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A CASE STUDY WITH ACADEMICIANS ABOUT USING AN INTERACTIVE WHITEBOARD ON CLASSROOMS

ABSTRACT

In this research, it is aspiring to come up with academicians' views on the IWB. Participant designated by purposive sampling, in order that academicians are using the IWB. Research performed by ten faculty members who work Çukurova University in the department of education. Interviews with five participants in the study have been done given a separate code for each participant in the transfer of sight "instructor_x" was used. A case study, which is one of the qualitative methods were chosen. In order to specify the reflection of the academicians, semi-structured interviews with six open-ended questions was carried out. The data were analyzed using content analysis method. The opinions of academicians have been provided with quotations and thoughts. The results of the research, visual elements, texts, simulations, and animations can be used more effectively with the help of IWB. These boards help to attract the attention and provide more active participation of students. As for implications, academicians should experience this technology and learn the successful usage about it. So, it will be a guide for all educators.

Keywords: Interactive Whiteboard, Interactive Smartboard, A case study, University use of Smartboards, Active Learning

LİSANS ÖĞRENCİLERİNİN AKILLI TAHTA KULLANIMI ÜZERİNE BİR NİTEL ÇALIŞMA

ÖZ

Bu çalışmada akıllı tahta ile ilgili akademisyenlerin görüşlerini koymak amaçlanmıştır. Katılımcılar amaçlı örnekleme yoluyla belirlenmiştir. Çukurova Üniversitesi-Eğitim Fakültesi'nde beş öğretim üyesi ile gerçekleştirilmiştir. Çalışma beş katılımcı ile yapılan görüşmelerde kullanılan "öğretim_elemanı_x" kodları ile kodlanmıştır. Araştırmada durum çalışması kullanılmıştır. Altı açık uçlu soru ile yarı yapılandırılmış görüşmeler yapılmıştır. Elde edilen veriler nitel çalışma yöntemlerinden biri olan içerik analizi yöntemi kullanılarak analiz edilmiştir. Öneriler, ilgili araştırma bulgularına dayalı olarak araştırmacılar için yapılmıştır. Doküman analizi yapılmış olup, görsel unsurlar, metinler, simülasyonlar ve animasyonlar akıllı tahta yardımı ile daha etkin kullanılabilmektedir. Akademisyenler bu teknolojiyi verimli kullanmayı öğrenmelidirler. Yani, bu çalışma eğitimciler için yol gösterici bir kaynak olarak düşünülmektedir.

Anahtar Kelimeler: İnteraktif Tahta, Etkileşimli Akıllı Tahta, Durum Çalışması, Fakültelerde Akıllı Tahta Kullanımı, Etkin Öğrenme

1. INTRODUCTION (GİRİŞ)

Teachers have always tried to develop new, innovative, meaningful lessons that will affect the students they are trying to educate. Educators are trying to keep students motivated in their lessons. With a growing number of new teachers each year filling retirement positions, there is an opportunity for someone to change the way lessons have been presented. According to Wood and Ashfield (2008) the proximity and speed of the education change with an unpredictable way. Therefore, it is really hard to control the educational system. While technology evolves, students should be prepared for their future with the full of energy and motivation. Technology supplies a chance for students to enjoy learning. By increasing the amount of technology in each classroom, Interactive Whiteboards (IWB) become a common technology in Turkey.

Glover, Miller, Averis and Door (2007) have shown that IWB encourages students' interest and increases students' concentration. Technology has also supported too many learning styles and teachers should be aware of them. Beeland's (2002) study also was to verify the effect of the use of IWB as an educational material on student participation actively. That is why teachers or instructor should use IWBs. Conversely, several studies have demonstrated positive teacher attitude towards putting and using IWBs in their lessons. Moss et al (2007) suggest that teachers perceive that, IBWs are more today. Researchers who investigate teacher behavior in several studies, state that teachers think to work with IWBs slightly easy. These are student motivation and student concentration, different learning styles, prepare lesson better etc. Moreover, Türel claims that IWB has been used in some contexts.

