REPUBLIC OF TURKEY

ÇANAKKALE ONSEKİZ MART UNIVERSITY

GRADUATE SCHOOL OF EDUCATIONAL SCIENCES

CURRICULUM AND INSTRUCTION

OPINIONS OF TEACHERS USING INTERACTIVE WHITEBOARDS ON CLASSROOM USE

A THESIS FOR THE DEGREE OF MASTER OF ARTS

Eyyub Melikşah ALPARSLAN

ÇANAKKALE
June, 2019

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(A THESIS FOR THE DEGREE OF MASTER OF ARTS)

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Declaration

I hereby declare that the postgraduate thesis **"Opinions of Teachers Using Interactive Whiteboards on Classroom Use"** were written myself. Ethical and scientific values were paid attention carefully. All the sources used in the study were included in the references

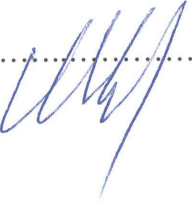26 /06 /2019

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Foreword

We live in a world surrounded by state-of-art technology. This situation affects every aspect of our lives. Education which starts from the womb to tomb is affected by technology and also affects the technology. As the key element of the education world, teachers bear a tremendous responsibility to guide the posterity. With this responsibility, teachers should know how to use technology in their classroom. As one of the latest technological developments in classrooms, Interactive Whiteboards is the need-to-know area for teachers. The driving force behind this study is to explore how the teachers cope with Interactive Whiteboard technology in classrooms.

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Eyyub Melikşah ALPARSLAN

Abstract

Opinions of Teachers Using Interactive Whiteboards on Classroom Use

The main focus of this study is to explore teachers' opinions on interactive whiteboard (IWB) use in class. Also, this study aims to concentrate on how IWB use which is special to FATIH Project in middle and high schools in Yenice County. This study was rigorously executed in middle and high schools in Yenice County due to the availability of IWB in class. To reveal the answer to research question about teachers' opinions on IWB, qualitative research was used. Case study research design was used based on qualitative research. Collecting information was performed through a semi-structured interview. 56 teachers' opinions were analysed. As the findings of the study, 22 of 56 teacher participants didn't take in-service training. Almost every teacher participant used the IWB for presentation purposes. Most of the participants complained about restricted internet access. As an unfavourable outcome of the study, the use of IWB technology needs help. To enhance the use of the IWB, the participant teachers of the research concluded that resources that delivering through EBA should be increased, either unrestricted internet should be provided or somehow maybe via USB flash disks unrestricted internet should be delivered under teachers' supervision, interactive packaged software should be developed, in-service training should focus on more pedagogical use of IWB and required licenced programmes should be provided.

Keywords: Interactive Whiteboard, Smart Board

Özet

Etkileşimli Tahta Kullanan Öğretmenlerin Sınıf Kullanımına İlişkin Görüşleri

Bu çalışmanın ana odağı, sınıfta etkileşimli tahta kullanan öğretmenlerin görüşlerini keşfetmektir. Ayrıca bu çalışma Yenice ilçesindeki ortaokul ve liselerdeki FATIH projesi özelinde etkileşimli tahta kullanımının nasıl olduğuna odaklanmayı amaçlamaktadır. Bu çalışma Yenice ilçesindeki etkileşimli tahtaların mevcut durumu göz önünde bulundurularak ortaokul ve liselerde dikkatli bir şekilde yürütülmüştür. Öğretmenlerin etkileşimli tahtaya ilişkin görüşlerini ortaya çıkarmak için nicel araştırma yürütülmüştür. Nicel araştırmanın üstüne durum çalışması deseni kullanılmıştır. Bilgi toplama yarı-yapılandırılmış görüşme formu aracılığıyla gerçekleştirilmiştir. 56 öğretmenin görüşü analiz edilmiştir. Araştırmanın bulgularına göre 56 katılımcı öğretmenden 22 si hizmet içi eğitim almamıştır. Neredeyse her katılımcı öğretmen etkileşimli tahtayı sunum amaçlı kullanmıştır. Katılımcıların çoğu kısıtlı internet erişiminden şikayetçi olmuştur. Çalışmanın olumsuz bir çıktısı olarak etkileşimli tahta kullanımı yardıma ihtiyaç duymaktadır. Etkileşimli tahtanın kullanımı ilerletmek için araştırmanın katılımcı öğretmenleri şu sonuçlara varmışlardır. EBA'nın kullanımı arttırılmalı, kısıtlaması olmayan internet erişimi öğretmenlerin gözetimi altında serbest bırakılmalı ya da dağıtılacak usb flash diskler vasıtasıyla sağlanmalı, etkileşimli paket programlar geliştirilmeli, hizmet içi eğitimler daha çok akıllı tahtanın pedagojik yönüne yoğunlaşmalı ve gereken lisanslı programlar sağlanmalıdır.

Anahtar Kelimeler: Etkileşimli Tahta, Akıllı Tahta

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List of Abbreviations

EBA: Educational Informatics Network

FATIH Project: Movement of Enhancing Opportunities and Improving Technology

ICT: Information and Communication Technology

MoNE: Ministry of National Education

Chapter 1: Introduction

Nowadays we deeply feel the effects of the electronic and digital revolutions. In every aspect of our lives, we have to use computer-based systems. In Turkey, we generally use electronic state website (e-devlet) to obtain our official records. In schools, electronic school (e-okul) system is used to record students' information. With this massive rapid shift from paper-based to highly technological tools an urgent need which are new thinking style and behavioural habits change has occurred. To achieve that goal most of the countries have stepped in to provide technology in the classroom. (Türel, 2011).

Education technologies are the product of that way of thinking. With a planned and systemic approach, education technologies can help to the people of this age. Teachers have to know how to use and integrate those technologies into instruction for guiding. Cognitively reaching the higher learning levels are possible with communication. Individuals who can communicate with each other can reach a common product (Borich, 2014, Hızal 1983).

Information and communication technologies (ICT) provide the required tools and systems for interactive learning environments to reach desired learning outcomes. Provided sources by ICT are independent of time and place. Synchronous or asynchronous access to the systems can give students and teachers the opportunity to gather their knowledge into required subjects (Fu, 2013; Kumar, 2008).

As a product of ICT, IWB has lots of opportunities for teaching and learning. IWB brings various data sources, interactivity and systems together. With the help of IWB, instruction becomes appropriate for different learning types. Reaching more sense organs make the learning environment more tangible and ease the way for interacting with knowledge. Also, IWB disembodies the learning from time and space via internet infrastructure. This situation creates equal opportunities for every learner (Beauchamp & Parkinson, 2005; Hall & Higgins, 2005).

As the main component in the classroom setting, teachers stand in the middle of classrooms to create an interactive environment with IWB. Knowing their students' needs and interests, teachers are expected to integrate IWB technology their classroom setting for interactivity. Teachers' skills to use IWB and their perspective towards it from beginner user to advance user determine the situation of that technology in the classroom setting (Beauchamp, 2004; Türel & Johnson, 2012).

In Turkey, Movement of Enhancing Opportunities and Improving Technology (FATIH) project has started to associate technological improvements with educational settings. It has been aimed to provide IWBs and internet infrastructure with tablet PCs for every student in every class in middle and high schools. Also, teachers' in-service training and pedagogical integration of this device into their lessons have been another aim. ("Fatih Project", 2018). According to the Ministry of National Education (MoNE) in the context of FATIH project 432.288 IWBs set up have been completed and 1.437.800 tablet PCs have been distributed ("Onursal Adıgüzel : Bakanlık'a Göre Fatih Projesi'nde Başarısızlık Söz Konusu Değil", 2018, as cited in Milli Eğitim Bakanlığı Strateji Geliştirme Başkanlığı, 2018).

The equality of opportunity is the ultimate goal of FATIH. The widespread use of the internet in the educational setting created an environment to achieve that goal and Educational Informatics Network (EBA) has enabled students and teachers to reach rich digital educational sources. EBA offers both teachers and students their digital materials like pdf textbooks and various content modules such as news, video, visual, voice, competition, application, etc. In addition to them, it has systems bringing teachers and students together to follow the lesson content ("Eğitim Bilişim Ağı", 2018). According to MoNE, in response to Republican People's Party's Member of Parliament Onursal ADIGÜZEL's parliamentary question to provide equality of opportunity in education infrastructure works of FATIH project have been in

progress ("Onursal Adıgüzel : Bakanlık'a Göre Fatih Projesi'nde Başarısızlık Söz Konusu Değil", 2018, as cited in Milli Eğitim Bakanlığı Strateji Geliştirme Başkanlığı, 2018).

Statement of the Problem

Modern-day people are exposed to technology. Coping with that technology needs tremendous knowledge. Day by day technology has become the culture of modern-day people. As a duty of education, this culture and knowledge have to transfer from adults to children. Schools are the most common places for that. Teachers are hands of the society to touch, transfer and transform the posterity (Helvacı & Şahin, 2009; Türel & Johson, 2012).

Integration of the required technology in the classroom setting is very crucial to educate the posterity. From blackboard and chalk to computers, education environment has been supported with these technologies by policy-makers to keep up to date the education. Just putting these technologies into education setting does not help to reveal the desired outcome. Every technology in an education setting requires new skills and knowledge. As the conductor of the classroom, teachers have to be given due importance to lead classroom orchestra (Hızal, 1983; Kumar, 2008).

As an umbrella term ICT covers all technological devices and systems. And as a product of ICT, IWB is expected to help teachers and learners to create desired classroom environment (ICT). Policy-makers of Turkey decided to put that technology into the classroom in 2010 to help teachers to get desired results (TOBB Bilgi Hizmetleri Dairesi, 2010).

The widespread use of IWB and its facilities in educational settings with approximately 9years background has given opportunity teachers to internalise the use of that technology and integrate that technology into their classrooms. Within that period teachers have experienced the usage of the IWB and have formed opinions based on their experiences. Although there are studies which is about teachers' opinions about IWB usage (Elaziz, 2008; Elmacı, 2017; Glover & Miller, 2001; Gürsul & Tozmaz, 2010; İzci & Darmaz 2018; Karakuş & Karakuş, 2017;

Murat, 2016; Pamuk, Cakir, Ergun, Yilmaz & Ayas, 2013) it is crucial to check the teachers' opinions about IWB continuously to find out the real situation in classrooms.

The importance of teachers' opinions about IWB use shows its real value when the time comes to make decisions about IWB by policymakers. The real users' opinions of IWB can serve a useful purpose for illuminating the shadows about using IWB in classrooms. Teachers' thoughts about in-service-training, support, the infrastructure of IWB technology and colloquies' mentoring are the key factors to get better instructional performance (Abduhmahid, 2014). As an indicator of that, the problems about Tablet PCs remarked in studies (Akcaoğlu, Gumus, Bellibas & Boyer, 2015; Altın & Kalelioğlu, 2015; İzci & Darmaz 2018; Pamuk et al., 2013) caught policymakers' attention and paid off. According to the information in the internet news sites ("FATİH Projesi de hüsranla sonuçlandı: Kamuya yükü 2 milyar", 2018; "Proje başarısız oldu; MEB, öğrencilere dağıtacağı tabletleri kendi kullanacak", 2018; "Fatih Projesi böyle çöktü", 2018), the distribution of the Tablet PCs has been cancelled. Instead of Tablet PCs, computers with keyboards are going to distribute to students and teachers.

The large body of research (Akcaoğlu et al., 2015; Ashfield, 2008; Bakadam & Asiri, 2012; Elaziz, 2008; Glover & Miller, 2001; Gürsul & Tozmaz, 2010; İzci & Darmaz, 2018; Korkmaz and Cakil, 2013; Murat, 2016; Nhete, Sithole & Solomon, 2016; Pamuk et al., 2013; Tatli & Kiliç, 2016; Thomas, 2014; Türel & Johnson, 2012; Türkay, 2016; Vainoryte & Zygaitiene, 2015) shows how valuable the IWB is. But it should be noted that few studies state their positive side is overstated (Gülcü, 2014; Torff and Tirotta, 2010). IWB may have negative sides. Teachers' opinions on IWB can be effective in developing positive sides or easiness and in reducing the negative sides or hardship provided by IWB.

In Somyurek, Atasoy & Özdemir (2009)'s study, indicating previously tried ICT integration projects' faults such as insufficient in-service training, inadequate digital material support, imperfect technical and infrastructural support, etc., it is emphasised that same faults

have been repeated by policymakers in the process of implementing IWB to the educational setting. Similar to these findings Aktaş, Gökoğlu, Turgut & Karal (2014); Gülcü (2014), Keleş & Turan (2015) and's studies reveal that insufficient educational software, internet connection problems and lack of in-service training are the reasons for falling short of expectations. Considering these situations, the implementation process of IWB is needed to check repeatedly.

Purpose of the Study

In this study, it is aimed to explore teachers' opinions on the classroom use of IWB and investigate the deficiencies in use and ascertain the participant teachers' suggestions to improve the pedagogical usage of interactive whiteboard in class.

