

Student Views on Using Smart Boards in Turkish Education

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Abstract One of the greatest opportunities for technological developments in the field of education is computer aided smart boards. Our country has adapted to these technological developments and initiated the smart board applications with FATİH Project which is one of the few projects of its size of the world. The aim of this research is to reveal the contribution of smart boards – which are the most important elements of the FATİH project- to Turkish education, their effects on student motivation, and also their negative aspects by taking the views and opinions of students who are directly involved in the project. The sample of the research consists of 600 students studying in Yakutiye, Palandöken and Aziziye districts of Erzurum province in the Fall semester of 2017-2018 academic year. Based on the results of the research, it was found that thanks to using smart boards in Turkish education lessons, the students understood Turkish better, learned the course subjects easily, were more successful in Turkish, the visual and audio materials used in smart board applications were beneficial in better understanding the topic, students had the opportunity to learn the topics from more and various sources, smart boards made the lessons fun and enjoyable, increased interest for the lessons, students liked using the smart boards, smart boards had positive effects on learning and student motivation; whereas some negative opinions were also found that some students had difficulties using smart boards, frequent malfunctions in the smart boards caused a loss of time in lessons, students were not willing to prepare homework that included the use of smart boards, visual quality of the boards was low, and smart boards made the students more lazy.

Keywords Turkish Education, FATİH Project, Smart Board Usage, Student Views

1. Introduction

Rapidly developing technology has become an indispensable part of our life and it has gained an

important place in both social life as well as education. The life of the individual is shaped in parallel with technological developments and these technological developments make themselves felt in every aspect of life. This rapid change and progress in technology in recent times has made the individual's life easier and provided some opportunities for the individual. Technological advances have brought innovations in our education life as well, allowing for the use of new tools and equipment for the application of new approaches and methods in education.

As Yüksel [1] stated, these innovations in educational technologies have helped education and training services to be brought to wider audiences in an effective and high quality manner, helped improve education and training environments, and have become important in educating more qualified individuals equipped for the needs of the century. Through the technological developments that took place in the past hundred years, the tools and equipments used in education have changed, and new tools and equipment have been developed and used in different applications in education [2]. Teaching tools are the different ways and mediums in which information can be delivered to students [3]. One of the innovations and opportunities offered by the technological developments in the world of education and training is the smart boards that are being used in schools. First produced in England in 1991, and later on being used in education in England and many other countries such as the USA, Canada and Australia, smart boards have taken their place in educational environments [4].

One of the main objectives of modern education systems today is to train individuals with effective problem-solving skills, critical and creative thinking, and computer literacy competencies. In the report published by International Society for Technology in Education: [5], the skills and competencies that should be found in students are listed as; creative thinking using technology, structuring information and being innovative, communicating and collaborating using digital media and environments to support individual learning and learning of others, to be able to do research using digital tools and

keep up with the flow of information, critical thinking, problem solving and decision making using appropriate digital tools and resources, understanding the human, cultural and social issues related to the use of technology and applying legal and ethical behaviors, understanding and using technological processes and concepts. Today, developed countries such as the United States and the United Kingdom emphasize education models based on information technology to train this desired student model and therefore invest heavily in computer-aided learning.

In the UK, the first country to implement smart board application in the world, it was found in 2008 that all of the primary schools and 98% of the secondary schools used smart boards [6]. It can be seen in research reports that particularly in the UK, the government provides resources for these initiatives, and makes smart boards the standard feature of many schools [7]; [8]. Currently, education in nearly all the schools in the USA, UK and EU countries is being carried out with smart boards [9].

Effective use of educational technologies has become one of the prerequisites for success in education. Today, countries that want to train individuals with the desired skills and effective in every field have re-examined their education systems in accordance with the developing educational technologies and have made the necessary innovations. Students need multidirectional descriptions of the subject or concept they are going to learn. This allows students to take advantage of computers and smart boards to check various perspectives and undertake various roles in the course of their education as they learn a new topic or concept [10].