Influential use of IWBs in classrooms supply too many benefits with regard to learning and instruction (Türel, 2010). Yet, there are some questions which are about how IWBs can be used effectively as in a classroom environment, Teachers use instructional strategies via IWBs and IWBs utilize teaching and learning something (Brown, 2003; Glover et al., 2007). Moreover, Türel suggested that teachers should apply unique strategies and techniques into their classrooms by taking into account the characteristics of the teaching context. Students' needs, attention, concern should be included (Türel, 2010). Various IWB usage that have a significant influence on student learning include:

- Emphasis, encoloring, and getting attention on substantial content (Türel & Demirli, 2010)
- To understand better, teachers repeat previous lessons' content(Levy, 2002; Smith et al., 2005)
- Put pictures for debate and brainstorming, collaborative project, reading with collaboration, peer-learning, and problem solving (BECTA, 2006)
- Teach some games like Hiding and reveal, drag and drop, and matching some materials (Türel, 2010)
- For visual learners using different visual elements (Bell, 2002)
- For tactile learners, use material with tactual sensation (Bell, 2002)
- There can be visually impaired students. So, there should be special fields for them to learn (Smith, 2008)
- Students can find a picture with a spotlight which has hidden part (Beauchamp & Parkinson, 2005)
- Using Print screen button or a software program for capturing screenshots (Beauchamp & Parkinson, 2005)

- Playing interactive games and activity (Smith et al., 2005)
- Advantages of IWB technology contain
- Improved social interaction between students (Türel & Demirli, 2010)
- Teachers make easier pupil's involvement, interactivity, and cooperation or team work (Smith et al., 2005)
- Attract the students' notice (Türel, 2010)
- Make learning and recalling easier by using visual materials (Türel, 2010).
- Enlarged computer, tablet or phone touch screen
- Interactions can be recorded with a camera or saved office document
- Microscopes, cameras can be used (Bell, 2002)

Although researchers offer that a better benefit from IWBs may have a significant effect on learning and instruction, this situation is really substantial to research how teachers in lesson settings are used IWBs. So, in other respects, investigators have also argued the negative effects of why it is troublesome for educators (both teachers and academicians) to get inspiration from IWBs in their lessons (Schmid, 2008; Slay, 2008; Smith, 2005). Cost limitations were one of the inducements for educators not insert IWBs in the lessons, as not all colleges, schools and institutions had enough money to be equipped with an IWB (Slay, 2008). Teachers were exposed for lack of ICT-competence. They wanted to apply technological skills in several learning climate, as well as a lack of ICT qualifications throughout their usage of IWBs (Miller & Glover, 2002; Slay, 2008).

According to (Smith, 2005), there is not too much training for teachers to learn IWB. Teachers feel inadequate while using IWBs. Physical location is another problem. The whole class should see the IWBs. Another complexity teachers faced was in putting together the pursuance of this progressive technology tool with the existential teaching attitudes (Schmid, 2008). Also, teachers need some time to prepare material for using it IWBs. Educators also know that they should spare some time to prepare for IWB lessons (Miller & Glover, 2002). As conclude, there are both advantages and disadvantages of IWBs. The summarized reasons why it should be used or not can be shown in Table 1.

Table 1. Reasons for using or not using IWBs
(Tablo 1. Akıllıyı tahtayı kullanıp kullanmama sebepleri)