Research Questions

The main objective of this study is to find out the answer to the main question:

Main question: What are the opinions of teachers using Interactive Whiteboards on classroom use?

To answer the main question, 7 sub-questions put to use.

Sub-question 1: How did teachers' experience start on IWB?

Sub-question 2: How do teachers use the IWB in the classroom?

Sub-question 3: How do teachers' students use the IWB in the classroom?

Sub-question 4: How do teachers reach sources related to IWB?

Sub-question 5: What sort of challenges do teachers experience while using the IWB?

Sub-question 6: What sort of benefits do teachers experience in IWB?

Sub-question 7: What can be done to improve the effectiveness of the IWB?

Significance of the Study

Turkey is in a technological transformation and it needs individuals who have adapted to this technological transformation. With increasing population, schools are the most

appropriate places for it. Adding required technology to classrooms which is cheaper than providing the technology to individuals one by one serves to reach common goals.

As the touching hand of the state, teachers are crucial to help this transformation. Teachers in every part of the Turkey experience the transformation on their own condition and extent. According to the place where they live and work, their opportunities to reach the schools with technological infrastructure vary. This study aims to work in a region that has not been studied sufficiently. The rate of having technological services affects the teachers' situation in class and their perspective towards technology use in the classroom.

As a form of adding technology into the classroom, IWB is the tool for technological transformation. Teachers' perspective towards it affects the quality of education. In this study main focus is to explore what the teachers' thoughts are about IWB in the classroom setting.

The usage of IWB in the classroom has been widespread and practitioners of IWB in class are teachers. Therefore teachers have been the key element to integrate the IWB into the classroom setting. Teachers' opinions shed light on effectiveness, use, and deficiency of IWB in class. Thus this study will provide teachers and policymakers to gain an understanding with teachers' opinions towards the usage of IWB in the classroom.

Limitations

The place is one of the most important limitations. This study was conducted in Yenice County. The findings were affected by the environment of the working area and all the findings derived from this study is special to Yenice County.

The second important parameter is the levels of educational institutions. This study's scope was limited to middle and high schools. At the time of the study, primary schools didn't have the required criteria for IWB. The findings of the study should be considered according to school levels.

The third important parameter is the working group of the study. The participants of the study were selected with convenience sampling. The participants taking part in the study were available at the time of the study. They had enough and free time to join the study. The researcher of this study could reach only certain. So the number of participants attended the study was not equal to the number of teachers who were working in the target schools at the time of the study. The participants of the study incorporated into study purposefully according to the rate of contribution to study.

The fourth important parameter is the data collection tool. In this study, a semi-structured interview was drawn on to collect information. The findings obtained via a semi-structured interview reflects the participants' opinions. And this situation reveals the fifth limitation of the collected data. All data were collected from participants assumed true. The sixth imitation is during the data collection period, the researcher gave one day per school which was included in the study.

Last but the most important limitation is the 15th July Coup Attempt. At the time of the study, a lot of teachers were dismissed. The government expelled those teachers for being a member of an illegal organism. Because of that situation, teachers might have drawbacks while interviewing. While viewing the results of the study, readers should put that information in their mind.

Definitions

IWB: An interactive whiteboard is approximately 1900 mm width, 1100 mm length and 110 mm depth (these numbers can vary from the product model) touch-sensitive board processing as a computer on the board. The computer can then be controlled by touching the board, either directly or with special equipment.

FATIH Project: "FATIH Project in Education was launched with the purpose of providing equal opportunities in education and improving the technology in schools in a way that

informatics technology tools to engage more senses in the educational process by Ministry of National Education" ("Fatih Project", 2018).

EBA: "Gate to the future of education, Educational Informatics Network is an online social educational platform led by The General Directorate of Innovation and Educational Technologies" ("Eğitim Bilişim Ağı", 2018).

Chapter 2: Literature Review

In this chapter, the literature review was presented. The studies from the definition of education to teachers' opinions on IWB was presented under related titles. The literature was shown from general to specific

Education, Instruction, and Technology

Definition of education is not easy. Every philosophy of education has defined it according to their way of thinking. Perennials see the knowledge universal and eternal so it focuses on educating the mind. Essentialism accepts knowledge which can be obtained through observation and experiment. And its aim is to teach subject areas. With that teaching, individuals who are compatible with current society and much better for society will occur. Progressivism sees the knowledge as individuals own responsibility. And education is what the individual experiences in school rather than transforming the individual for society (Demirel, 2015). Instead of defining, experts have explained the features of education. First of all, it requires a process. Second, to define education, it has to have a goal. Third, the individual has to put his own experiences to show changes in his behaviours (Helvacı & Şahin, 2009).

Education is a more comprehensive concept than instruction. The most important difference in instruction is the plan and programme. Instruction is a systematic way of it (Küçükahmet, 2017). Instruction includes activities of starting of the learning and maintaining of the learning. It aims to improve the student's existing potential (Helvacı & Şahin).

According to İşman (2012, p.207), "technology is the practical application of knowledge, a manner of accomplishing a task and the specialized aspects of a particular field of endeavour." To understand that definition, it has to be known the background of the application. Without any knowledge, there cannot be any application. It can be understood that the term is not only about machines or devices. It is much more than those. With the help of

knowledge, technology has to accomplish a task. To achieve that knowledge has to guide it. Last it should help a particular field.

Education Technology

Education technology is to use technological developments in the classroom simply (Ergin, 1991). But education technology is beyond that definition. It covers arranging teaching and learning process, employing appropriate staff to use, systematic use and educational goal-oriented use in the classroom (Hızal, 1983). Öğüt et al. (2004) stated that technology in the teaching and learning process should be compatible with the requirements of the time. Quality of instruction affects people's adaptation to the present age. The problems of the present age require individuals who know how to use technology (Arıkan, Aydoğdu, Doğru, & Uşak, 2006; Eroldoğan 2007). It is obvious that technological developments require new learning process and new learning process needs teachers who have the ability to use and teach those technological developments (Çelik & Kahyaoğlu (2007).

Educational technology use in the classroom has pros and cons. But these pros and cons can change according to care shown to goals of the lesson and suitable materials (Fendi, 2007). The effectiveness of education technology is strongly related to well-programmed instruction and competency of teachers. Education technology cannot teach itself (Borich, 2014).

Education technology use in the classroom has many advantages. But its real value shows itself when students interact with each other. Education technology tools literally aim to help students to reach "create" step of renewed Bloom's taxonomy. With the help of these tools, students can start to communicate with each other and exhibit their common products (Borich, 2014).

In addition to that, education technology provides students with sources. With the incorporation of sources and cooperation, more quality learning outcomes can occur (Borich, 2014). According to İnel, Evrekli & Balım (2011) study, using education technologies in the

classroom can help teachers to teach abstract subjects. The main aim is to make lesson materials more tangible and student-friendly with the technology (Hızal 1983). To get better learning outcomes, instruction tools need to reach more sense organs (Dursun, 2006). Technological developments provide cheap and quality education for people (Hızal, 1983).

Information and Communication Technology in Education

Information and communication technologies (ICT) cover technological devices and systems. These devices and systems provide data for getting, using and sending. With its technical infrastructure, the term covers computers, mobile phones, robots, etc. ("ICT", n.d.; Kumar, 2008).

With the help of ICT, briefly, three learning methods can be used. These are electronic learning which learners can use computer-based technology to obtain information, blended learning which learners can use classrooms, computer-based technology and web and distance learning which learners can communicate independent of place and time by using computer-based systems and internet (Kumar, 2008).

Skills for getting and using knowledge are very important for learners. In today's world, ICT is the most important way for them (Fu, 2013). It is clear that every big company such as Apple, Samsung, Toyota and etc. has to use ICT. And needed human resources in these companies are not apart from ICT. Education is under pressure from social, cultural and economic developments to apply it (Tinio, 2003; Tondeur, Braak & Valcke, 2007).

ICT is in an important position for the teaching and learning process. Enabling learners to reach sources, ease of use and communication and interaction opportunity and being independent of place and time are the reasons for that (Fu, 2013).

Integration of ICT into education has started in the 1990s to reach future knowledge society (Jimoyiannis & Komis, 2007). To help to reach future knowledge society, it provides equality of opportunity (Kozma, 2008).

Interactive Whiteboard

Integration of ICT into education has started in the 1990s to reach future knowledge society (Jimoyiannis & Komis, 2007). To help to reach future knowledge society, it provides equality of opportunity (Kozma, 2008). Information exchange has gathered pace by the help of ease of use of technology. To reflect the ease of handling of technology and information exchange developed and developing countries has inserted computer-based technology into the education environment (Türel, 2011). The most obvious application of computer-based technology has been IWB (BECTA, 2003). Although there was an electronic whiteboard for meeting before Smart company's product (Brigham, 2013; Greiffenhagen, 2002), Smart company asserts that they released first IWB in 1991 (Brigham, 2013; Smart Technologies Inc., 2006). The business was the first area for IWB (Lan & Hsiao, 2011). It has different types. Most common types are described.

Passive Whiteboard or Membrane board: These boards have superimposed two layers of membrane (like resistant, soft and flexible plastic) with electrical conductivity to obtain touch sensitive board. With that board be careful not to mark the surface (Altınçelik, 2009; BECTA, 2004;).

Electro-magnetic Board: In this technology, there is a system which is embedded under the board. This system is useless alone. It needs a special battery pen (Altınçelik, 2009; BECTA, 2004;).

Infrared Board: In this board, there are receivers in the corners of the board. With the help of laser rays, it locates the moves (BECTA, 2004; Altınçelik, 2009).

Flat panel LCD: In this board type, there is no need for a projector (Brigham, 2013). It resembles a tablet Pc and smart televisions. It is a more developed version of other types.

As can be seen, IWBs have different technical structure. Because of its structure, IWB has been named with different adjectives like digital, smart or electronic (Clyde, 2004). But in this study, IWB is used.

The IWB has differences from other popular ICT products for classroom use. The main difference of IWB from projection which generally can be used with a computer to reflect the images to a surface is intervention. The user can intervene to write, search, switch to pages and files while lecturing. It gives freedom and ease of use to the user. The difference of IWB from regular whiteboard is the learning types which can be supported by IWB. Texts, pictures, animations, and videos for visual learners, voice records, pronunciation, sound effects, speeches and poems used in activities through IWB for auditory learners and interaction between user and board for tactile learners are the ways for delivering a lecture (Beauchamp & Parkinson, 2005; Hall & Higgins, 2005).

FATIH Project and EBA

On 22 November 2010, the prime minister, the minister of transport and communication and the minister of national education of the time were signed the protocol of FATIH Project. It was estimated to cost 3 billion Turkish liras. And it was estimated to finish the project in three years. The project started with the help of the Universal Service Fund (TOBB Bilgi Hizmetleri Dairesi, 2010).

In the scope of the project laptops, projectors, multi-purpose photocopier and internet infrastructure were aimed to provide for 570 thousand class. During that period, 600 thousand teachers' in-service training would be done through face to face or distance training. Curricula would be made suitable for IWB. E-contents and e-books would be designed for technology (TOBB Bilgi Hizmetleri Dairesi, 2010).

In 2015 realisation rate of software and hardware infrastructure was %6. Total realisation rate of the project was %10. The cost of the project reached 8 billion Turkish liras.

(Dursun, Kırbaş & Yüksel, 2015 as cited in Bedir, 2015). Today, the realisation rate of the infrastructure of the project has reached approximately % 50 ("Gerçekleşen Yatırımlar", n.d.)

FATIH project has 5 main aims. Its first aim is to give students the opportunity to reach services which are provided by project independent of time and space. The second aim of the project is to create environments for productivity with targets. The third aim is equality of opportunity for all shareholders. The fourth aim is to provide correct assessment and feedback. The fifth aim is the quality ("Vision & Mission", n.d.).

As a component of the FATIH project, EBA is a social education platform. It is free to use for individuals. EBA provides reviewed, reliable and proper e-content for every grade. EBA is independent of time and space. The contents in EBA are produced by experts and digital broadcasting companies help for the contents. Also, EBA has detailed reporting system to provide information for policymakers ("Eğitim Bilişim Ağı",2018).

Teachers' Predisposition to ICT use

Today, approximately 7 billion people live in this world ("World Population 2019", 2019). Every human being has different interest and competency. Not all human beings are all alike. This situation is the same as the teachers' predisposition to ICT use in their normal life. Some teachers may be good at technology but some teachers may be bad at technology. As a product of ICT, IWB is affected by this situation. It is not hard to estimate how this situation affects teachers' IWB use in the classroom. According to Bakadam & Asiri (2012) being bad at technology constrains teachers from using IWB.

In this technologically surrounded world, teachers must have some technological equipment or access to this equipment. Most of the teachers who have access to the internet at their homes declare that they are confident about using the computer (Nhete, Sithole & Solomon, 2016). Teachers' normal life affects their classroom environment. According to Akcaoğlu et al. (2015) study, the frequency of occurrence of technology affects teachers'

preparedness from the point of becoming accustomed to using IWB. That condition also affects the integration of technology as a pedagogic tool to the instruction.