The use of appropriate tools and equipment in line with the advancements of the age in education is of great importance in terms of supporting the teacher and making learning more effective and lasting. Therefore, the materials and tools being used in education have an important role in learning and understanding of subjects, attracting the students' attention and keeping their desire to learn alive while the lesson becomes more enjoyable. Students can easily discuss and present their work thanks to the smart board. With this advantage, students interact with each other throughout the lesson. Students enjoy the lesson with such a high level of interaction. It then becomes easier for students to be motivated for learning [11]; [12]; [13]. The smart board also brings together creative teaching resources with the use of the Internet while teaching subjects (Murcia, 2008). Thus, the network system between the computer, projection device and the board helps presentation of materials, development of concepts, and increases the interest of students in the course [14].

NCTE [15] and Tiriyaki [16] list the benefits of using smart boards, which are seen as the latest and greatest visual learning tools of education technology, in education and training as follows:

- * To help students explain and present difficult

concepts through multi-presentation feature,

- * Effectiveness in education of visually impaired students,

- * Allowing students to use internet resources under teacher supervision,

- * Use in individualized learning experiences,

- * Allowing students to perform learning activities as the entire class or in small groups,

- * Attracting students attention to the course,

- * Helping students demonstrate their abilities,

- * Enabling students to participate in the course by writing their solutions to the problem on the board,

- * Providing screens that students can easily see and read,

- * Saving time,

- * Has a positive impact on students' personal and social development and their being collaborative and participative so that it contributes to making students more creative in their presentations made to their classmates.

- * Smart board technology is more than a computer, projection and screen.

This technology enables the teacher to perform e-teaching. E-teaching also includes information and communication technologies to increase learning.

Teacher, course book and writing board constituted indispensable parts of traditional education model in education-teaching environments. However, as the developments in science and technology are rapidly advancing today, the presence of technology has been felt in the field of education as it is in every field of our daily life, different learning approaches have been developed, and learning-teaching methods have begun to change. As a result of this change, the function of schools, teachers, textbooks and the tools and equipments used has also differed significantly. The school is no longer the only place where learning takes place, and the teacher is no longer the only source of information. Textbooks, one of the indispensable tools of the traditional learning model, have had to be constantly rewritten to keep up with the changes that have taken place in the scientific world and to the developing technology. Today, teaching-education has evolved from a school-teacher-student triangle to a multi-faceted, multichannel education model together with the developing new technologies [17]. Therefore, it has become necessary for educators to combine technology with their own work areas [18].

Scientific studies have proven that smart boards, which are an indispensable part of the education process and where important projects and studies are initiated on their dissemination, provide important contributions to the learning-teaching process [19]; [20]. The use of smart boards and computers in schools allows both teachers and students to follow the learning level of the student, enable the students to learn according to their own learning speed, provides more permanent knowledge and skills compared

to different learning environments, and provides a quick and effective way of learning with the use of visual and video materials [21]. One of the most important means of education in teacher-centered education is the use of blackboards, where the teacher stands in front of the blackboard and directs teaching, whereas in the use of smart boards, a student-centered education approach can be embraced, and allows interaction among the students [22].

According to Yalın [23] the benefit of smart boards in teaching and education is listed as; providing a multi-learning environment, helping students meet their individual needs, attracting attention and increasing motivation of the student, ensuring the retention of the learned matter, concretizing abstract subjects, saving time, enabling the possibility of making safe observations, repeating the learned subject, enhancing comprehension by simplifying complex subject contents. The use of all types of audiovisual equipment in parallel with technological developments in the classroom environment will increase the interest and participation of the students in the classroom and therefore affect student achievement positively.

