A Case Study of Junior High School Teachers' Opinions and Experiences about the Use of Smart Boards

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Abstract: Turkey started an innovative education reform called FATIH Project in 2010 in order to increase the equity of opportunity in education, enhance the technological infrastructure of the schools and ultimately improve teaching and learning processes. Smart boards were distributed to each classroom within the scope this project. Although these tools have the potential for student motivation and learning, it is also important to know what teachers think about and how they incorporate them in instruction. Therefore, this research aims to investigate teachers' opinions and experiences about the use of smart boards in their lessons. It was designed as a case study within the qualitative research paradigm. The participants were 11 teachers working at a junior high school located in a western city of Turkey. Data were collected through semi-structured interviews and analyzed using descriptive qualitative data analysis methodology. Teachers' responses were categorized under three main themes as potentials of smart boards in learning and teaching, problems encountered in the use of smart boards, and suggestions for improving the use of smart boards in the schools.

Keywords: Smart boards, Teachers, Opinions, Experiences, Case study

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Introduction

As part of the effort for integrating current technologies in to educational settings, Turkey has initiated a nationwide reformist project called "The Movement to Increase Opportunities and Improve Technology" (FATIH Project) since 2010. Focusing on the technology integration and related innovative pedagogical approaches, the FATIH Project aims to increase the equity of opportunity in education, enhance the technological infrastructure of the schools and ultimately improve teaching and learning processes. It has five dimensions including providing hardware and software infrastructure, offering educational content, professional development of teachers, effective use technology in teaching and ensuring security and management in

technology usage (MEB, 2011).

Within the scope of the FATIH Project, smart/interactive boards were installed in hundreds of thousands of classrooms across the country. As of April 2023, the number of smart boards installed in schools is over half a million and the installation process continues (FATIH Projesi, 2023). They were first distributed to high schools and then junior high schools and finally primary schools, kindergartens and newly built schools. The initial version smart board has emerged as the projection of the computer onto a suitable surface and evolved as a board-sized monitor integrated with a computer or directly connected to the computer (Akgun, 2014). The structure and functions of smart boards are changing depending on the advances in technology. Those being installed within the FATIH Project are touch sensitive and run off of local computer system resources without the need of mouse and keyboard. They allow students and teachers to write and manipulate things on the screen like activities, assessments, videos and digital tools.

The potentials of smart boards in education have been stated in the related literature. Smart boards provide students with the opportunity to receive information in different forms and methods (text, audio, video or combined) and thus contribute to the comprehension and synthesis of information (Akar, 2020; Demirbilek, 2022; Mert & Gunes, 2018). By encouraging interaction and cooperation in the classroom, they enable students to become active participants instead of passive receiver position (Ates, 2010). These tools allow the work on the screen to be saved as a digital file, brought back when needed, and revised through adding new content (Bulut & Kocoglu, 2012). In fact, the recording feature of smart boards allows even the students who do not come to the class to access the topics covered in the lessons. They provide audio recording for students who do not attend the class to make up for the lessons (Gundogdu, 2014).

Smart boards have functions such as marking, coloring, underlining, annotating on a text on the screen (Doger, 2021). The visualization offered by smart boards makes a great contribution to the learning process of students (Alan, 2020). Visualizing and concretizing the contents not only keep the students' interest and attention alive and thus reduce boredom, disinterested behavior and inefficiency but also make their learning effective and permanent (Mert & Gunes, 2018). Moreover, smart boards can make an increase in teachers' teaching time in class as they allow teachers to present the internet or other resources more effectively (Adiguzel, Gurbulak & Saricayir, 2011).

Undoubtedly, the installation of smart boards has the potential to enrich the education. However, it is also important to know what teachers think about and how they incorporate these tools in instruction in order to maximize their potential. Our research, therefore, aims to investigate junior high school teachers' opinions and experiences about the use of smart boards in their lessons. We formulate the following research questions in order to fulfill this aim:

- What do they think about the consequences/potentials of smart board usage on students learning

and development?

- What are the issues they think important about the integration of these tools?