Teachers' opinions are an important factor for integrating technology into the classroom. Their approach to IWB in terms of confidence and opinion affect the teaching and learning process. Students' IWB use frequency is affected by their teachers' approach to it (European Commission, 2013). Teachers' personal interest in technology steers IWB use in the classroom (Tatlı & Kılıç, 2016; Tondeur, Kershaw, Vanderlinde & Braak, 2013).

Features of IWB

As an innovative tool, IWB has distinctive features for classroom use. As an advanced version of projection and computer (Bell, 2002), IWB allows the user to transport their data from one file to another. Users can copy the desired text, picture, screen image or graphic and paste them as their wish in a proper place on IWB. Also with the help of its large screen, user can both enlarge and minimize the target text or picture. User can emphasise a part of the IWB with spotlight feature. Besides, with special programmes, user can drag, drop or highlight the text, picture or objects. Different from a computer, the user can annotate where he wants on IWB. (Beauchamp & Parkinson, 2005; BECTA 2006; Bell, 2002; Smith, 2008; Türel & Johnson, 2012).

According to Vainoryte & Zygaitiene (2015) study, IWB offers rich multimedia resources, more chances to teach new things, proximity to the technology and to use the technology. The opportunities offered by IWB are better exhibition of teaching material, saving, storing (unlike that in Murat (2016)'s study saving and storing functions were not used by observed teachers.) and printing (in Glover & Miller (2001)'s study printing out from the IWB was the least used function of the device.) the produced learning output on lecture (Nhete et al., 2016). These features provide a teacher to reveal more interactive lessons.

Benefits of IWB

In Karakuş & Karakuş (2017)'s study visualisation, interactivity, saving of time and facilitating to understand are the positive features of the IWB. Again in Elaziz (2008)'s study, teachers think that IWB can support their lessons as a good supplement, reduces the time about writing to the board, are useful for saving, reviewing, re-explaining and summarizing the lesson and printing them later. Additionally, the addition of other electronic devices like tablet PC to the board is another benefit (Daşdemir, Cengiz, Uzoğlu & Bozdağan, 2012).

The usage of IWB with those facilities make the lesson more enjoyable and attractive (Birişçi & Uzun, 2014; Demircioğlu & Yadigaroğlu, 2014; Elaziz, 2008; Gillen, Staarman, Littleton, Mercer & Twiner, 2007) and teachers and pupils are enthusiastic about using Interactive White Boards (Smith, Higgins, Wall & Miller, 2005). According to Vainoryte & Zygaitiene (2015), Nhete et al. (2016), IWBs increases students' motivation and interest.

According to Jang & Tsai (2012), many teachers using or having used IWBs approved that IWB helps the teachers to catch their students' attention and makes their students' concentration easy and lead up to easy interactions between the teachers and the students. According to Nhete et al. (2016)'s study with the help of IWB, lessons become more interactive and action-oriented by means of students' involvement. As a result of it, a more cooperative and participatory learning environment occurs (BECTA, 2003).

In Korkmaz and Cakil (2013)'s study ıt is registered that providing visuality and audio, time-saving, and making the materials easy, enjoyable and interesting are the advantages of the IWB. And Elaziz (2008)' study has shown that IWB makes students' learning easier to understand, more on information, better in terms of audio and visual materials, interesting and exciting. Improvements in materials used on IWB help students to understand more complex and abstract subjects (BECTA, 2003). And IWB gives chances students to use various sources such as İnternet, their own work (Elaziz, 2008).

Allowing students to interact with various materials, IWB supports the students who have different learning styles (BECTA, 2003). Wood & Ashfield (2008)' case study has shown that visual resources create interesting lessons and this situation assists visual learners. According to Murat (2016)'s study teachers think that IWB can be used for students who have different learning styles.

When the door of the class is closed, students and teachers are the most important part of the education system. And as it can be understood that education derives from teachers' and students' interaction in a basic way. Similarly, the students' active participation reveals the efficient use of the IWB. Students are interested in lessons whilst they get involved to the lesson by using their smartphones, playing games on the internet or exhibiting their products (also in Glover & Miller (2001)'s study) (Murat, 2016). Using IWB makes students motivated but unlike the other studies being on display student's work makes them feel uncomfortable. Teachers think that IWB makes learning enjoyable (also in Gürsul & Tozmaz (2010)'s study) and interactive so their students give their attention longer and IWB increases interaction and participation of their students (Elaziz, 2008). IWB makes the abstract subject easier for students to keep their attention (Gürsul & Tozmaz, 2010). Incompatible with that IWB makes complex and abstract concepts easy to explain and teaching without any problems (Jang & Tsai, 2012). In Wood & Ashfield (2008)'s case study teachers stated the concentration of pupils was as more and longer with the help of IWB. And teachers indicated that the pace of the lesson was increased.

To use interactive skills of IWB, like teachers, some skills are needed to use the IWB and partake in lessons in an unproblematic way by students (Glover, Miller, Averis & Door; 2007). According to Comi et al. (2017) study, ICT is not useful alone. For students' achievement, computer-based instructions should increase students' awareness of ICT use,

teach critical learning skills which is about especially distinguishing relevant and irrelevant digital information.

How Teachers Use the IWB

It is obvious that how teachers use the IWB in the classroom affects the outcome of the learning. IWB is seen as the extension of the computer because of the connection to the Microsoft Office programmes such as PowerPoint and Excel (Glover & Miller, 2001; Pamuk et al., 2013). Teachers use the IWB for demonstrating their presentations (Glover & Miller, 2001; Pamuk et al., 2013; Reedy, 2008;). Demonstrating presentations become boring eventually. To overcome this situation, they have taken advantage of audio-visual materials such as bounding videos, voices or visuals to excite students' attention and arouse interest. (Murat, 2016).

Using mostly presentational purposes of IWB makes think that teachers show lack of Interactive White Boards competency and are stick to the conventional teacher-centred method (Akcaoğlu et al., 2015; Al-Faki & Khamis, 2014). In Thomas (2014)' study ıt has been shown that teachers use traditional instruction and most commonly use PowerPoint presentations. Students' access to the IWB is instant and is under the control of teachers. If the direct teaching method is used via the IWB, then it means that the IWB is just substituted for the projector or the whiteboard (Wood & Ashfield, 2008). As proof for that situation is that in Murat (2016)'s study during the lecture time teachers were close to the IWB. Compatible with Murat (2016)'s study in Gülcü (2014)' study IWB constrains teachers from walking in class and compels teachers to stay around the IWB. And in Pamuk et al. (2013)' study students generally followed the teachers' presentation during the researchers' observations. Similar to that result in Murat (2016)'s study actively use of the IWB by students did not happen most of the lecture time and delivery of information was performed mostly by observed teachers.

The regular use of the IWB reduces the initial motivational effect and another way of use and motivation are needed to engage the learner with the topic (Glover & Miller, 2001). As a cure for this situation in Maher, Phelps, Urane & Lee (2012)'s study, a number of teachers choose to use resources which students may benefit as a small group. Hence as an activity station, students can circulate around the IWB and do not get bored during the instruction.

As it is shown in Northcote, Marshall & Swan (2010)'s study, teachers tend to use IWB in the range of student-centred to teacher-centred. According to Mercer, Hennessy & Warwick (2010)'s study, with the help of IWBs' flexibility teachers can use much more content which is related to the subject to support dialogic or didactic instruction pedagogy. The effective usage of IWB is connected with understanding and usage of teachers. Karakuş & Karakuş (2017)' study has shown that interactive whiteboard affects teachers' roles and teaching styles in a positive way.

In Gürsul & Tozmaz (2010)'s study, Science and Technology teachers take advantage of IWB related to experiments which are impossible to do or being dangerous in classrooms. English teachers and Science and Technology teachers give students the opportunity to play games related to their subjects. Vainoryte & Zygaitiene (2015)'s study supports Gürsul & Tozmaz (2010)' study with the result of that in science and foreign language lessons IWB is more often used. In accordance with that using IWB animation in physics lessons has significant positive effects on retention (Türkay, 2016). Especially language teachers use these facilities such as drag and drop, audio files, zooming in, etc. and internet and computer experienced teachers having more ability on using IWB use audio-visual interactivity more (Tatli & Kiliç, 2016). According to Akcaoğlu et al. (2015) study, teachers use technology for visual aids, slide shows, videos, etc.

As it can be understood that all the power of IWB technology comes with the help teachers. Teachers' pedagogy understanding gives the power to IWB as instructional equipment

(Sweeny, 2013). Glover & Miller (2001)'s study found that no teacher perceives the IWB as a cure for education and it can be useful with under controlled classes and motivated students in a similar manner. Incompatible with Sweeny (2013)'s study teachers are substantial on creative teaching for creative learning because of choosing and using the materials with an understanding of pedagogy for IWB with whole class teaching. According to Glover et al. (2007) study, teachers changed their preparation and style for delivering a lecture to reach the potential of IWB compared to traditional teaching materials.

Bakadam & Asiri (2012) has stated that IWB is used as an overhead projector and for internet search by most of the teachers. Teachers mostly use IWB as blackboard (Gürsul & Tozmaz, 2010). With regard to Glover et al. (2007)' research, improving technical skills and fluency, implementing pedagogic principles to the technology and integrating IWB to the instruction requires time from teachers' perspective. According to Glover & Miller (2001)'s study teachers wavered in changing their pedagogy and this stemmed from lacking knowledge about how to use the IWB efficiently, showing the white feather because of having insufficient time to produce the materials for the IWB. To catch students' attention and make lessons more enjoyable and attractive teachers have to know how to use the features of the IWB (Elaziz, 2008).

In-service Training Related to IWB

To generate IWB use in class and integration the technology to the classroom settings in-service training is essential. Teachers need training for effective use of the IWB and with no training, most of the basic functions of the IWB cannot be used. (Altın & Kalelioğlu, 2015; Çelik, 2012; Murat, 2016). Perpetual professional improvement on how to use IWB is essential for all teachers. (Bidaki & Mobasheri, 2013). To be aware and use most of the features of IWB teachers need to undergo in-service training (Bakadam & Asiri, 2012). Continuous training is needed to brighten and increase teachers' competency, attitudes and confidence about using

IWB in classroom instruction (Nhete et al., 2016). Without taking in-service training teachers specified that the technology is not assumed to be used in a proper way (Reedy, 2008). As stated by Lai (2010)'s study that attending IWB training gives teachers the chance to learn useful information and interaction facilities supported by IWB.

Although in-service training is crucial to use the IWB in a proper way, as shown in Banoğlu, Madenoğlu, Uysal & Dede (2014)'s study that teachers criticize content and methodology of in-service training about IWB. According to Akcaoğlu et al. (2015)'s study, taking in-service training by teachers special to the FATIH project was comprised of thoroughly technical issues about IWB. In the training sessions pedagogical aspect of the IWB was ignored and as a result of this pedagogical integration of IWB to the classroom setting was not understood by the teachers. In-service training programs were not effective vis-a-vis teachers (Pamuk et al., 2013). IWB training should be given according to teachers' particular needs and problems in each subject area (Lai, 2010). Teachers require further subject-specific training programmes (Akcaoğlu et al., 2015; Glover & Miller, 2001). Subject-specific training affects the ability to use IWB (Tatli & Kiliç, 2016).

Difficulties in Using IWB

As a developing and adapting technology to the classroom setting, IWB and other related things to it need time and much effort. According to Gülcü (2014), Karakuş & Karakuş (2017) and Keleş & Turan (2015)'s studies that although most of the teachers in the studies see the contents of their lessons as appropriate tools for the interactive whiteboards, lack of internet, viruses, and touchscreen problems are the main unfavourableness of the interactive whiteboards. In Murat (2016)'s study it can be seen that despite the fact that some of the teachers see the IWB as a facilitator, some of the teachers see the IWB as increasing workload due to preparation for IWB activities (as stated Gülcü (2014)' study). Also, teachers stated that interactive contents are not enough. In Glover & Miller (2001)'s study teachers noticed that use

of IWB needed a great deal of time for preliminary studies. So teachers complained about inadequate software programmes. According to Pamuk et al. (2013)' study teachers emphasized the limited access to e-content and materials as problems and remarked that connectivity between the IWB and tablet Pc was a crucial problem (also in Akcaoğlu et al. (2015)'s study). And also students did not use the tablet PC concertedly with the targets of lessons on the basis of researchers' lesson observations. Both teachers and students saw sensitivity of the IWB's touch screen and a pen tool for the IWB as a problem (also in Gülcü, 2014). Data transfer, loss of information because of updates and limited access to the internet are the main problems of the tablet PC too (also in Altın & Kalelioğlu (2015)'s study). Incompatible with their study İzci & Darmaz (2018)'s study showed that infrastructural deficiencies, software problems, and missing documents show up as the adverse side of Interactive White Boards and FATIH Project.