In recent years, many developed countries have begun using education technologies more intensively in their teaching programs. In this sense, Kersaint, Horton, Stohl and Garofalo [24] stated that the importance of educating individuals in schools who can use technology is increasing day by day. Our country has also given importance to use educational technologies in educational environments and has taken preliminary steps in this direction. The use of material in education plays an important role in ensuring that the students achieve their intended goals more easily by creating an effective educational environment and achieving the program's success [25]. In this context, Increasing Opportunities in Turkey and Improving Technology Act (FATİH) project aims to equip classrooms with information technology equipment, enabling teachers to effectively integrate technology with education [26]. The FATİH Project aims to provide equal opportunity in education and training, to improve the technology in the schools and to provide effective and permanent learning by addressing more sensory organs in the learning-teaching process.

The necessity of using the more effective technological tools and equipment in the schools and giving students technology literacy in the lessons has emerged. Using educational technologies in the school environment, gives students opportunities to learn ways to come up with new ideas and to implement them, bringing new solutions to the needs of the community, taking an active role in designing methods and products, removing ambiguities in the way of accessing knowledge, collaborating between groups, lifelong learning, and using regional and international networks [27]. When educational technologies are used effectively in the education process,

the benefits to education and students cannot be overlooked. In the report published by EARGED [28], it has been stated that the use of educational technologies have significant benefits in achieving goals and targets by increasing student achievement, addressing as many senses as possible during the learning process, keeping the interest of the student on the learning activities as long as possible and increasing motivation for learning, and enabling students to directly or virtually participate in experiments or activities conducted in computer aided multimedia environments since all aspects of learning is taken into account from the organization of the learning environment to the different learning modes and speeds of students. Smart boards are an innovative technology and are seen as a combination of white and black board in the traditional classroom environment with computer technology and are a technology that helps increase both the effectiveness of learning and the quality of teaching [29].

The materials used are important for students to learn lessons and learn concepts more easily. With the progress of technology, students are also involved with technology in everyday life. Lessons learned in front of the black board in the traditional classroom environment diminish the motivation of the student. To prevent this, the use of smart boards in classrooms is necessary. The smart board, which enables active participation of the student in the learning process, is closely associated with creating an enjoyable learning environment, the use of learned information both in daily life and in academic life, and the realization of effective learning, and the effective use of educational technologies in the educational environment. Using educational technologies in schools does not only help the students but also the teachers. The educational technologies also have benefits at reducing the time spent by students and teachers in reaching the goal, increasing the effectiveness of teaching in the classroom environment, ensuring effective learning, decreasing the cost of education without sacrificing the quality, reducing the time spent by students and teachers in reaching the specified goals, and empowering students in the classroom environment [30].

Smart board-based teaching has three main positive effects, such as learning resources and presentation of information, explanation of concepts and ideas, facilitation of interaction and activities [12]. The smart boards are a powerful tool for interacting with students in terms of students being able write on smart boards, saving changes, the board having a high visual impact, having access to a large number of sources, and promoting discussion and interactive learning [11]. It also facilitates classroom supervision as it allows the teacher to have more eye contact with students [31]. The use of smart boards in education has great advantages in making learning fun, increasing the student's participation in the lesson, and enriching the learning environment [32].

Smart boards can be used for various purposes such as providing information in in-class teaching and structuring information, displaying information with existing resources and visuals, making explanations and comments on the topic, discussing the answers by asking open-ended or multiple choice questions, reinforcing learned topics through student activities performed in the class, identifying the points that students made mistakes in their answers or assignments and talking to them, giving verbal feedback about the written work of the students, recording the operations made with the electronic pen, writing on electronic media such as pictures and videos, being able to interactively do experiments that cannot be done easily in the classroom environment, connecting to the Internet and guiding the lessons. According to Çoklar and Tercan [33], studies show that smart boards are acceptable, applicable and widespread in elementary schools [34]. This is because smart boards contain more sources for elementary school curricula and the teaching of all grades.