			Descriptiors of the reasons
Reasons for using	1.	Using IWBs can easily get students' attention and help them to concentrate on learning	Attention
	2.	Using IWBs can help teachers explain complex and abstract concepts.	Complex concepts
	3.	Using IWBs can help make teachers' teaching process smoother and enhance teaching effectiveness.	Smooth teaching
	4.	IWBs do not produce chalk dust, so they are good for the environment and human health.	Environmental benefit
	5.	Using IWBs can increase interactions between teachers and students.	Interaction increase
	6.	Integrating IWBs into teaching can help teachers become more flexible in using various classroom materials.	Flexible use
Reasons for not using	1.	The school does not have enough funds to provide an IWB for each classroom.	Lack of budget
	2.	There is an IWB in my classroom that is not used due to lack of time to design teaching materials.	Lack of time
	3.	There is an IWB in my classroom that is not used due to l the research should be done the quantitative method with the high number of participants. Also, this research was focused on computer education and instructional technology department. As it is predicted, they become familiar with the technologies. Therefore, they can use IWB more easily. On the other hand, what if some departments who does not relate to technology use IWB, Will the result for participants always be the same? These suggestions can be worthed investigating. imited sources of related teaching software.	Lack of source
	4.	There is an IWB in my classroom that is not used due to lack of Professional training for the IWB's functions and operation.	Lack of training
	5.	There is an IWB in my classroom that is not used due to frequent unsolved problems in using it.	Frequency of unsolved problems

(Miller & Glover, 2002)

2. RESEARCH SIGNIFICANCE (ÇALIŞMANIN ÖNEMİ)

In various studies (e.g., Bell. 1998; Beeland, 2002; Cogill, 2002; Levy, 2002; Beauchamp, 2004; Wall, Higgins, & Smith, 2005; Moss et al., 2007), researchers focused on IWBs using and their effect. Most of the studies give an insight into teachers' ideas. For example; (Beeland, 2002) focused on teachers attitudes towards IWBs (Wall, Higgins, & Smith, 2005; Torff & Tirotta, 2010) investigate teacher

motivation (Bell, 1998). In addition, (Saltan, Arslan, & Gök, 2010) try to find out teacher acceptance. Lastly, (Wall, Higgins, & Smith, 2005; Somyürek, Atasoy, & Özdemir, 2009) seek out technical issues about IWBs. As for the significance of this study, it lies in the fact that many of the students of Turkey are not motivated or engaged to learn. According to Marks, students who attend school are more likely to learn something. They had an experience rewarding for their graduation and continue with their higher education (Marks, 2000). Many research studies attribute the lack of engagement to a school's characteristic, weak instruction, and low expectations for student learning (Marks, 2000). SMART claims that IWBs, such as the SMART Board, influence learning in numerous ways.

Increasing the level of student engagement, motivating pupils and support students' eagerness for learning can be some examples of it (SMART Technologies, 2006). Research facts from this study propose that the IWB promotes student engagement. Due to student engagement in instruction, teachers can maintain student deep focus and interest, bearing in mind course material, and enhance classroom management (Morgan, 2008). However, there are not too many studies which reveal instructors ideas about IWB. To reveal their ideas, sub-goals were determined:

- What is the current situation of IWB with respect to the applicability of IWBs?
- What are the opinions of instructors about IWBs to be useful?
- What are the views on the applicability of IWBs in the education systems of the future?
- What is the biggest problem of IWB?
- Which lessons do you think are appropriate while using IWB?
- What are the recommendations of academicians for the effective use of IWB?

3. METHOD (YÖNTEM)

3.1. Participants (Katılımcılar)

Participants in this study consisted of the instructors in the entire computer education and instructional technologies (CEIT) department of Çukurova University. Department of CEIT consists of twelve instructors. Participants who were more willing to help during the research were chosen. Sampling for this study was done in two stages. Step one was selected academicians. In accordance with a purposive sampling approach, a specific department was chosen which included academicians who are experienced with IWB usage in their lessons. Next, homogeneous sampling was put into an account to select instructors in focus group interviews. The purpose was to throw together instructors of "similar backgrounds and experiences". So, This research was carried out a 2014-2015 academic year of the spring semester in the department of CEIT. It was carried out with five instructors to have an experience with an IWB. Personal information about the working group is presented in Table 2.

Table 2. Demographics of instructors
(Tablo 2. Katılımcıların Demografik Özellikleri)

Instructors	Gender	Age
Instructors1	Male	35
Instructors2	Female	45
Instructors3	Male	43
Instructors4	Female	26
Instructors5	Male	44

3.2. Research Model (Araştırma Modeli)

To determine instructors' views on the use of IWBs, the study was laid out qualitative research methods. Also, the study was laid out as a case study. Academicians who prefer using the IWBs efficaciously in the 2014-2015 academic year are in the extent of the research. Yet, five instructors were reached and data were picked up through a semi-structured interview form. The acquired data were analyzed with the content analysis, which is one of the qualitative research technique.