According to Al-Faki & Khamis (2014)'s study on teachers' challenges, while using the Interactive White Boards, the challenges' reasons are teachers' lack of computer competency, insufficient technical support, more technologic competent learners than teachers who use IWB. And also when a problem occurs, teachers cannot reach technical support in time. Use of the internet is limited by IT departments (as compatible with Keleş & Turan (2015) 'study). And antivirus programmes impede teachers' use of IWB. Most of the students do not use educational websites. In line with that Gürsul & Tozmaz (2010)'s study showed that technical problems and deficiency about staff to check the boards are prominent from the teachers' side. The perpetual requirement of calibration seems a disadvantage because of the time requiring to prepare the board. Depending on this situation disciplinary problems may occur in class (Aktaş et al., 2014; Gülcü, 2014; Keleş & Turan 2015).

In Vainoryte & Zygaitiene (2015) study it can be understood that producing methodological materials and preparation needs before class for IWB are the problems articulated by teachers. According to Korkmaz and Cakil (2013) study, lack of enough

preparation for lesson and knowledge about IWB are the reasons for deficient use of IWB. In Banoğlu et al. (2014)'s study, e-content provided by the FATİH project is seen insufficient by teachers. Akcaoğlu et al. (2015)'s study shows that given tablet PCs by the MoNE special to FATIH Project has restraints on both software and hardware. Also, connection to the school network system is a must for loading teachers' and students' files to their Tablet PCs. And also tablet PCs are perceived as paper-based books because they have only pdf (e-book) versions of lesson books. That lacks the aim of interactivity and students only can read and take notes in a simple way. According to Altın & Kalelioğlu (2015) study, teachers think that Tablet PCs given as a part of the project are not useful due to not being utilized on educational purposes, contents in IWBs and Tablet PCs are not enough and EBA is not used effectively due to contents, difficulty of uploading content, design of the website.

Consequently, despite its deficiencies teachers and students are in a positive position related to IWB (Balta and Duran, 2015; Thomas, 2014). As a chance to integrate technology into the classroom environment we put our steps with caution. Like everything else in life IWBs should use correctly not to waste time. Technology's situation in the classroom should be arranged in a balanced way to obtain a maximum benefit (Banoğlu et al., 2014). Chosen programme including ICT for achieving lessons' purposes should be compatible with the preparedness of student, the objective of the lessons, pedagogy which is used for teaching and learning (Mama & Hennessy, 2010).

Chapter 3: Methodology

Research Design

The focus of this study is to reveal the opinions of teachers using IWB in class on classroom use. And also this study aims to concentrate on how the IWB use is revealing special to FATIH Project in middle and high schools in Yenice County.

To reveal the answer to research question about teachers' opinions on IWB, qualitative research was used. "Qualitative research is a research type using the natural environment to obtain factual and holistic information of existing situations and facts via qualitative data collection methods such as observation, interview, and document analyses" (Yıldırım & Şimşek, 2016, p.41).

Case study research design was used based on qualitative research. "Case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context when the boundaries between phenomenon and context are not clear and copes with the technically distinctive situation in which there will be many more variables of interest than data points" (Yin, 2003, p. 13). An also "case study is a holistic analysis of one or more conditions within its boundaries" (Yıldırım & Şimşek, 2016, p. 75). In this study, our main aim is to find out what opinions of teachers using interactive whiteboards on classroom use are. To obtain necessary information a few instruments can be used. The most common instruments used in a case study are interview, monitoring, survey, documents, researcher's notes and diary (Yıldırım & Şimşek, 2016). In this study semi-structured interview was used to collect information.

Target Population and Participants

This study was rigorously executed in middle and high schools in Yenice County due to the availability of IWB in class. According to the FATIH project's development in Yenice County, high schools and middle schools had IWB technology in their classes. Unfortunately, primary schools didn't have the IWB in their classes at the time of the study.

From this point, all middle and high schools' teachers in Yenice were in the scope of the study. All participants selected from middle and high schools' teachers and only volunteer teachers' data were used for the study. As can be understood from the aforementioned situation that the teachers whose schools had the IWB opportunity in the classrooms were taken into consideration for the study. After setting that criterion, criterion sampling was used for the study. "Basic understanding of that sampling method is to study whole cases meeting previously determined a range of criteria" (Yıldırım & Şimşek, 2016, p. 122). At some point in the study, criterion sampling was not enough so convenience sampling was used. Convenience sampling is used for giving researcher tempo and ease while there are problems about using other sampling methods (Yıldırım & Şimşek, 2016, p.123). The participants of the study were available at the time when the researcher was in their school to school.

This research was conducted with the teachers whose school had IWB opportunity in class, who were volunteers and who had enough time at the time when the researcher was at schools to interview. To reach the in-depth data purposeful sampling was necessary. Teachers who could reach and use the board were selected to the study. Purposeful sampling gives researchers the freedom to select their participants according to the rate of contribution to study (Griffee, 2012).

In table 1, information about participants' no, branch, seniority, gender, in-service, school type, pc, internet, and IWB experience is given.

Table 1

Participants

PARTICIPANT NO	BRANCH	SENIORITY	GENDER	TRAINING	SCHOOL TYPE	PC	INTERNET	IWB EXPERIENCE
P1	Physical Education	6 years	Male	No	Middle	Yes	Yes	2 years
P2	Information Technology	4 years	Male	Yes	Middle	Yes	Yes	3 years

P3	English	6 years	Female	No	Middle	Yes	Yes	3 years
P4	Maths.	4 years	Female	No	Middle	Yes	Yes	4 years
P5	Information Technology	10 years	Male	Yes	Middle	Yes	Yes	5 years
P6	Social Studies	9 years	Male	No	Middle	Yes	Yes	4 years
P7	Science	6 years	Female	No	Middle	Yes	Yes	3 years
P8	Social Studies	7 years	Male	Yes	Middle	Yes	Yes	2 years
P9	English	5 years	Female	No	Middle	Yes	Yes	2 years
P10	Turkish	1 year (Substitute Teacher)	Female	No	Middle	Yes	Yes	1 year
P11	Maths	4 years	Female	No	Middle	Yes	Yes	3 years
P12	English	7 years	Female	No	Middle	Yes	Yes	2 years
P13	Religious Studies	5 years	Female	Yes	Middle	Yes	Yes	4 years
P14	Turkish Language and Literature	2 years (Substitute Teacher)	Female	No	High	Yes	Yes	2 years
P15	Geography	5 years	Male	Yes	High	Yes	Yes	5 years
P16	Turkish Language and Literature	8 years	Male	Yes	High	Yes	Yes	6 years
P17	Philosophy	8 years	Male	Yes	High	Yes	Yes	4 years
P18	English	2 years	Male	No	High	Yes	Yes	1 year
P19	Maths	4 years	Male	Yes	Middle	Yes	Yes	2 years
P20	Special Education	4 years	Female	No	Middle	Yes	Yes	1 years
P21	Science	7 years	Female	No	Middle	Yes	Yes	2 years
P22	Turkish	3 years (Substitute Teacher)	Female	No	Middle	Yes	Yes	2 years
P23	Turkish Language and Literature	6 years	Male	No	High	Yes	Yes	4 years
P24	English	7 years	Male	Yes	High	Yes	Yes	3 years
P25	Maths	6 years	Male	Yes	High	No	No	4 years
P26	English	5 years	Female	Yes	Middle	Yes	Yes	4 years
P27	Science	5 years	Female	Yes	Middle	Yes	Yes	4 years
P28	Turkish	11 years	Male	Yes	Middle	Yes	Yes	3 years
P29	English	6 years	Female	Yes	Middle	Yes	Yes	4 years
P30	Turkish	6 years	Female	Yes	Middle	Yes	Yes	3 years

P31	Arabic	2 years	Male	Yes	High	Yes	Yes	2 years
P32	English	7 years	Male	Yes	High	Yes	Yes	3 years
P33	Chemistry	19 years	Female	Yes	High	Yes	Yes	2 years
P34	Religious Studies	6 years	Female	Yes	High	Yes	Yes	2 years
P35	Mahts	7 years	Male	Yes	High	Yes	Yes	2 years
P36	Maths	6 years	Male	Yes	High	Yes	Yes	4 years
P37	Turkish Language and Literature	8 years	Female	Yes	High	Yes	Yes	4 years
P38	English	3 years	Female	No	Middle	Yes	Yes	1 year
P39	Maths	4 years	Female	Yes	Middle	Yes	Yes	1 year
P40	Information Technology	5 years	Male	Yes	Middle	Yes	Yes	1 year
P41	Turkish Language and Literature	7 years	Male	Yes	High	Yes	Yes	4 years
P42	History	9 years	Male	Yes	High	Yes	Yes	4 years
P43	Chemistry	7 years	Male	Yes	High	Yes	Yes	6 years
P44	Maths	4 years	Female	Yes	High	Yes	No	3 years
P45	Turkish Language and Literature	6 years	Female	No	High	Yes	Yes	4 years
P46	Biology	22 years	Male	Yes	High	Yes	Yes	7 years
P47	Special Education	7 years	Female	No	Middle	Yes	Yes	3 years
P48	Social Studies	6 years	Male	No	Middle	Yes	Yes	3 years
P49	Religious Studies	6 years	Male	No	Middle	Yes	Yes	3 years
P50	Science	8 years	Male	Yes	Middle	Yes	Yes	4 years
P51	English	12 years	Male	Yes	Middle	Yes	Yes	4 years
P52	Information Technologies	2 years	Male	Yes	Middle	Yes	Yes	1 year
P53	Turkish	2 years	Male	Yes	Middle	Yes	Yes	2 years
P54	Technology Design	7 years	Male	No	Middle	Yes	Yes	1 year
P55	Social Sciences	15 years	Male	Yes	Middle	Yes	Yes	1 year
P56	Special Education	2 years	Female	No	Middle	Yes	Yes	1 year

According to table 1, in this study 56 participants were interviewed and 31 of 56 were male and 25 of 56 were female. 35 of 56 participants were working in Middle school and 21 of 56 participants were working in High School. 55 of 56 participants had both computer and internet at home. 1 of 56 participants didn't have both computer and internet at home but he said that he used his mobile phone instead of them. 17 branches were represented in this study. Participants' seniority varied between 1 year and 22 years and their IWB experience ranged from 1 year to 7 years. 3 of 56 participants were substitute teachers. 22 of 56 participants declared that they didn't take any in-service training for IWB and 34 of 56 participants confirmed that they took in-service training for IWB.

Data Collection Procedure.

"Interview is a mutual and interactive communication process based on questioning and answering which are previously determined and made for a serious purpose" (Yıldırım & Şimsek, 2016, p. 129 as cited in Steward & Cash, 1987). The interview is very efficient and one of the most common data collection ınstrument in social sciences. (Yıldırım & Şimsek, 2016). In this study, the interview is used for data collection.

To interview with volunteer teachers, seven basic questions were previously determined. Those questions were taken from Alparslan & Icbay (2017)'s study. The study was a pilot study for this study. Using previously determined questions in an interview shows that it is a structured interview. But in this study when the researcher started to communicate with volunteer teachers, the researcher changed the questions or the subject at the moment of conversation to take more in-depth information or to help the volunteer teachers to remember the necessary information if it was necessary. In a semi-structured interview, previously determined interview questions' order or words can be changed and for interviewees' situation. Questions can be omitted and added to make everything clear. Explanations can be given (Teijlingen, 2014). From that point of view, a semi-structured interview was used in this study.

To interview with volunteer teachers, the researcher went to the target schools and waited for the appropriate time. All interviews took place in teachers' room in the target schools and only the teachers who were volunteers and had enough and free time for the interview were taken into the study. After taking volunteer teachers' consent, all interviews were recorded via an electronic device owing to lack of taking notes during the conversation because of enormous information revealing in the conversations. The interviews with teachers between October and December in 2017 lasted from nine minutes to thirty minutes.

In table 2, elapsed time in the record and data collection date are shown.