1.1. Purpose and Significance of Research

As the result of increasing number of students in our country, inadequacy of time and as a result of the age of information, both constant change of existing information and presentation of new information, inadequacy of the number of teachers in different regions of our country and individual skills and differences in the class environment, have increased the necessity of using computers especially in education [35], [36]. Thanks to FATİH Project, it is aimed to use new technologies in education and training in our country and to improve the technology in our schools [21]. For this reason, the smart board, which is one of the technological educational tools that has been spreading rapidly in our country in recent years and which also supports the constructive education model, has become very important to be used in Turkish lessons.

The aim of the research is to reveal the effects of using smart boards, which are thought to have an important contribution in teaching Turkish language more effectively, in Turkish language lessons and its effects on learning, based on student views and opinions. In this study, smart boards used in Turkish lessons will be evaluated by determining the positive and negative aspects based on students' opinions. This study is based on the opinions of the students. It is thought that the positive or negative opinions and suggestions of students who use smart board in Turkish lessons regarding this project will shed light to future work in terms of the usefulness of smart boards in Turkish lessons. In addition, the fact that there is no research related to students' views on the application of smart boards in Turkish education, which are now used in almost every school after major investments, increases the significant of this study.

2. Materials and Methods

In this section, the research model, the universe and the sample, and data collection tools will be described.

2.1. Research Method

In this study, screening model was used to determine students' opinions about smart board usage in Turkish teaching. The screening model is a research approach aimed at describing a situation in the past or present as it exists. In the screening method, the individual or object that is the subject of the study is tried to be defined within its own circumstances and as it is [37]. This method has been used since the research is in depth and wide-ranged, and since "survey" is the most frequently used and most appropriate method to identify the current situation and reach many people [38]. Survey is a questionnaire in which questions designed to identify people's thoughts, opinions or tendencies as part of a research are placed in certain regularity; a research method aiming to collect information in this manner [39].

2.2. Research Population and Sample

The population of the research is constituted by all the 8th grade students of secondary education who are studying in Yakutiye, Palandöken and Aziziye central districts of Erzurum province in the fall semester of 2017-2018 academic year. The sample of the study is composed of 600 students in different secondary schools in the districts of Yakutiye, Palandöken and Aziziye in Erzurum province. All the schools that are surveyed have smart boards.

2.3. Data Collection Tool

Based on the aim of this research, in order to determine the opinions of the students for smart board usage in the teaching of Turkish, firstly the related literature was scanned, the opinions of Turkish educators, Turkish and Informatics and Technology teachers were received and a 5-point Likert type "Student Opinions Scale Related to the Use of Smart Boards in Turkish Teaching" scale consisting of 24 items was developed. The responses in the scale were "Strongly Agree", "Agree", "Undecided", "Disagree", and "Strongly Disagree". The scale was used to assess the positive and negative aspects of smart boards, their contribution to learning, and their effect on increasing the motivation of students. Validity and reliability analysis of the scale revealed a Cronbach's Alpha value of 0.85; whereas the test statistic of KMO (Kaiser-Meyer-Olkin) test was found to be 0.654. The Cronbach's Alpha value of 0.85 indicates that the scale is above the acceptable limit [21]. This result indicates that the scale used in the study is valid and reliable.

3. Findings

In this section, findings obtained in the research and interpretations of these findings are included.

Table 1. Percentage Value and Frequency Analysis Results of Student Opinion Scale Related to the Use of Smart Boards in Turkish Teaching Data Obtained from Survey Participants

