social Studies. They can, however, draw student interest with visual materials such as maps." D. N.

"It takes time to prepare course materials, I need to revise and correct them a lot." S. T.

"They cause loss of time when there's a technical problem (such as power cuts or calibration), and because we prepare to teach via the smart board, it takes time to shift to another mode" A. F.

What are the advantages of using smart boards?

The teachers listed increased student motivation and participation, efficient use of time, and effective learning owing to being visual as the advantages of smart boards.

"They attract student attention. They are particularly good with that in geometry" A.K.

"Because you prepare for class beforehand, you can use time very efficiently." D. N.

"They increase student interest and motivation; particularly when students are allowed to also use the board." S. T.

4. Conclusion

Technology is becoming ever more present in the instructional process. Different technological tools are in use in different countries and schools. Smart boards, which combine computers, projectors, smart screens and the internet are an example of these technologies and are becoming more and more popular.

Aiming to promote the use of smart boards in education and to examine student and teacher views on smart boards, this study found that students embraced smart boards, and "agreed" that these boards increased their involvement in classes, made their courses more fun and helped efficient use of time.

Teachers, on the other hand, "completely agreed" that smart boards interest and motivate students", "visualize the learning environment and bring concrete learning", "make students understand better with audiovisual materials", and "make classes better planned and organized".

Most students stated that they enjoyed an interactive board and being able to write with a marker or their fingers, learning with a smart board by watching videos and seeing, and being able to use the internet to check out new information. Teachers, on the other hand, mentioned enhanced student motivation and participation, better use of class time owing to prior preparation, and more effective learning with visual materials as the advantages of smart boards.

Students stated that smart boards have glare problems, they were not able to read materials written on A4 paper, they sometimes changed the screen by touching it inadvertently, videos sometimes do not load and cause time loss, and teachers sometimes rush through materials. Teachers mentioned technical problems (such as power

cuts or calibration), the time-consuming nature of materials preparation, and smart boards not lending themselves to use in every subject area.

As can be seen, despite technical problems and the time needed to prepare materials, smart boards are a viable educational solution to get students motivated and interested, to make lessons more efficient, and to support teachers.

Other studies are needed to make smart boards more commonplace in the country and reveal their advantages and benefits comprehensively.

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