Table 2

Participant Interview Time and Data Collection Time

Participant no	Elapsed time in the record	Data collection dates
P1	9 min.	24.10.2017
P2	18 min.	24.10.2017
P3	19 min.	24.10.2017
P4	21 min.	24.10.2017
P5	21 min.	13.11.2017
P6	19 min.	13.11.2017
P7	11 min.	13.11.2017
P8	12 min.	13.11.2017
P9	15 min.	13.11.2017
P10	9 min.	13.11.2017
P11	10 min.	07.11.2017
P12	14 min.	07.11.2017
P13	14 min.	07.11.2017
P14	10 min.	06.11.2017
P15	11 min.	06.11.2017
P16	17 min.	06.11.2017
P17	14 min.	06.11.2017
P18	14 min.	06.11.2017
P19	18 min.	06.11.2017
P20	9 min.	06.11.2017
P21	20 min.	06.11.2017
P22	10 min.	06.11.2017
P23	14 min.	31.10.2017
P24	14 min.	31.10.2017
P25	10 min.	31.10.2017
P26	18 min.	30.10.2017
P27	11 min.	30.10.2017
P28	13 min.	30.10.2017
P29	13 min.	14.11.2017
P30	17 min.	14.11.2017
P31	30 min.	14.11.2017
P32	12 min.	14.11.2017
P33	18 min.	12.10.2017
P34	13 min.	12.10.2017
P35	13 min.	10.10.2017
P36	12 min.	10.10.2017
P37	15 min.	12.10.2017
P38	16 min.	07.11.2017
P39	13 min.	07.11.2017
P40	18 min.	07.11.2017
P41	17 min.	20.11.2017
P42	14 min.	20.11.2017
P43	18 min.	20.11.2017
P44	10 min.	20.11.2017
P45	10 min.	20.11.2017
P46	13 min.	20.11.2017
P47	18 min.	20.11.2017
P48	10 min.	20.11.2017
P49	13 min.	20.11.2017
P50	15 min.	20.11.2017
P51	13 min.	20.11.2017
P52	19 min.	30.10.2017
P53	21 min.	30.10.2017
P54	13 min.	30.10.2017
P55	14 min.	30.10.2017
P56	16 min.	30.10.2017

Data Analyses Procedure

All data were collected via semi-structured interviews with the aim of revealing teachers' thoughts about IWB use in class. First, all recorded speeches were transcribed. Then transcribes were read over and over to find codes in conversations. Found codes were placed in themes. Themes were decided according to questions and revealed codes during finding codes process. Under the theme process, predetermined frame for codes was reorganised and some data were omitted which were not important as rest of them. Last, reorganised data were described and supported by quotations. In this process, descriptive analysis was used. "In descriptive analyses, the main aim is to present interviewed or monitored individuals' views conspicuously" (Yıldırım & Şimşek, 2016, p.239).

Validity and Reliability

"To create a study having validity and reliability in qualitative studies, validity and reliability concepts are altered according to the nature of qualitative inquiry and "Credibility", "Transferability", "Dependability" and "Confirmability" are the alternatives for validity and reliability." (Yıldırım & Şimşek, 2016, p. 277 as cited in Lincoln and Guba, 1985)

Credibility is the congruency of reality with findings (Shenton, 2004). To make the study credible, the researcher examined the results of previous works firstly. Second, the researcher as an English teacher in a state school who has the same instruction environment in terms of technology used his experiences which is relevant to research. Third, a domain expert whose profession on qualitative researches checked the research over and gives his view about the study. Lastly, after conversations, participants listened to their speeches and check their words to understand what actually they intended to say to prevent misunderstandings.

Transferability is to transfer the findings of the study to other situations which have similarities to the study (Yıldırım & Şimşek, 2016, p. 281, as cited in Erlandson, Harris, Skipper & Allen, 1993). First, to obtain transferability, a description of the situation which was used for

the study was made in detail and second direct quotations without changing were used. Third various data sources were tried to reach as far as possible to represent the variety of data sources.

Dependability is the effort of showing the way of thinking, of searching, the findings and the conclusions to the other researchers to give some clue to make them understand the study to see as a "prototype model" (Shanton, 2004). The accuracy of the way of thinking, of searching, the findings, and the conclusions were checked by the thesis advisor to obtain dependability.

Confirmability is to show the results of the study by confirming with the collected data (Yıldırım & Şimşek, 2016, p. 283 as cited in Lincoln and Guba, 1985). In the study, the results were confirmed with the collected information.

Chapter 4: Findings

In this chapter, the findings of the study were presented. Themes, codes related to themes and the number of participants who mentioned the codes were shown in tables. The order of the findings was determined according to the order of the sub-research questions.

Training

As can be seen in table 3, 22 of 56 participants said that they didn't take any in-service training. 10 of 22 participants stated that they learned how to use IWB in classroom settings on their own and 8 of 22 participant teachers stated that they used their colleagues' assistance. 4 of 22 participant teachers reported that they learned how to use IWB by observing their students in the class.

The participant 45 said "… I have never taken an in-service training. I have never come across an in-service training all this time… I don't feel the need for an IWB training to use it… So this pen programme (Fatih kalem) is used and other media programmes. Using the IWB is not the miracle…"

The participant 38 said " After the IWBs installation, an information meeting was held. After that our IT teacher is here. He helps… After the meeting, we didn't take a certificate. The meeting is for information only…"

The participant 1 said "…I am working as an assistant principal. We generally do all our work by using computer-based systems, especially e-okul. So I wasn't hard put to transfer the knowledge of computer to the IWB. I haven't take any kind of in-service training. I have learned it on my own..."

The participant 22 said "…I am a substitute teacher so I cannot join the in-service training. My only duty is to teach literature. But when I entered the class and saw the IWB for the first time. I hesitated over how to use the board. There was no any kind of lock on it and my students could use it freely. Last minutes of my lessons were free to use the IWB for my

students. I, being an unfamiliar person with that technology, can say that I have learned the IWB while watching my students."

The participant 56 said "… It is not hard to use the board. But I have learned some features of it with the help of our IT teacher. He showed me how to draw geometric shapes via Antropiteach programme."

The participant 4 said " I took instruction from our IT teacher… In the instruction, he told about some programs (Antropiteach and Kahoot). But that was not an in-service training… We used our mobile phones. There was a quiz program…"

Table 3

Training (Not Trained)

THEME	CODES	NUMBER OF PARTICIPANTS
	Colleague help	8
Training	Observing from the students	4
	On her/his own	10

As it is shown in table 4, 34 of 56 participants said that they took in-service training. 17 of 34 participants took only distance course via the internet. 5 of 34 took the applied course in their own school and 3 of 34 took a seminar and 5 of 34 teachers took both distance course and applied course and 4 of 34 participants took both seminar and distance course.

The participant 46 said "…I took an applied course and distance courses… The applied course was given in my school and it took approximately 30 hours. After school, our schools' IT teacher gave the lesson… He taught from how to open the board to how to use web 2.0 tools. For example, I didn't know how to download a video from YouTube… The distance courses were for the Tablet PC and virtual class (v-class)… According to the distance course, they are all useful things but in real life, I didn't witness to use of these two…"

The participant 17 said "…In my first place of duty, the provincial directorates of national education made the seminar which was about the IWB obligatory… It was a one-day seminar… In the seminar, they who were assigned to give that seminar talked about possibilities and opportunities of the IWB.

The participant 8 said "…I took both a seminar and a distance course. They showed some part of it (IWB). But these trainings were post-haste. Generally, we discovered it…"

The participant 13 said "They gave a seminar about how to use the IWB. One day? Or Two days? We went and came"

The participant 19 said "…We took an in-service training. We took 2 hours of training. Normally, it was 6,7 hours of training. But we only learned its features and opportunities because of shortened and condensed training… I have a certificate…"

The participant 37 said "…The MoNE assigned that distance courses. I didn't take an applied course but took two distance courses. They were about the conscious and safe use of the Internet and IT and I think EBA v-class something like that…"

Table 4

Training (Trained)

THEME	CODES	NUMBER OF PARTICIPANTS
Training	Distance Course	17
	Applied Course	5
	Seminar	3
	Seminar and Distance Course	4
	Applied Course and Distance Course	5

According to the participants who took in-service training, taking in-service training about IWB is easy because MoNE opens in-service training about IWB all the time. One, who took in-service training, of the participants stated that taking in-service training was his own choice and applying training was very easy on the Internet. One, who didn't take any in-service training, of the participants said that somehow or other MoNE got teachers to take in-service training about IWB under compulsion.

IWB Use in Class.

Using the IWB in class varies from presentations to watching movies considering the purposes of lessons according to the participants. It was revealed that most of the teachers used the IWB for presentation. All English teachers stated that they used the IWB to get students to listen to the native speakers who were the part of the lesson books and to see the visuals which

were related to their subject. In table 5, all codes are shown with the participant number who articulate related codes.

The participant 6 said "…I usually open "find the city game" on the internet. My students try to find the cities in Turkey…"

The participant 43 said "… I usually follow the books. There is a program called Epic Pen and a new version of it (Fatih Kalem). I generally take notes by using them on the IWB and wait for my student to write them down… Sometimes I prepare tests and take their pdf versions. I open pdf versions and my students solve the problems… On EBA there are useful materials but the constant use of them is not possible. Because some of the students start to sleep directly. They don't attract some of the students… But sometimes we fall back and to accelerate the lesson I get my students to watch the related videos…"

The participant 2 said "…on the IWB there is an application called Kahoot... An internet site, you can make online exams… Questions are shared on the IWB. Students can answer the questions through the devices (computers) which are in front of them…"

The participant 36 said "…In my school, the academic success of students is very low and their preparedness to my lesson is very low. To teach them the basics of Maths, I use the EBA, especially the games in it..."

The participant 17 said "…Before the educational year, I organised all my subjects and make them as the PowerPoint Presentation. When I enter the class, I open the IWB and use my Presentations for the lesson…"

The participant 56 said "…I have two students in my class and they need special care. Also, they need to learn some basic things to survive. Sometimes, in the lesson, they get bored and I open music or cartoons which can help them to learn our subject…"

The participant 38 said " I usually use it (the IWB) for something. I put the slides in my flash disk… There are slide versions of English books of the state on the net. All texts, listening

files are included… I use the EBA. There is a foreign language portal which is added this year. There are games there. I get my students to play those games after the end of units.”

The participant 54 said “…After using the IWB in class, generally, we use it to show the material to students to design it…”

The participant 4 said “… I use IWB according to the subject. Generally, first I tell the subject. I teach in my own way… After the subject is finished, I get my students to watch the lecture video of the same subject and the questions from the lecture video… Sometimes I did something on EBA site. I used a couple of competition applications a few times…”

The participant 34 said “…To teach the students some part of the Koran, I open the videos of hafizes who know all parts of Koran…”

The participant 1 said “…I generally use the media player feature of the IWB… Instead of teaching the front tumble via telling its steps, ıt is really easy to show how to put their hands to the ground…”

The participant 3 said “…When I enter the class, the first thing I do is to open “Class Dojo” on the internet. Maybe it doesn’t help for academic purposes but it helps me to control the class … For example, one of my students asked me what the colures in the flag represent. I told according to my knowledge. But I wasn’t sure. I wanted to be sure and showed the visuals through the IWB. Or for example, sometimes we use dictionary… If there is a word at that moment, we can open a (online) dictionary and use it…”

The participant 50 said “… I use the IWB to write something on board via Epic Pen… But I do not store all the writings. I just wrote, draw or underline the important parts. Then I erase them… To store something Antropiteach is a good program but it is awkward to use…”

The participant 38 said “… I use the EBA. There is a foreign language portal which is added this year. There are games there. I get my students to play those games after the end of units.”

Table 5

Teachers' Use

THEME	CODES	NUMBER OF PARTICIPANTS
	Presentation	51
	White Board	3
Teacher use	Movie/Animation/Video	42
	Listening	12
	Visuals	17
	Games	5

It can be easily understood from table 5 that almost every teacher uses most of the features of the board simultaneously.

The Students' IWB use

Under this headline, it has to be divided into 2 parts. According to the participants, students use IWB for educational purposes and entertainment purposes. For educational purposes, most of the teacher stated that students showed their works, especially their presentations on the IWB. Some of the teachers said that the students used the IWB for searching for information which was related to their topics. Some of the teachers told that students used the IWB for solving problems. Table 6 shows the students' educational use codes.

The participant 4 said "…My students say to me "Teacher, let's do something on the board" but actually they do not know what they want…They use the IWB to solve the problem which is needed to solve on the IWB when I asked the problem…"

The participant 43 said "…in one of my lesson to solve a problem students needed to know the atomic mass number and they didn't know it. They used the IWB and found that atom mass number. Then they solved the problem. One of them came to the IWB and wrote and explained all the solution…"

The participant 5 said "…I don't allow my students to use the IWB without my supervision… In class, if they wonder what something is, they can search it on the net…"

The participant 41 said "… I generally give students a presentation performance assignment. They prepare their presentations and present them using the IWB…"

The participant 38 said "… I give some grammar topics to my students as a presentation homework. They prepare it through their computers (if they have). And then they present their homework to their classmates…"

The participant 51 said "students don't have the habit of bringing a dictionary to the class. I let them use the IWB as a dictionary while they are reading a text…"

Table 6

Usage By Students (For Educational Purposes)

THEME	CODES	NUMBER OF PARTICIPANTS
Usage by students (for educational purposes)	Searching for information	5
	Presentation	54
	Solving Problems	5

As can be seen in table 7, for entertainment purposes teachers stated that when they had spare time at the end of the lesson students wanted to play games which were related to their subject. Most of the teachers said that most of the students wanted to watch movies on IWB. Some of the teachers said that some students wanted to listen to music and dance with it. And few of the participant teachers declared that students asked to use the board to draw pictures which were irrelevant their topics of them. Some teachers stated that students used the IWB for checking their behaviour points.