	Responses					
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	
I understand Turkish lesson better when my teacher uses smart board.	n	320	176	45	35	24
	f	53,3	29,3	7,5	5,8	4
I learn the explained subject more easily when our teacher uses smart board in Turkish lesson.	n	228	143	92	21	16
	f	38	2,8	15,3	3,5	2,6
I become more successful in Turkish when we use smart boards during the lessons.	n	246	138	85	79	52
	f	41	23	14,1	13,1	8,6
When I can't attend Turkish lessons, I can later receive the subjects described on the smart board via a flash drive, which enables me to study the subject again.	n	311	193	43	34	19
	f	51,8	32,1	7,1	5,6	3,1
When we use smart board in Turkish lessons, the audiovisual materials help me better understand the subject.	n	253	205	81	38	23
	f	42,1	34,1	13,5	6,3	3,8
Thanks to the smart board I am able to learn the subject from more and various sources in Turkish lessons.	n	206	163	96	87	48
	f	34,3	27,1	16	14,5	8
The use of smart board in the Turkish class does not affect my performance.	n	53	61	57	197	232
	f	8,8	10,1	9,5	32,8	38,6
The use of smart boards in Turkish class makes lessons fun and enjoyable.	n	276	209	59	35	21
	f	46	34,8	9,8	5,8	3,5
I am more interested in Turkish class when the lessons are done with a smart board.	n	281	168	84	38	29
	f	46,8	28	14	6,3	4,8
In Turkish lessons with a smart board, I like to stay at the board more, and use the smart board.	n	238	176	94	56	36
	f	39,6	29,3	15,6	9,3	6
It is hard for me to use the smart board in Turkish class.	n	159	186	102	83	70
	f	26,5	31	17	13,8	11,6
To me, there is no difference in the teacher explaining the subject in Turkish class on the white/black board or the smart board.	n	91	49	164	124	172
	f	15,1	8,1	27,3	20,6	28,6
It makes me feel uncomfortable that the teacher shows my assignment or work on the smart board to the entire class.	n	159	131	116	102	92
	f	26,5	21,8	19,3	17	15,3
I think that smart boards should be used in Turkish class all the time.	n	273	217	44	38	28
	f	45,5	36,1	7,3	6,3	4,6
When my teacher uses the smart board in Turkish class, I don't have to take notes. I like that.	n	228	181	62	76	53
	f	28	30,1	10,3	12,6	8,8
I become very motivated for the lesson when my teacher uses a smart board in Turkish class.	n	288	245	16	31	20
	f	48	40,8	2,6	5,1	3,3
Since I can't prepare my homework at home when our teacher gives homework about the smart board, I think smart board should not be used in Turkish class.	n	193	221	106	53	27
	f	32,1	36,8	17,6	8,8	4,5
We don't lose time in class since the lessons are more planned when we use smart board.	n	237	180	83	56	44
	n	39,5	18	13,8	9,3	7,3
Image disturbances while using a smart board or freezes on the screen cause me not to see clearly what is on the board.	n	281	237	22	35	24
	f	46,8	39,5	3,6	5,8	4
The opportunity to get all the subjects explained in Turkish class later makes me lazier.	n	198	168	67	98	69
	f	33	28	11,1	16,3	11,5
Smart boards frequently break down during Turkish class and resetting them makes us lose time.	n	238	186	53	56	67
	f	39,6	31	8,8	9,3	11,1
I am anxious about going to the board since I can't use the smart board enough.	n	296	183	29	49	43
	f	49,3	20,5	4,8	8,1	7,1
I can't follow the lesson since my teacher goes so fast while using smart board in Turkish class.	n	140	158	73	95	134
	f	23,3	26,3	12,1	15,8	22,3
I don't take the lesson seriously when we use smart board in Turkish class.	n	165	129	52	116	137
	f	27,5	21,5	8,6	19,3	22,8