3.3. Data Collection Tool (Veri Toplama Araçları)

The data collection tool was prepared as a draft. Forms including open-ended questions were submitted to get some expert opinions. Forms arranged in accordance with expert opinions, five open-ended questions which were obtained final form.
The content of the research questions in this context;

- Prefer to use smart boards in classrooms,
- Advantages and problems of using smart boards in terms of preparations, motivation, classroom management and so on.
- Most utilized features of the smart board cover the content
- Recommendations for using the IWB

In this process, in order to avoid direct participants, researchers did not get involved in and researchers wanted them to respond the way participants want to be answerable questions.
Data collection process was conducted between September 1 to 15 in 2015. The interviews were recorded with audio recording. I t is calculated about 147 minutes. To ensure the validity of data collection tools, questions have been examined by a measuring specialist and three academics. Feedbacks received from the experts were taken into consideration and interview forms were rearranged. Then, it was coded by two experts in the field of academics separately and the codes were compared. After, unity and differences of opinion between the two has been calculated, reconciliation percentage was determined as 90%. Data were analyzed using descriptive analysis technique.

In the analysis process, first of all, records weredecoded and academics analysis was conducted. A code number was given to educators, the research findings were analyzed according to basic interview questions, theme and sub-themes for each question were created. Sentences determined which could be used as a verbatim quote and it was included verbatim quotations in the findings section.

4. FINDINGS (BULGULAR)

The data obtained from the participants were examined under the theme created by such questions. In accordance with the opinion of the teachers, some of the themes were coded. These are IWB's preference reasons, its convenience, its encountered problems and identified the most commonly used features of the individual frequency of use. Coding made by the two researchers simultaneously, then It was compared to a uniting encodings and the analysis was finalized. Proceeding from the data obtained, tables and graphs were formed. The views of the participants, contributing to the validity and reliability of research, direct citations were given. Analysis of the results and the findings are included.

Table 2. Point of View of academicians to the IWB
(Tablo 2. Akademisyenlerin Akıllı Tahtaya karşı görüşleri)

Themes
1. Applicability 1.1 Orientating process 1.2 Increasing motivation 1.3. Human resources
2. Problems 2.1. Age 2.2. Time 2.3. Speed 2.4. Use case
3. Appropriate
4. Recommenditons

In the light of the point of view of academicians, it is divided into five themes including applicability, salutariness which is called useful, lessons, problems, recommendations.

4.1. Findings of the First Research Question (Birinci Araştırma Sorusu Bulguları)

Applicability theme was divided into three sub-themes as an orientating process, increasing motivation and human resources. Some of the academicians opinions to the IWB, sub-themes are listed.

- "… For The previous time, the biggest problem of teachers in the classroom was the issue of motivation. With the IWB, academicians increase encouragement with visual materials like google, DeviantArt which is an online art gallery, Wikipedia and also hybrid materials of these attract students' attention like short & long videos, interactive puzzles" (A3).
- "… In the past, to reach a source you needed money and in order to achieve something you do not know the procedure. However, now it is at students' fingertips, such as videos, museums, interactive experiments… infinite things… Even human resources… When you write a platform while you're in any troubles, you can reach the people who helped. So I can say that we jump to a huge leap from the cave age to the space age" (A2).
- "… With an easily accessible source of information that you can listen to more visual and active lesions. The materials you use can actively share with the students" (A5).

4.2. Findings of the Second Research Question (İkinci Araştıma Sorusu Bulguları)

Problems theme was divided into four sub-themes as age, time, speed, use case. Some of the academicians opinions to the IWB, sub-themes are listed.