The participant 9 said "If there is free time in class, my students always want to watch movies. And this is extracurricular".

The participant 25 said, "My students opt to watch videos rather than do related to maths…"

The participant 12 said, "When I reached the IWB to open and use it, my students want to listen to music."

The participant 20 said "…Not too often but sometimes my students want to dance in class. Because of their limited attention span, they get bored and want to do different activities. Learning reading or adding numbers doesn't fit them…"

The participant 35 said "As it is known that we have low profile students, ıt is not a secret. Most of our students do not have the knowledge of times table. So my priority in this situation teaches them the times table. I open EBA and play times table games most of my class time with those students".

The participant 3 said "Class dojo brings its difficulties with its ease. Students always want to check their behaviour points. Sometimes ıt gets boring".

The participant 22 said "On my watch day, some students ask me if they listen to music via IWB and dance. And I let them".

The participant 54 said "In the workplace, we generally do not have much time. Most of the time students focus their work. But when there are limited days to the end of the school (there is no such time to produce new products at the school time), I let my students and they use the board freely under my supervision. They generally draw pictures by using paint programme…"

Table 7

Usage By Students (For Entertainment Purposes)

THEME	CODES	NUMBER OF PARTICIPANTS
Usage by students (for entertainment purposes)	Video / Movie	39
	Music	12
	Games	17
	Drawing	8
	Dance with music	12
	Checking their behaviour points	1

Reaching the Sources Related to IWB

Without relevant material, IWB cannot show its full benefit for students. Most of the teachers make internet searches for preparing materials or ready-materials for their lessons thereby using IWB for their lessons. According to participants, some of them used social media

to obtain the materials which are proper for IWB. Most of the participants, especially English teachers, used EBA for getting appropriate material for IWB. Most of the participants download materials from the internet through forum sites or some platforms such as YouTube. Few of the participants prepared their own materials. No participant prepared a movie clip, song or wrote a programme for IWB for lessons. In table 8, the corresponding codes are shown.

The participant 37 said, "If it is in my lesson content, I generally get my students to watch short interviews about writers, poets or singers who left a mark for our literature."

Teacher 28 said "…There is a site Kronometre.com. I arrange 15 minutes intervals to hear the gonk voice. We use this site while arranging reading competition… This summer we bought a source. I use my teacher's study. In his study, there are lots of flash games such as the wheel of fortune, passaparola, and big risk…"

The participant 13 said "…There are lots of websites which are related to Religious Studies. I have already had a membership of these sites. I look for (the materials) from those sites. I have already had build-up (materials). I have made a pretty big archive. I use them."

The participant 46 said "…For 9th class, meiosis and mitotic division sometimes get difficult to understand. To make it easy to understand, I download relevant videos from YouTube…"

The participant 52 said "…to teach basic algorithms to write code on the scratch programme. I prepare slides. And in my lesson I present them…"

The participant 25 said, "I use the ready materials which are on the net in my lessons."

The participant 3 said "From a forum site, I founded the pdf version of our class books with its listening parts which is added to the book. It really makes the lesson easy, I do not bother myself about finding listening parts of the books."

The participant 38 said "…There are slide versions of the English books of the state on the net. All texts, listening files, games are included. There is a group on the net called English Language Teachers. You can download the unit which you want to teach from there…"

The participant 12 said "…In my lesson, I use state books. On EBA we can get their pdf version and listening parts. In class, I open EBA and download the listening parts…"

The participant 53 said "I search the internet for materials. If I need a video, I download it from YouTube. But if I need material like pdf or slide, I look the material up on Facebook or Turkish language teachers' portals…"

The participant 17 said "I use PowerPoint slides for my lesson. As I said before, I prepare myself them. It is important for me to follow the content…"

The participant 47 said "…Special education teachers have groups on Facebook. They share their good practice samplings and also their experiences… …Watching and reading these activities help me to apply them into my lesson… …Good results don't always come up but they really help me…"

The participant 29 said "… ready materials are on the net… I find most of my materials on Facebook. There are groups which are founded by English teachers in Turkey…"

Table 8

Reaching The Materials

THEME	CODES	NUMBER OF PARTICIPANTS
	Education Information Network	17
	Making his/her own materials	6
Reaching the materials	Download from internet	30
	Through social media	7
	Buying a source	1

Experienced Challenges While Using The IWB

Certainly, some problems have to occur while using the IWB. According to the participants, the most common problem is the restricted internet. Some participants stated that the viruses which are important challenges. Few participants told that sensitivity and touch screen problems occasionally occurred. Few participants saw installing and removing

programmes as a problem. Few participants complained about opening the IWB with USB Key which is a system to allow the users only to have the flash disk with a passport in it. In table 9, codes which are about challenges are shown.

The participant 27 said that "…Once we downloaded some books but we couldn't open them… And if you don't clean the board (infrared sensors), it makes troubles…"

The participant 12 said "…I have a calibration problem on my IWB. So I use a mouse…"

The participant 25 said "…It was really difficult when the USB Key didn't work. Fortunately, I bought another flash disk and our IT teacher makes the flash disk the key for IWB…"

The participant 11 said "… I didn't encounter any kind of problematic situation both technical and soft."

The participant 28 said "We cannot enter any website which is useful for me via MoNE internet. I use my own mobile phones internet by connecting from the IWB… Most of the IWB touch screen is problematic. I use a mouse and a keyboard to control the IWB…"

The participant 51 said "Ohh! Viruses… They are the worst thing I have ever come across… The students' flash discs are carrying them. When they use it once, there is nothing to do left…"

The participant 7 said "…Sometimes the students touch the IWB simultaneously. These attempts tire the processor of the IWB. It slows down a bit…"

The participant 36 said "Once I wanted to install a program related to my lesson. But the system asked the administrative password. You cannot install anything if you don't know the password."

The participant 17 said "… For example, the IWB sometimes doesn't perceive the USB flash disks or answer some programmes… The restriction of the internet is another problem. You cannot enter the useful websites…"

The participant 33 said "…YouTube is the largest source of videos. But I don't know why. Our ministry restricts its access. Some part of the lesson, I want to show my students experiments and scientists doing their work. But this is not possible…"

The participant 44 said "… I am really tired of forming my USB because of viruses…"

The participant 15 said "At the beginning of this year, I faced with calibration and touch problems. Our IT teacher cleaned the eyes and made calibration of the board. Now, ıt is working properly…"

The participant 53 said "Restricted internet connection sometimes makes the things difficult. If there isn't a video on EBA, probably not, you cannot reach it… The viruses are really hard to deal with. To block them you have to install a security or an antivirus programme which most of them are paid and expensive but MoNE doesn't allow you to use unlicensed programme. This is a dilemma…"

The participant 26 said "…to do all these things in class needs a preparation… About one hour is enough for a grade's lesson plan, collecting materials from the internet and rearranging them… Of course, I see these things as a workload…"

Table 9

Challenges

THEME	CODES	NUMBER OF PARTICIPANTS
	USB Key malfunction	2
	Calibration	4
	Viruses	19
Challenges	Restricted internet access	46
	Installation and removal of required programs	3
	Preliminary work	38

Benefits of IWB

According to the participants, IWB makes their lessons more tangible. Most of the participants agreed that IWB added different dimensions to their lessons. Some of the participants stressed that IWB saves their time. According to some of the participants, IWB gave the pace of their lessons. Most of the teachers said that IWB facilitated their lecture and attracted their students' attention. Some of the participants told that to get students to participate in the lesson was easier through the IWB. In table 10, codes which are about benefits of IWB are shown.

The participant 17 said "Without it (IWB) it was really hard. At least I don't need to write all the things to the board… They are ready in my flash disk… This accelerated my lesson's pace."

The participant 28 said "…Actually, it saved and saves me time. I no longer prepare extra lessons. … I apply my ready materials in the lesson…"

The participant 8 said "Touching the smart board is the signal flare for students. Suddenly they become quiet and wait to see what is going to happen… Watching a video or listening to something is enough for them to want to join the lesson…"

The participant 33 said, "…when students watch the chemical reactions and see the changes in atoms, they can understand reactions and their consequences more easily…"

The participant 27 said, "…the best thing the IWB do is the visualisation of the lesson…"

The participant 10 said, "The IWB provides visual and auditory satisfaction to the students."

The participant 26 said "…telling something is not enough… My students can't shape the thing. They need to feel it. I have to show, to get students to listen to, or they need to touch. …All these dimensions are crucial…"

The participant 18 said "… Without listening to an English voice or watching a movie in English, learning English resembles a body without a head. When the students listen to a conversation, they are curious about what the conversation about… The students want to see their behaviours (people speaking in conversation). After that, they want to participate in the lesson and share their thoughts more sincere…"

The participant 42 said "... I have bought a remote to control for the smartboard. If I present the topic in my lesson, I sit near to my students and tell the topic among them via the remote…"

The participant 7 said "…the written things are not easy to learn. Different videos, visuals or voices make the lesson very catchy. The IWB brings the other worlds to the classroom…"

The participant 23 said "… While learning the folk literature writers or poets, I open YouTube and I get my students to listen to for example Aşık Veysel, etc… That makes them very happy and that makes my job easier…"

The participant 46 said " …this generation is addicted to the technology. While I am explaining something, they try to deal with something different (for low profile students). But ıf they watch something on the board, they all focus on the topic... I think that situation derives from their tablet PC habits…"

The participant 14 said " … If I am not ready a lesson and don't want my students to behave badly, I open the board (IWB) and choose a movie from my flash disk…"

The participant 39 said " … Writing and drawing the questions to the board takes really too much time. To shorten this process, I use IWB. I open word or pdf files and solve the problems on IWB…"

The participant 56 said "… I cannot spend most of my time with the board. I should always watch my students. Pre-ready materials are really effective in my teaching. While I am

taking care of my two students, I open the needed material or video, whatever it is needed at that time. Sometimes videos, pictures or materials on the IWB gives a more effective explanation for the topic."

The participant 32 said "…I access the internet through my mobile phone and open YouTube. I get my students to listen to popular English songs… They really like to watch and listen to English songs. They want to sing the song while they are listening to it. With the help of IWB, they want to participate in the lesson…They want real life stuff…"

The participant 48 said "… Telling the subject is effective to some extent. But, for example, watching a movie about our Independence war gives all the important points and emotions. I don't need to tell hours and hours how important Independence War is…"

Table 10

Benefits Of IWB

THEME	CODES	NUMBER OF PARTICIPANTS
Benefits of IWB	Raising students' participation in the lesson	14
	Generate excitement	11
	Draw students attention	17
	Increasing the tempo of the lesson	14
	Making easy the teaching process	16
	Making easy focusing a subject	11
	Prevent misbehaviours	3
	Visualize the lesson	17
	Saving time	17

Enhancing IWB use in class

IWB is an active material for the class. As long as it is used, some developments and wishes for IWB are inevitable. The wishes about IWB are shown in table 11 shortly. According to the participants, EBA is needed to vary its content, restrictions about the Internet should be solved, essential software programmes either are needed to improve or should be bought for schools, in-service training programs should be subject-focused and target the pedagogical usage of the IWB.

The participant 11 said "… At university, we have learned "Geogebra". (ıt is a kind of mathematical software programme used for drawing mathematical figures and writing

mathematical terms.) But it is an expensive programme. The MoNE should buy it and make it free for the teachers…"

The participant 16 said "… I think giving pedagogical education to teachers should not be a big deal. If you have competent people force, they can give that education. No matter how hard a job is this, the MoNE should find a way to teach how to use IWB to the teachers…"

The participant 28 said "…We cannot think the IWB and EBA separately. If MoNE pays some price for the valuable materials on EBA like YouTube, I think every teacher will share their works."

The participant 2 said "… I searched the net for a smart pen which is compatible with the IWB but I couldn't find. People use this technology while controlling their TVs. With the pen maybe controlling the IWB can become easy. Teacher remote it while strolling around the class…"

The participant 33 said "…YouTube is the largest source of videos. But I don't know why. Our ministry restricts its access… …Maybe our ministry can give the teachers flash disks which have a key in them for accessing the unrestricted Internet…"

The participant 30 said " …. Sometimes it is really hard to integrate the IWB to my lesson. My lesson content is not always appropriate for IWB… In-service training should show us how to integrate IWB to our lessons…"

The participant 41 said, "The MoNE should trust its own teachers and find a way to surpass the internet restriction…"

The participant 49 said "If we liken the IWB to a computer, it is not difficult to use it. Everybody has its own PC. But we need to learn subject-specific use of the IWB. Pedagogical use of the board is much more important…"

The participant 21 said "…I want to use the EBA. But it is not enough for me to prepare a lesson or to teach a subject inclusively. The ministry should hire material developers or found a unit to prepare materials for EBA…"

The participant 31 said "I took the in-service training. Let me tell you something. It was useless. I have already known how to use the device. I need materials which are ready for my lesson. I need to know how to use it in my lesson. Trainers are like parrots. They say that you have to figure it out. If I do that, then what is their work? I think nobody knows how to use the board in class adequately…"

The participant 4 said "…I need an application which can be controlled by our mobile phones through the wireless network of the school to control the board"

The participant 24 said "…For my lesson, I need interactive programmes. Watching, listening and touching all are essential for learning. Software developers should write more interactive programmes. Especially games… If I were a student, I would want to play games on that big screen…"

The participant 42 said, " I wish there was a game that simulated the battles especially the Independence War with its all map…"

The participant 22 said "… state course books should be compatible with the IWB.."