When the table is examined, it can be seen that 53.3% of the students strongly agree, and 29.3% agree with the positive effect of smart boards on “better understanding the Turkish lesson when smart board is used”. This ratio shows that the use of smart board in Turkish lesson is effective on students for better understanding the subject. Participants responded to this item with 4% strongly disagreeing, 4.8% disagreeing, and 7.5% undecided. Students have expressed positive opinions for “learning the subject explained in the Turkish class more easily” with 61% of the participants strongly agreeing or agreeing. It can be said that the use of smart board in the Turkish lesson gives students an advantage for understanding the subject more easily. The negative responses on this item were only 6%. In terms of “being more successful when the Turkish lessons are taught with smart board”, students have stated that they were more successful with smart board usage as 41% strongly agreed and 23% agreed with the statement. This 64% ratio indicates that smart boards are effective in increasing the academic success of students in Turkish course. Approximately 21% of the participants stated that smart boards did not increase success in Turkish. This can be explained by the interest of students towards the course, or their general tendency of using technology. A significant majority of the students (84%) agreed with the “I can later receive the subjects described on the smart board via a flash drive, which enables me to study the subject again” statement. Smart boards enabling students to repeat and study subjects and the course subjects being transferrable via flash drives give students chance to repeat the contents at home or elsewhere, thereby allowing students not to feel too detached from course contents when they can’t attend classes for some reason. Approximately 9% of students responded negatively to this item. This can be attributed to the lack of electronic environments at home or immediate surroundings of children preventing them from studying. 42.1% of students strongly agreed and 34.1% agreed with the statement of “Audiovisual materials that are one of the features of smart boards in Turkish class help me better understand the subject”. Students also responded positively to the statement of “learning the subject from more and various sources in Turkish lessons thanks to smart board” with 34.3% strongly agreeing and 27.1% agreeing. In our country, rich content has been developed for the use in smart boards with a project of the Ministry of Education titled Educational Information Network (EBA) project that was simultaneously implemented [26]. Within the scope of this project, this rich content database presented to students through smart boards was enriched with various resources, and this enriched learning environment has also increased the academic success of students in the Turkish course. Students gave negative responses to the “Smart board usage does not affect my success in Turkish” statement at a rate of 70% of the participants either strongly agreeing or agreeing. Only

9.5% of the students were undecided, and approximately 70% responded positively. 485 students (80%) responded positively to the statement of “Using smart boards in Turkish lessons makes the lessons more fun and enjoyable”. The use of smart boards in the classroom environment keeps constant attention of the student and motivates them. The students gave positive responses to the statement of “I am more interested in Turkish lesson using smart board” with 46.8% strongly agreeing and 28% agreeing. Lessons learned with videos, animations, slides with the use of smart board attract the attention of students more. Approximately 10% of the students responded negatively to this item. 39.6% of the students strongly agreed with the statement of “I like to go to the board in Turkish lessons taught with a smart board, and I like to use the smart board” while 29.3% of the students agreed with the statement. With activities implemented via smart boards, students directly or virtually engage in experiments or activities in computer aided multimedia environments, and learn the course subjects by personal experience, thereby the courses become more enjoyable for students, and the interest of students in course contents increase. It is seen that approximately 58% of students participating in the study have problems using smart boards in the classroom environment. The main reason for this is that students don’t have the knowledge and skills to conveniently use smart boards and related equipment. Approximately half of the students participating in the study (49%) have stated an opinion that “there is no difference between the smart board and traditional board”. It was found that 27.3% of the students were undecided on this item. A significant majority of the participants prefer smart board over white/black board. It can be seen that there is a small number of participants that prefer the white/black board method. The students responded negatively to the statement of “it makes me feel uncomfortable when my teacher shows my assignment or work on the smart board to the entire class” with 26.5% of students strongly agreeing and 21.8% agreeing with the statement. This can be regarded as one of the negative aspects of smart boards. 19.3% of the students were undecided, 17% disagreed, and 15.3% strongly disagreed with this statement. Students gave positive responses to the “Smart boards should be used in Turkish class all the time” statement with 45.5% strongly agreeing and 36.1% agreeing. This can be evaluated as one of the most positive aspects of smart boards. 7.3% of the students were undecided, while 6.3% disagreed and 4.6% strongly disagreed with this statement. Another statement that received highly positive responses was “When the teacher uses the smart board in Turkish lessons I don’t have to take notes, and I like that”. Students participating in the study responded positively to this statement with 28% strongly agreeing and 30.1% agreeing. The characteristic of “smart board applications keeping the attention of students alive and motivating students for the class” was