- "… The biggest problem of IWB usage is an old teacher. Like other technologies, they do not know its' strength and direction and do not know how to use it as an effective because they trained in the old education system. Who does not know the meaning and significance of this technology and get behind with technology show resistance now" (A1).
- "… The biggest problem is that teachers do not use IWB it is a waste of money, waste, decreasing the quality of education" (A3).
- "… The biggest problem is that it is too slow in terms of technology. At least, mine is very slow. It also cannot be modified. I mean It cannot be accelerated by modifying its

memory or other features of it. Sometimes manual works are done faster than technology" (A5).

- "… The world does not care IWB too much. They focus more on learning techniques.
- They say how do I prepare the material and how I teach. For this if there is IWB that is okay. But, if it is not, then it is not a big problem because the IWB requires a lot of preparation. The teacher needs to do much more than the traditional preparation of the course" (A2).

4.3. Findings of the Third Research Question (Üçüncü Araştıma Sorusu Bulguları)

Lesson theme was not divided into any sub-themes. Some of the academicians opinions to the IWB, sub-themes are listed.

- "…. Every lesson is not appropriate to the IWB with current capabilities. In applying field like engineering, military service and medicine is not sufficient in its current form. However, a theoretical lesson gives a very good. Students can watch the video about how the surgery is done. But it will remain incomplete as long as they do not make their own hands. If it is learned by looking, cats and dogs become a butcher. In our field, motivation and material development courses are appropriate. However, network lesson is not eligible. It is meaningless without learning how to connect machine cables" (A3).
- "… All the courses are eligible to use the IWB. You can use it in every lesson because visual learning is permanent" (A1).

4.4. Findings on the Fourth Research Question (Dördüncü Araştıma Sorusu Bulguları)

Problems theme was not divided into any sub-themes. Some of the academicians opinions to the IWB, sub-themes are listed.

"… You count the bodies. The head and the body are here. However, their mentality is not here. It is at home. To incorporate students into the lecture, you need to do something fun and even you need to actively interact with the students, but I think the environment where students can use their hands, their eyes, drawing and sharing something will increase the quality of education" (A3).

"… I think we need to eliminate problems such as technical problems, power failure, failure to provide licensed material, technology-phobic teachers who do not know using this technology etc. " (A1).

"… I think technology needs to be restructured. We need to create the infrastructure for such a technology and it is needed to develop material. Plus, the software that we used should be made by ourselves. Hardware is the same everywhere. We need to educate our own specialists and write our own software" (A5).

"… The IWB's help in saving instruction time. This idea was represented either in the form of covering as much content as possible in one lesson. While teachers used to finish only one topic with IWB teachers can teach several topics in one lesson" (A2).

"… I think, the most prominent benefits of smart boards are that they address more sense organs, provide visuality and make a major contribution to the process of learning, provide a time saving, enable the use of all kinds of visuals in a computer environment as teaching tools and make the topics easy, enjoyable and interesting" (A4).

In the light of all these findings, academicians claim both positive and negative approaches to the IWB. IWB can be helpful the future of the education system under the required conditions or maybe the opposite situation will come true. It must be also noted that the smartboards does not replace with the traditional education. However, it can be another tool teachers can use to increase interactivity in science classes (Earle, 2004). The real advantages of this Technologies are being seen as teachers explore ways to use this new technology with students mutually developing new teaching and learning strategies resulting in changes in pedagogy (Beauchamp & Parkinson, 2005). Therefore, this technology should be used to enhance not replace hands on investigations and other practical activities in Science Indeed smartboards can be used to integrate experiential activities with discussion and reflection to encourage the growth of coherent understanding (Osborne, 1994; Skamp, 2004).