The participant 55 said "… I don't know how but our lesson subject and curriculum have to be digitalised. While our curriculum and lesson materials provided by MoNE stay in a paper-based system, we are trying to use IWB.

The participant 45 said " I cannot use full functions of the Microsoft PowerPoint. We have only viewer (Microsoft office Viewer). You can show your presentation but cannot watch a video clip or drag-drop exercise…"

Table 11

Enhancing IWB Use In Class

THEME	CODES	NUMBER OF PARTICIPANTS
	Resources should be increased	11
	Unrestricted Internet should be provided	46
Enhancing IWB use in class	Interactive packaged software should be developed	6
	Training should be more pedagogical use of IWB	11
	Required licenced programmes should be provided	4

Chapter 5: Discussion, Conclusions and Recommendations

This study's primary aim is to ascertain teachers' opinions about IWB on classroom use. The researcher used a semi-structured interview to obtain teachers' opinions. The participants were selected from middle and high schools in Yenice County. Unfortunately, primary schools didn't have the IWB in their classes at the time of the study. All participants selected from middle and high schools' teachers and only volunteer teachers' data were used for the study. In this study, 56 participants were interviewed and 17 branches were represented. 35 of 56 participants were working in Middle school and 21 of 56 participants were working in High School. Under the main question, 7 sub-questions were asked in the interviews.

In this chapter, related to study queries about teachers' opinions on IWB classroom use, the findings of the study were and literature were compared to put a perspective on this subject for readers. Lastly, recommendations for policy-makers and further researches were expressed.

Comparing the Findings with Literature

Teachers' attitude toward IWB. In the findings of the study, no teacher showed a negative manner or told a negative word towards the IWB. From that point, it can be concluded that teachers have a positive attitude towards the IWB. This result resembles the results of the Balta and Duran (2015) and Thomas (2014) studies.

Teachers' predisposition to ICT. Almost every participant in the study has a computer and an internet connection at home. And no participant mentioned the difficulties of using the IWB in class in terms of technology. This result is the same as Akcaoğlu et al. (2015), Nhete et al. (2016), Tatlı & Kılıç (2016) and Tondeur et al. (2013) studies. In harmony with that result, reaching the materials for lessons through the internet is another way of showing teachers predisposition to ICT.

In-service training. As stated in earlier studies (Akcaoğlu et al., 2015; Glover Miller, 2001; Lai, 2010) subject-specific training programmes and training for teachers' particular

needs are very important. But in this research, no teacher mentioned subject-specific in-service training or in-service training for their particular needs. Also, this situation shows that as stated in Akçaoğlu et al. (2015) study in-service training was comprised of technical issues. Pedagogical issues were ignored.

Another important point is that the delivered in-service training was not coherent with the facts of real life. Given distance courses were about Tablet PCs and virtual class environment. But in reality, MoNE has changed its Tablet PC policy. And Tablet PCs are no longer on the education agenda. ("Onursal Adıgüzel: Bakanlık'a Göre Fatih Projesi'nde Başarısızlık Söz Konusu Değil", 2018, as cited in Milli Eğitim Bakanlığı Strateji Geliştirme Başkanlığı, 2018).

As stated in Reedy (2008) study, to use the technology in a proper way, in-service training is essential. And to be aware and use the features of IWB, in-service training is crucial. But considering the presentational use of the IWB, the trainings were not efficient to reveal desired interactive use. Akçaoğlu et al. (2015) study indicate the same direction with that finding.

Lastly, approximately %40 of the participants didn't take in-service training. We can estimate the situation of %40 of classrooms in Yenice County that most probably teachers can only use the IWB as projection. This situation is a major shortcoming.

Challenges. Finding sources for preparing lessons is very crucial for teachers. Most of the teachers who participated in this study find the materials through the internet. Some of them use social media and some of the teachers use EBA. Although teachers stated that they use EBA for materials, these materials are generally limited to the pdf version of the state textbook. E-content provided by FATIH project, as stated in Altın & Kalelioğlu (2015), Banoğlu et al. (2014) and Pamuk et al. (2013)'s studies, can be interpreted as insufficient.

The IWB has various benefits as well as some difficulties. In Vainoryte & Zygaitiene (2015) study it is shown that teachers see the producing methodical materials and preparation need before class as workload. In harmony with that most of the teachers who participated in this study mentioned preliminary preparation. And they see that situation as a workload on their shoulders.

In the technical problem part of IWB viruses and restricted internet access comes up. These findings are similar to Gülcü (2014) and Keleş & Turan (2015)'s studies. Also, Al-Faki & Khamis (2014) and Karakuş & Karakuş (2017)'s studies stressed those points. In addition to that, some of the participants in the study complaint about software programs. In the IWB most of the software programs which the participant talked about were not full version and most of the programs did not have the interactive features in the time of the study. That situation is compatible with Glover & Miller (2001)'s study's results.

Benefits of IWB. According to the participants of the study, IWB helps teachers to catch their students' attention and to raise their students' excitement. Elaziz (2008), Gürsul & Tozmaz (2010), Jang & Tsai (2012), Murat (2016), Nhete et al. (2016) and Vainoryte & Zygaitiene (2015)'s studies are compatible with those findings.

In this study, it is revealed that according to participant teachers, the IWB quickens the pace of the lesson. The participants do not lose time to write the things on the board or to explain how to do something which related to the subject or the exercise at some situation with the help of IWB and using pre-prepared materials in class. Elaziz (2008) and Karakuş & Karakuş (2017) studies show the same results.

In Daşdemir et al. (2012) study, the addition of other electronic devices is seen as a benefit. But in this study almost no teacher mentioned electronic devices to connect the board. Only a few teachers stated that they used mouse for remote control.

Teachers' IWB use. Most of the teachers in this study use the IWB as a presentational tool. Most of the participants of the study use Microsoft Office programmes in their lessons, especially the Microsoft PowerPoint program. Glover & Miller (2001), Murat (2016) and Pamuk et al. (2013) studies show the same results. Using the IWB for presentational purposes shows that most of the teachers in this study use teacher-centred methodology in their class time. Akcaoğlu et al. (2015), Al-Faki & Khamis (2014), Bakadam & Asiri (2012), Gürsul & Tozmaz (2010), Murat (2016), Pamuk et al. (2013), Reedy (2008), Thomas (2014), and Wood & Ashfield (2008) studies are compatible with that result.

But it is obvious from the study that changing subject and changing materials which is used in IWB get teachers to switch their lesson from teacher-centered to student-centered environment. Gürsel & Tozmaz (2016) and Türkay (2016) studies support this consideration. To enhance the interactive feature of the IWB, the participants of this study generally use games, especially games in EBA. These findings correspond to Gürsul & Tozmaz (2010)'s study.

As it can be understood from the literature that IWB offers various features to use in class. In this study, most of the teachers preferred visual materials to teach a subject, especially videos which were mostly mentioned by teachers. That situation eased visual and aural students' learning. Wood & Ashfield (2008) study showed the same results.

In this study, no teacher mentioned about printing capability of the IWB. And no teacher talked about saving and storing materials, which were revealed in lecturing, to the IWB. Glover & Miller (2001) and Murat (2016) studies are compatible with those results.

In terms of branches, as it is shown in earlier studies (Gursul & Tozmaz, 2010; Tatli & Kiliç, 2016; Vainoryte & Zygaitiene, 2015), it can be interpreted that most foreign language teachers use audio and video features of the IWB. But this situation should not be construed as to be not used the same features by other branch teachers.

Students' IWB use. According to the findings of this study, educational purposes and entertainment purposes are two different types of use of students. For educational purposes, the teachers stated that students showed their works, especially their presentations, searched information which was related to their topics and used the IWB for solving problems on the IWB. For entertainment purposes, teachers stated that when they had spare time at the end of the lesson students wanted to play games which were related their subject, watch movies, listen to music and dance, draw pictures which were irrelevant their topics of them on IWB. These findings are compatible with Elaziz (2008) study.

Using for presentational purposes and mostly playing games on IWB cannot be seen as an interactive use. As stated in Comi et al. (2017) and Glover et al. (2007), students need the training to learn critical learning skills to distinguish relevant and irrelevant subjects and to partake in a problematic way.

Conclusion

As it is understood from the participants' words that IWB system is not brought into use in educational settings within a curriculum. Teachers' education materials provided by the MoNE are not compatible with IWB. And there is no direct connection stated in curriculums of lessons between the materials which can be used on IWB and EBA. According to Abduhmaid (2014) without enough thinking from an educational perspective and arranging the integration with the systemic approach to procure intended educational outcomes, policymakers should not incorporate IWB into instructional settings.

Comparing to Somyurek et al. (2009)' study findings, it can be understood that some improvements have been made. Internet infrastructure has installed in most of the participant school. Nearly every class in schools are provided with IWB. EBA usage has been steadily increasing, albeit slowly.

Recommendations

  Recommendations for policy-makers. To enhance the use of the IWB, the participants of the study concluded that resources that delivering through EBA should be increased, either unrestricted internet should be provided or somehow maybe via USB flash disks unrestricted internet should be delivered under teachers' supervision, interactive packaged software should be developed, in-service training should be more pedagogical use of IWB and required licenced programmes should be provided.

  Recommendations for future research. This study was conducted with 56 participants via a semi-structured interview. This study showed the narrow side of the full aspect. For further studies, researchers should insert more participants and more different schools to obtain a wider range of thought about the use of IWB and to cover all the aspects of the topics, use mixed research design and make use of multiple instruments in their studies.

  As it can be understood that this study showed the cross-sectional part of the issue. To fully understand the teachers' thoughts about the IWB longitudinal study should be conducted. Moreover, the studies on IWB should be subject-specific.

  Outcomes of the study show the deficient side of the IWB use in the educational setting. To help this technological development to integrate the classroom use, researchers should study on curricula compatible with the subjects. As an inseparable whole EBA should be studied on subject-specific materials. And closely associated with these matters, in-service training should be studied how pedagogical use of IWB in the context of subjects can be.

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Appendices

Appendix A: Consent Form

Gönüllü Katılım Formu

Tez Adı: Etkileşimli Tahta Kullanan Öğretmenlerin Sınıf Kullanımına İlişkin Görüşleri

Tezin Amacı: Öğretmenlerin derslerinde etkileşimli tahtayı nasıl kullandıkları, öğrencilerinin nasıl kullandıkları, kullanımları esnasında karşılaştıkları güçlükler ve etkileşimli tahta kullanımının geliştirilmesi için önerileri ortaya çıkarmaktır.

Tez Türü: Yüksek Lisans

Araştırmacının Adı: Eyyub Melikşah ALPARSLAN

Araştırmacının Bağlı Olduğu Kurum: Çanakkale Onsekiz Mart Üniversitesi

Bu belgenin amacı, Çanakkale Onsekiz Mart Üniversitesi'nde öğrenci olarak bulunan Eyyub Melikşah ALPARSLAN tarafından yürütülen tez çalışmasına katılım şartlarını belirtmektir.

1- Yukarıda amacı belirtilen çalışmaya ait gönüllü katılım formunu dikkatli bir şekilde okuduğumu beyan ederim.

2- Çalışmaya katılımın gönüllülük esasına dayalı olduğunu ve sebep belirtmeksizin, istediğim zaman çalışmadan ayrılabileceğim konusunda özgür olduğumu anladım.

3- Araştırmadan türeyen herhangi bir yayında katılımcıların takma adlarla ifade edileceklerini anladım.

4- Bu çalışmada araştırmacı tarafından veri kaydı amacıyla ses kayıt cihazı kullanılacağını ve sesimin kaydedileceğini biliyorum ve buna izin veriyorum.

5- Sorulardan istemediğime cevap vermeme hakkına sahip olduğumu biliyorum.

Katılımcının Adı Soyadı

....

Tarih

......../......./.......

İmza

....

Appendix B: Teachers' Semi-structured Interview Questions

Teachers' Semi-structured Interview Questions

Personal info

Gender:

Branch:

Seniority:

School Type:

Main question: What are opinions of teachers using Interactive Whiteboards on classroom use?

Sub-question 1: How did teachers' experience start on IWB?

Sub-question 2: How do teacher use the IWB in the classroom?

Sub-question 3: How do teachers' students use the IWB in the classroom?

Sub-question 4: How do teachers reach the sources related to IWB?

Sub-question 5: What sort of challenges do teachers experience while using the IWB?

Sub-question 6: What sort of benefits do teachers experience on IWB?