responded positively by the students with 48% strongly agreeing and 40.8% agreeing with the statement. This suggests that smart board applications are very effective in keeping students engaged and motivated in class. When the table is examined, it can be seen that 69% of the students responded negatively to the statement regarding the homework given through smart boards. The reason for this is that not every student has the necessary computer or internet opportunities while doing his/her homework. This can be regarded as one of the negative aspects of smart boards. Students responded positively to the statement of “Smart boards enabling better planning of Turkish lessons, and this preventing lost time during lessons” with a rate of 58%. Smart board reduces the time students and teachers spend to reach the course objectives. Students indicated that the most significant problem associated with smart boards was “image disturbances or frozen screens while using smart boards” with a significantly high ratio of 86%. 33% of students strongly agreed, and 28% agreed with the statement of “smart boards making students more lazy” indicating negative responses on this item. The fact that smart boards provide major conveniences to the students during the lessons but also makes students lazier should be seen as an important issue. It can be understood from student views that “Smart boards frequently breaking down in Turkish lessons and resetting them causes a loss of time during lessons” is one of the disadvantages of smart board applications. Approximately 70% of the students agreed or strongly agreed with this statement. Technical problems arising from smart boards cause time loss in Turkish classes. It appears that the students are not able to use the smart board enough and are anxious about joining the class to use the smart board. The statement of “Lessons delivered by smart boards in Turkish classes are not suitable for the learning speed of the lesson” was mostly agreed by the students as a negative statement. 23.3% of the students strongly agreed with this statement while 26.3% agreed. Approximately half of the student stated that “they did not take Turkish lessons delivered by smart boards seriously” and about 9% of the students were undecided regarding this statement.

4. Discussion

The realization of effective learning for students has necessitated the use of educational technologies in the classroom environment. Today, developed countries have invested heavily in this area and have brought educational technologies into the classroom environment. This process, which is well suited to the concept of student-centered education, started with the use of computers in the classroom and continues today with the use of smart boards. In our country this application was initiated by the FATİH project of MEB. With this project, approximately

620.000 classrooms in our country were equipped with smart boards [33]. Based on the opinions of the students regarding the use of smart board technology applications in Turkish lessons that are being implemented in our country, the following results were obtained in this study evaluating smart boards in terms of their contribution to learning, effect on student motivation and negative characteristics.

Results Regarding the Contribution to Learning of Smart Board Usage in Turkish Lessons in Secondary Schools

Students participating in the study gave positive responses of strongly agree and agree to the following statements. ‘I understand Turkish lessons better when my teacher uses a smart board, I learn the subject more easily when my teacher uses a smart board in Turkish lessons, I am more successful when we use smart board in Turkish lessons, When I can’t attend Turkish lessons, I can later receive the subjects described on the smart board via a flash drive, which enables me to study the subject again, We do not lose time in class since Turkish lessons are more planned thanks to the smart board, Audiovisual materials allow me to better understand the subject when we use smart board in Turkish lessons, Thanks to the smart board I get the opportunity to learn the subject from more and diverse sources, Using smart board in Turkish lessons does not affect my success, I think that smart boards should be used in Turkish lessons all the time.’ Thanks to pictures, animations, and videos, etc. on learning subjects delivered through software programs within smart boards, learning becomes quicker and more effective. The use of teaching methods in education that activate more than one sense makes learning more permanent. Since more sensory organs will be engaged for as long as possible while teaching with smart boards, the interest of students on learning activities stays high and motivation for learning is increased. The use of all types of audiovisual equipment in parallel with technological developments in the classroom environment has affected positively the interest and participation in the course and therefore student success. Research has shown that the use of smart boards in education constitutes a rich audiovisual learning environment [5], enhancing the quality of education and raising student achievement [40]. According to Smith et al. [20], using smart boards in education enriches teaching and supports learning [41], strengthens teaching since it enables interactivity and participation in lessons, and is also a tool that supports learning due to its multimedia presentation [32], it is also an effective tool in changing the teaching methods and techniques [42], with the use of smart boards in lessons the experimental and applied approach has become widespread [43], and teachers and students who use this technology are freed from the traditional lecturing approach and effective learning is enabled Akgün [44], and use of educational technology tools in lessons

reinforces permanent learning in students. Taken together, these results support this finding in our study.