5. CONCLUSION AND SUGGESTION (SONUÇ VE ÖNERİLER)

In this section, the findings obtained from observation and interview data were compared and contrasted with the light of literature redact. As the results obtained, the fact of the research openly argued that the IWBs were deemed to be successful to affect students positively. However, according to the findings of this study, it can be argued that teachers used their boards for a restricted range of functions, and some of them even have not been used. Even teachers claim that they do not need any education for using IWBs. This finding is precisely in keeping with the consequence of many studies (Glover & Miller, 2001; Smith et al., 2005; Somyürek, Atasoy, & Özdemir, 2009)

Despite some kinds of problems, most academicians valued the use of IWBs overwhelmingly positively. All academicians are all of one mind about the fact that the IWBs can be used as an assistant to address more than one sense organ. Thus, it was argued, made pupils more motivated and it provided creative learning. The use of materials of the teachers was the one of the important positive factors for teachers to use the IWB. Most of the participants agreed that to use of materials to encourage pupil motivation, but it needs time to be prepared. Additionally, most academicians suggested that the use of IWBs supported creative education and effective learning, but one academician believed that these technologies do not necessary for learning. In conclusion, the qualitative findings revealed that the IWB. Some of the academicians think that IWB has positive effects on some items like the engagement of pupils or motivation of the students and the talent to get used to a several learning styles. Investigations also reveal that designing lessons around IWB can help teachers ease their IWB integration, hence enhancing their in-depth fruitfulness. These whiteboards have become very popular all across the schools. Choosing the right whiteboard from a reputed retailer is also of utmost importance. Also, from a host of studies embedded in the literature, the IWB's potential in motivating students is seen the advantages of the IWB because lessons seem to be more entertaining and interesting. As a result, the attention of students increases and their behavior improves (Beeland, 2002; Smart Tech., 2006).

From the viewpoint of Gillen et al. (2006), the IWB was a very beneficial environment in presenting educational texts. Their research results claimed that the use of IWB encouraged students in going to the board; it kept the presentation livelily and ensured the participation of the students also; it maintained the balance between the flow of the lesson together with the reactions of the students and the lesson plan. In addition, Smith et al. (2006) stated that IWBs are

becoming a pedagogic tool in literacy teaching with the interaction of the whole class. In a time period of two years, teachers were observed in using or not using the IWBs. It could be said that the lesson taught were having a better speed when using the IWB and less time was wasted on group workings.These ideas approve the findings from previous studies which are regarding benefits of using IWBs in classrooms(Gillen et al., 2008; Glover et al., 2005, 2007; Holmes, 2009; Shenton & Pagett, 2007)

However, like the two sides of a coin, the whiteboard also has disadvantages. According to others, IWB into a classroom will not guarantee results; motivated teachers will motivate students. IWBs are more valuable than conventional whiteboards. Also, their surface can get harmed. IWBs help academicians to explain concepts in ways that capture students' attention, but the lessons require time to design and prepare. Unlike ready-to-go textbooks, teachers must research, evaluate, interpret, install and maneuver software programs that aid in the use of these whiteboards. In addition, teachers who don't receive proper training on how to use IWBs often find them troublesome and complicated. For example, a teacher might have difficulty connecting the computer to the projector or installing software. Technical issues can make it difficult to project words or images on the screen. As a result, teachers get frustrated with whiteboards and never utilize their full potential. Schools might offer training seminars, troubleshooting guides or whiteboard tutorials help teachers get the most out of whiteboard technology. Therefore, both teachers and students concerned with Levy's (2002) study. Smith et al. (2005) and Greiffenhagen (2000) explained that many researchers have pointed out that the absence of convenient and procedural training can obstruct and destroy their purposes. Levy (2002) pointed out that many teachers started a series of problems with regard to technical. Because of these kinds of problems, they need support during the lesson.

As for suggestions, this research supplies several perceptions for further research. The more in-depth study is required to view whether academicians use different ideas for combining IWBs with their teaching. Moreover, schools or state should allocate money for buying more IWBs to continue improving their pedagogical approaches by combining IWBs with their teaching because this research method was a qualitative method, the participants were limited. Maybe, the research should be done the quantitative method with the high number of participants. Also, this research was focused on computer education and instructional technology department. As it is predicted, they become familiar with the technologies. Therefore, they can use IWB more easily. On the other hand, what if some departments who does not relate to technology use IWB, Will the result for participants always be the same? These suggestions can be worthed investigating.

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