Sub-question 7: What can be done to improve the effectiveness of the IWB?

Appendix C: Research Permission

T.C.
ÇANAKKALE ONSEKİZ MART ÜNİVERSİTESİ REKTÖRLÜĞÜ
ÖĞRENCİ İŞLERİ DAİRE BAŞKANLIĞI

Sayı   : 93130991-044-E.61570   22.05.2017
Konu   : Anket Çalışmaları

EĞİTİM BİLİMLERİ ENSTİTÜSÜ MÜDÜRLÜĞÜNE

İlgi   : a) 25.04.2017 tarihli ve 33813216-044-E.50186 sayılı yazınız.
             b) 25.04.2017 tarihli ve 33813216-044-E.50190 sayılı yazınız.
             c) 03.05.2017 tarihli ve 33813216-044-E.53826 sayılı yazınız.
             ç) 08.05.2017 tarihli ve 33813216-044-E.56015 sayılı yazınız.
             d) 09.05.2017 tarihli ve 33813216-044-E.56727 sayılı yazınız.

Enstitünüz öğrencileri Eyyüb Melikşah ALPARSLAN, Seda KÖSEM, Koray YÜKSEL ve Büşra AKGÜL ile ilgili Çanakkale Valiliği İl Milli Eğitim Müdürlüğünün 17.05.2017 tarih ve 60305806-44-E.7155599 sayılı yazısı ekte gönderilmektedir.

Bilgilerinize arz ederim.

                                                                     e-imzalıdır

                                                                     Sami YILMAZ
                                                                     Genel Sekreter

Ek : Dosya (34 sayfa)

Not: 5070 sayılı elektronik imza kanunu gereği bu belge elektronik imza ile imzalanmıştır.

Terzioğlu Yerleşkesi Rektörlük Binası B Blok Zemin Kat   Bilgi için:Hülya ULAŞ
2862180018   Bilgisayar İşletmeni
                                                                Telefon No:(286) 218 00 18-1073

18 Mayıs 2017 = 17352

T.C.
ÇANAKKALE VALİLİĞİ
İl Millî Eğitim Müdürlüğü

Sayı : 60305806-44-E.7155599   17.05.2017
Konu : Anket Çalışmaları

ÇANAKKALE ONSEKİZ MART ÜNİVERSİTESİ REKTÖRLÜĞÜNE
(Öğrenci İşleri Daire Başkanlığı)

İlgi : a) 27/04/2017 tarihli ve 51710 sayılı yazınız.
        b) 27/04/2017 tarihli ve 51696 sayılı yazınız.
        c) 10/05/2017 tarihli ve 57536 sayılı yazınız.
        d) 05/05/2017 tarihli ve 55660 sayılı yazınız.
        e) 10/05/2017 tarihli ve 57090 sayılı yazınız.

Üniversiteniz öğrencileri Eyyüb Melikşah ALPARSLAN, Seda KÖSEM, Koray YÜKSEL ve Büşra AKGÜL tarafından yapılması düşünülen anket çalışmaları ile ilgili alınan Makam Onayları, Komisyon Raporları ve Mühürlü Anket Formları yazımız ekinde sunulmuştur.

Bilgilerinize arz ederim.

Osman ÖZKAN
Millî Eğitim Müdürü

Ek :
1- Makam Onayı (5 sayfa)
2- Komisyon Raporları (5 sayfa)
3- Mühürlü Form (21 sayfa)

Leyla GÜLEÇ
Şef

Milli Eğitim Müdürlüğü Valilik Binası 3. Kat   Ayrıntılı bilgi için: Özgür AYDIN
Elektronik Ağ: stratejigelistirme17@meb.gov.tr   Tel: 0286 217 11 35-117

T.C.
ÇANAKKALE VALİLİĞİ
İl Millî Eğitim Müdürlüğü

Sayı : 60305806-44-E.7070827

16.05.2017

Konu: Anket Çalışması

MİLLÎ EĞİTİM MÜDÜRLÜĞÜNE
ÇANAKKALE

İlgi : Çanakkale Onsekiz Mart Üniversitesi Rektörlüğü Öğrenci İşleri Daire Başkanlığının 10/05/2017 tarihli ve 57090 sayılı yazısı.

Çanakkale Onsekiz Mart Üniversitesi Eğitim Bilimleri Enstitüsü Eğitim Bilimleri Anabilim Dalı Eğitim Programları ve Öğretim Bilim Dalı Yüksek Lisans Programı Öğrencisi Eyyüb Melikşah ALPARSLAN tarafından "Öğretmenlerin Etkileşimli Tahta Kullanımı İle İlgili Görüşleri: Bir Durum Çalışması" konulu tez çalışması kapsamında, 09/10/2017 - 01/12/2017 tarihleri arasında, ekte adı geçen okullarda görev yapan idareci ve öğretmenlere yönelik görüşme çalışması yapılma isteği ilgi yazısıyla teklif edilmekte olup, Müdürlüğümüz Anket-Araştırma İnceleme Komisyonunca incelenerek uygun görülmüştür.

Makamlarınızca da uygun görüldüğü takdirde, Olurlarınıza arz ederim.

Erdal DOĞANCI
Müdür Yardımcısı

OLUR
16.05.2017

Osman ÖZKAN
Millî Eğitim Müdürü

Ek :
1-Komisyon Raporu (1sayfa)
2-Okul Listesi (1 sayfa)

Milli Eğitim Müdürlüğü Valilik Binası 3. Kat
Elektronik Ağ: stratejigelistirme17@meb.gov.tr

Ayrıntılı bilgi için: Özgür AYDIN
Tel: 0286 217 11 35-117

Bu evrak güvenli elektronik imza ile imzalanmıştır. http://evraksorgu.meb.gov.tr adresinden 34d9-1bf0-3fd7-aa42-46e1 kodu ile teyit edilebilir.

T.C.
MİLLİ EĞİTİM BAKANLIĞI

ARAŞTIRMA DEĞERLENDİRME FORMU

ARAŞTIRMA SAHİBİNİN	
Adı Soyadı	Eyyüb Melikşah ALPASLAN
Kurumu / Üniversitesi	Çanakkale Onsekiz Mart Üniversitesi
Araştırma yapılacak iller/ilçeler	Çanakkale Yenice
Araştırma yapılacak eğitim kurumu ve kademesi	Ortaokul, Lise
Araştırmanın konusu	"Öğretmenlerin Etkileşimli Tahta Kullanımı İle İlgili Görüşleri: Bir Durum Çalışması"
Üniversite / Kurum Onayı	Var
Araştırma/Proje/Ödev/Tez Önerisi	Tez Çalışması
Veri Toplama Araçları	Görüşme Formu
Görüş İstenilecek Birim/Birimler	İdareci ve Öğretmenler
KOMİSYON GÖRÜŞÜ	
	UYGUNDUR
Komisyon Kararı	Oybirliği ile alınmıştır.
Muhalif Üyenin Adı ve Soyadı:	

15/05/2017

Komisyon Başkanı
Erdal DOĞANCI

KOMİSYON

Üye
Seçil YÜKSEL

Üye
Ergün KAYA

Tez Çalışması Kapsamında Araştırma Yapılacak Okulların Listesi

"Öğretmenlerin etkileşimli tahta kullanımı ile ilgili görüşleri: Bir durum çalışması" adlı tez çalışması kapsamında Çanakkale ilinin Yenice ilçesinde bulunan aşağıda isimleri tablo içerisinde yazılı okullar araştırma yapılmak istenen okullardır.

YENİCE İLÇESİNDE BULUNAN	
ORTAOKULLAR	LİSELER
Akçakoyun Yatılı Bölge Ortaokulu	Hamdibey Çok Programlı Anadolu Lisesi
Çal Ortaokulu	Kalkım Çok Programlı Anadolu Lisesi
Gündoğdu Nevzat Duman Ortaokulu	Reyan Bodur Anadolu Lisesi
Kalkım Ortaokulu	Mehmet Bodur Anadolu İmam Hatip Lisesi
Pazarköy Şehit Halil Kandemir Ortaokulu	Yenice Mesleki ve Teknik Eğitim Merkezi
Hamdibey Ortaokulu	
Atatürk Ortaokulu	
Cumhuriyet Ortaokulu	
Yenice İmam Hatip Ortaokulu	
Yeşilyurt Ortaokulu	

Eyyub meliksah ALPARSLAN
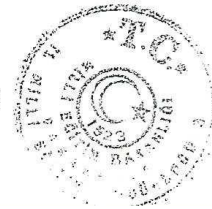
Kyriakou ve Higgins'in (2016) çalışmasına göre etkileşimli tahta kullanımı, öğretilecek konu, öğrencilerin yaşı ve kullanım amacına göre değişmektedir (p.270). Bu açıdan bakıldığında Wood ve Ashfield'ın (2008) araştırmasına göre, gözlemler göstermiştir ki, yaratıcı öğretme ve öğrenme, öğretmenlerin program ve kullanım tercihlerinden etkilenmektedir. Jewitt ve arkadaşlarının (2007) çalışmasına göre sınıfta kullanılan metnin akışı, etkileşimi ve çok yönlülüğü dersin amacına göre düzenlenmelidir. Ve etkileşimli tahtanın bu üç özelliği uyumlu bir şekilde dikkate alınmalıdır.

Somyürek, Atasoy ve Özdemir'in (2009) çalışmasına göre etkileşimli tahtanın sınıf kullanımına entegrasyonu, hizmet içi eğitim, teknik ve yazılım desteği, öğretim programının gözden geçirilmesini ve yönetimsel konuları gerektirmektedir. Bunlardan herhangi birinin olamaması durumda entegrasyon işlemi başarılmış olmamaktadır (p. 370,371,372,373)

ARAŞTIRMA SORULARI / HİPOTEZLER :

1- Öğretmenlerin etkileşimli tahta ile olan tecrübeleri nasıl başlamaktadır?

2- Öğretmenler sınıfta etkileşimli tahtayı nasıl kullanmaktadırlar?

3- Öğretmenler etkileşimli tahtayı kullanırken öğrencileri nasıl kullanmalarını istemektedirler?

4- Öğrenciler derste etkileşimli tahtayı nasıl kullanmaktadırlar?

5- Öğretmenler etkileşimli tahta ile ilgili kaynaklara nasıl ulaşmaktadırlar?

6- Öğretmenlerin etkileşimli tahta kullanırken karşılaştıkları zorluklar nelerdir?

7- Öğretmenlere göre etkileşimli tahtanın derslerine olan etkisi nasıldır?

8- Öğretmenlere göre etkileşimli tahtanın dersleri açısından etkinliğini arttırmak için neler yapılabilir?

YÖNTEM : Bu çalışma nitel araştırma olarak yapılacaktır. Araştırmanın deseni durum çalışmasıdır. Bilgi toplamak için, yarı yapılandırılmış görüşme formu kullanılacaktır.

ARAŞTIRMA EVRENİ VE ÖRNEKLEM : Tez kapsamında, erişim kolaylığından ötürü Çanakkale ilinin Yenice ilçesinde bulunan liseler ve ortaokullar içerisindeki idareciler ve öğretmenler araştırmanın evrenini ve bu idareciler ve öğretmenler arasından araştırmaya katılmaya gönüllü olanlar araştırmanın örneklemini oluşturacaklardır.

YENİCE İLÇESİNDE BULUNAN	
ORTAOKULLAR	LİSELER
Akçakoyun Yatılı Bölge Ortaokulu	Hamdibey Çok Programlı Anadolu Lisesi
Çal Ortaokulu	Kalkım Çok Programlı Anadolu Lisesi
Gündoğdu Nevzat Duman Ortaokulu	Reyan Bodur Anadolu Lisesi
Kalkım Ortaokulu	Mehmet Bodur Anadolu İmam Hatip Lisesi
Pazarköy Şehit Halil Kandemir Ortaokulu	Yenice Mesleki ve Teknik Eğitim Merkezi
Hamdibey Ortaokulu	
Atatürk Ortaokulu	
Cumhuriyet Ortaokulu	
Yenice İmam Hatip Ortaokulu	

Eyyub Melih ALPARSAN
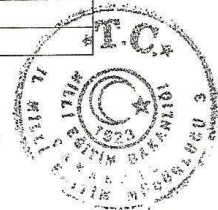
CURRICULUM VITAE

PERSONAL INFORMATION

Surname, Name: Alparslan, Eyyub Melikşah

Date of Birth: 11/11/1987

Date of Place: Manisa

EDUCATION

Bachelor Degree: Marmara University, English Language Teaching (2009)

Master Degree: Çanakkale Onsekiz Mart University, Curriculum and Instruction

SCIENTIFIC WORK EXPERIENCE

TEACHERS' OPINIONS ON INTERACTIVE WHITE BOARD AND ITS USE: A CASE STUDY Ss, 1778-1797 Doi Number :10.7884/teke.3906

Eyyub Melikşah ALPARSLAN - Mehmet Ali İÇBAY

WORK EXPERIENCE

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