Method

We designed our study as a case study within the qualitative research paradigm. Case study research is in-depth investigation of a particular person, group, event or organization in its natural real-world context (Crowe et al, 2011). It also helps to understand situations resulting from a new policy initiative or service development (Yin, 2009). Since the integration of smart boards in education is a part of the FATIH reformist project in Turkey, we decided that such an approach was suitable for our specific purpose of examining teachers' opinions and experiences about the use of smart boards in their lessons.

Using a convenience sampling, we selected our participants from junior high school teachers working in a western city of Turkey on a voluntary basis. The second author was doing his teaching internship in a junior high school in the city center. Therefore, the participants were 11 teachers working in his school and nearby schools. Of the participants, 7 were male and 4 were female. They have been working in junior high schools (5-8 grades) with teaching experience between 4-15 years. Their branches, the courses they are teaching, distribute as follow: Social Sciences (3), Mathematics (2), Turkish (2), Science (2), English (1) and Religion (1).

We conducted semi-structured interviews to collect the data. Our data analysis process was descriptive in nature because the interview data were not much and detailed enough to conducted deep content analysis. Therefore, we first determined a thematic framework emerged from the interview questions. Next, we carefully read interview transcripts to identify significant statements and code them by suitable concepts. Finally, we described findings under suitable themes and support them with direct quotations. Below is the framing questions used in the interviews:

- What are your experiences in the contribution of smart boards to learning and teaching activities in your lessons?
- Have you encountered any problems with the use of smart boards in your own lesson? If so, what are they?
- What are your suggestions for using smart boards for your own lesson?
- Are there any features that you would like to have or to be improved on the smart boards?

Results

We generated three major themes under which we presented our findings. The first one is related to potentials of smart boards in learning and teaching. More than half of the participants (65%) think that smart board usage

improves the lectures with supportive visualizations. Almost half of them (46%) believe that smart boards provide a good preparation for the lessons through videos and solve the lack of instructional material. Other categories emerged within this theme include that smart boards help to understand abstract topics with simulations (36%), attract students' attention (18%) and make lessons fun (18%). Some representative comments include:

> *"It provides opportunities that the school cannot provide due to impossibilities…simulating experiments that cannot be done in a lab environment in a virtual lab facilitates meaningful and durable learning."*

> *"I share some visual content or multimedia applications and this helps to pass the lessons in a fun atmosphere."*

> *"Undoubtedly, it contributes positively. For example, I use visuals for the math subjects to attracts students' attention and interest."*

The second theme is germane to problems encountered during the use of smart boards. Most of the participants (73%) complaint about the insufficient content suitable for the curriculum that they can use in their lessons. A little more than one quarter (27%) experience problems with Internet connection on smart boards as well as writing difficulties on the touch screen of the boards. Few participants (18%) have concerns about the frequent touch screen calibration failures. Below are some teacher statements representing this theme:

> *"Interactive boards are inadequate and of poor quality in terms of course content. Sometimes, I am even struggling finding e-content that I can use in my lesson."*

> *"The videos are opened late from time to time due to the internet or hardware. There are limited applications on reinforcing the subjects."*

> *"Sometimes there is a problem in sensing and touch screen of the board. Also, it is not easy to write on the smart board."*

The final theme is regarding suggestions for improving the use and thus benefits of smart boards. More than half of the participating teachers (65%) want the availability of applications and materials for every branch to be increased. A little more than quarter (27%) suggest the enhancement of the sensing capability of the touch screens. They also want to be provided with professional development for effective use of smart boards for educational purposes. The following are the sample comments on this theme:

> *"The content for the branches should be increased... Experiments can be increased...Diversity of*

assignments and questions can be provided."

"It will be beneficial if experienced trainers may given lessons on effective use smart board in instruction…perhaps they can show us best practices."

"Easy to use calibration applications for touch screen sensitivity should be developed."

Conclusion

The investigation of teachers' opinions about the use of smart boards can guide the effective integration of these tools into classroom teaching. This small-scale case study concludes that participating teachers believe and experience that smart boards have the potential to enhance students' learning process and they are quite happy to have these tools in their classrooms. However, they also emphasize that this potential is not only due to the hardware features but also the availability of software application and educational content materials in line with the curriculum. Despite the benefits of smart boards, it is important to use these tools appropriately and effectively. Teachers should be competent in using these tools, creating content, ensuring their effectiveness in the course. Therefore, they ask for more electronic content germane to their curriculum and in-service training about the use of smart boards.

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