Results Regarding the Motivational Effect of Smart Board Usage in Turkish Lessons in Secondary Schools

Students participating in the study gave positive responses as strongly agree or agree to the following statements. 'Using smart boards in Turkish lessons makes the lessons more fun and enjoyable, I am more interested in Turkish lessons when the lessons are done with smart board, I like going to the board and using the smart board in Turkish classes when we use the smart board, I think that smart boards should be used in Turkish lessons all the time, I don't have to take notes in Turkish class when the teacher uses the smart board and I like that, I am more motivated to the class when smart board is used during Turkish lessons.' Studies have shown that using computer aided materials positively affected the attitudes of students towards the course [45] computer use during class positively affected the attitudes of students towards the class [46], motivation of students were higher when smart boards were used [47], student satisfaction was higher with smart board usage [19], smart board applications increased the motivation, attention span, focus and engagement of students [11] smart boards increased motivation in the classroom environment [4] and smart board applications positively changed the attitude and/or motivation of students towards the class. Taken together, these results support the findings of our study.

Negative Aspects of Smart Board Usage in Turkish Lessons in Secondary Schools

Students participating in the study strongly agreed or agreed with the following statements 'I find it hard to use the smart board during Turkish lessons, I feel uncomfortable when my teacher shows my homework or assignment on the smart board to the entire class, I think smart boards should not be used in Turkish lessons since I don't have the opportunity to prepare my homework at home when our teacher gives us homework through the smart board, Image disturbances while using a smart board or freezes on the screen cause me not to see clearly what is on the board, Being able to obtain all course subject explained in Turkish lessons later makes me lazier, Smart boards frequently break down during Turkish lessons, and resetting them makes us lose time.' Studies have shown that inadequate internet infrastructure, shortages in software programs [48], the negative aspects of smart boards that students do not like and the problems related to smart boards are writing on smart boards, fast pace of lessons delivered by smart boards, students not being able to see what is on the board [14], the issues most complained by students regarding smart board applications are technical issues related to the board, power outages, and inconveniences with the physical

environment [37], and smart boards cause distractibility on students [49]. Taken together, these results support this finding of our study. These deficiencies in the use of smart boards will significantly increase the educational contribution of this new technology when technical difficulties are eliminated. In order to prevent the positive atmosphere created in the class environment from being disturbed due to such technical and physical problems, it is necessary to solve these problems immediately.

Recommendations

Based on the results obtained by students' opinions regarding the use of smart boards in Turkish lessons, the following recommendations have been made: In order to make topics more permanent and understandable in Turkish lessons, smart boards should be made more widely used in schools. In history lessons, student centered teaching methods and smart board usage should be given more emphasis. Training programs can be provided to students having problems with using smart boards. Students should be informed on FATİH project and smart board applications. Smart boards should be maintained regularly to eliminate faults, and Computer Formation Teachers and specialists should be assigned in schools to assist in the technical difficulties and the use of smart boards. Frequent break down of smart boards and image disturbances are specified by students as factors preventing education. Depending on the developing technology, LCD touch panels can be preferred; pencil, calibration and projection quality problems can be eliminated. Students having difficulty in learning via smart boards, or students who need special education should be taken into consideration, and the pace of the lesson should be adjusted accordingly. Based on this study, future studies can be conducted on different cities with larger samples, and the obtained findings and results can be compared.

In order to use smart boards more effectively, physical conditions in the classroom environment should be improved, class organization should be made according to the use of smart boards. Computer literacy of students having problems using smart boards should be checked, and these students should be given basic information and skills on computer literacy. If needed, these students should be allowed to use smart boards more.

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