THE EFFECTS OF INTERACTIVE WHITEBOARDS (IWB) ON HIGH SCHOOL STUDENTS' MOTIVATION AND SUCCESS IN TURKISH EFL CONTEXT

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ABSTRACT

With the advent of Information and Communication Technologies (ICT) in recent years, countries have started to integrate technology into their curricula. Turkey has also launched various projects to catch up with the latest developments in the educational field. To this end, almost all high school classrooms have been equipped with Interactive Whiteboards (IWB). It has been reported in various studies that IWBs can promote interaction among students and provide them with more engaging activities. This study aims to find out the effects of IWBs on EFL students' motivation and success in a state high school in Turkey. 46 high school students who were taking compulsory English courses participated in the study. Comparing traditional and IWB-furnished classes, the study revealed that the students who were instructed in IWB-furnished classes achieved better than those who had traditional instruction without IWB. It was also found that the students in IWB-furnished classes were more motivated and active in English courses.
Keywords: ICT, Interactive Whiteboards, motivation, EFL students

INTRODUCTION

Recent technological developments in the realm of education have inevitably affected the whole classroom practices including techniques, methods, implementations, activities, and so on. Interactive Whiteboards (henceforth IWB) can be regarded as one of the most noticeable change with regard to the latest developments in educational technology. IWBs are devices which have large touch-sensitive screens connected to a computer enabling teachers to display the desktop of a computer. They were primarily developed for office use, but later they took place in the classrooms for learning purposes (Greiffenhagen, 2002). They were first introduced into classrooms in early 2000. They have lots of pedagogical functions in the classrooms. For instance, teachers who use IWBs can easily write, overwrite, underline, highlight, zoom in and out, and save everything on the board during the class. In addition, IWBs make it possible to bring wide range of sources from the web to the service of students.

IWBs help language teachers in various ways. Sharma (2012) discusses why language teachers can prefer IWBs in their classes. First of all, IWBs present digital resources making use of various visuals, audio, graphics, videos, animations, and so on. They also enable teachers to practise language skills in a more interactive and practical way. Reading and writing activities can be supported with lots of pictures, drawings, and animations. Listening and speaking activities can be enriched through movies, cartoons, TV reports, and live telecast. Sharman (2012) also states that maps, encyclopaedias, dictionaries, etc., can be used on the spot through Internet access. It is also highlighted that grammar-based games impact a lot rather than simple exercises in the book. Increasing peer activity, engaging all students, fascinating them and drawing their attention, and encouraging their participation in learning activities can be considered among the advantages of

IWBs as well. Yáñez and Coyle (2010) focus on versatility of activities IWBs offer in the classroom. In their small-scale study, they try to find out the perceptions of children learning in IWB-furnished classrooms. Considering different needs and abilities within the same class, IWBs can turn out advantageous tools enabling teachers to address to different learning styles (Yáñez and Coyle, 2010). Similarly, Öz (2014) focuses on the IWBs-related perceptions of students and teachers in the English as a foreign language (EFL) classroom in Turkey. The findings reveal that both students and teachers have positive perceptions towards IWBs. No significant difference is reported with regard to teachers' gender and years of experience. In addition, female and male students do not have any significantly different perceptions regarding IWBs either.

When the current literature is examined regarding IWB use and its effects, it is obvious that IWB-furnished classes have already proved their superiority over the traditional ones without IWB. Almost all of the studies revealed similar findings in favour of IWB use. The studies (Beeland, 2002; Levy, 2002; Hwang et al., 2006; Amolo and Dees, 2007; Morgan, 2008; Somyürek et al., 2009; Mathews-Aydinli and Elaziz, 2010; Tataroglu and Erduran, 2010; Rajabi & Khodabakhshzadeh, 2015; Altun, 2016; Ahmad, Ali, Sipra, & Taj, 2017) were conducted in various contexts (from primary to tertiary level) with different subject groups. In addition to these studies focusing on the effects of IWBs on students' perceptions and attitudes, some studies (Türel, 2011; Rajabi & Khodabakhshzadeh; Ahmad, Ali, Sipra, & Taj, 2017) aim to develop a valid and reliable interactive whiteboard student survey or to find out motivational effects of IWBs. However, there are few studies investigating the effects of IWBs on students' achievement and motivation. For example, Altun's (2016) study investigated the effect of interactive whiteboard in the language classroom and revealed that students in IWBs-furnished classrooms were more successful than those without IWBs. Swan, Schenker and Kratcoski's (2008) study revealed similar results. Likewise, Ahmad, Ali, Sipra and Taj (2017) investigated the impact of IWBs on preparatory year EFL learners' motivation at a Saudi university. The study revealed that there was significant difference between the experimental and control groups in terms of motivation. Rajabi and Khodabakhshzadeh (2015) found similar results. Their study indicated that IWBs significantly improved participants' reading comprehension and their intrinsic motivation to read.

The current study aims to find out the effects of IWBs on high school students' achievements and motivation in EFL context in Turkey. The study is important in that the subject group is vocational and technical high school students and their level of motivation in EFL classes is usually not so high. Therefore, whether integration of IWBs into these EFL classes works or not may yield significant findings as to achievement and motivation of the students. The study tries to find answers to the following research questions:

1. Does the integration of IWBs into EFL courses increase students' achievement?
2. What are the perceptions of students about IWBs?

METHODOLOGY

Research Design

The study employs mixed-method research design in which both qualitative and quantitative data are collected. As the quantitative model, true experimental design with a control group has been preferred. As Dörnyei (2007) points out, true experimental designs are intervention studies which are composed of the treatment or experimental group which takes special training, and the control group providing a baseline for comparison. In this regard, there is an experimental and a control group in this research. The reason for choosing true experimental design is that there

is random assignment of the subjects in the study. As for qualitative model, semi-structured interview has been used to collect data regarding students' perceptions about IWBs in the experimental group.

Participants

The experimental group consisted of 22 ninth grade students, while there were 24 students in the control group. The groups were randomly selected for the study. Their language level was determined to be A1 (Breakthrough level according to the Common European Framework of Reference for Languages-CEFR) through a proficiency test given in the beginning of fall semester of 2016-2017 education season. Out of 46 students, 15 ones were female and they were 14 or 15 years old when the study was conducted.

Procedure

The study was conducted in the fall semester of 2016-2017 academic year with two groups of students. The first group was selected as the experimental group who were instructed in IWB-furnished classroom during the semester. The students were expected to attend six class hours of compulsory English course per week. All classroom activities, exercises, lectures, and so on were conveyed through IWB together with some supplementary materials prepared by two teachers of English. The second (control) group were instructed in a traditional classroom without an IWB during the semester. Both groups followed the same syllabus and coursebook which was recommended by the Ministry of Education of Turkey. Both groups of students were given the same exams prepared jointly by two teachers of English.

Data Collection and Analysis

Qualitative data were collected from the results of two exams given to both groups. The average grades of each student in both groups were entered to SPSS program. The independent samples t-test was calculated in order to find out whether there was a statistically significant difference between the groups. As for the qualitative data collection, semi-structured interview was conducted at the end of the semester. Ten students participated in the interview. Their responses with regard to IWB use in classroom were categorized and coded.

FINDINGS

Findings regarding students' achievement

The scores of the students in both groups with regard to two written exams are presented in Table 1 below;

Table 1. Written Exam Scores of the Students in the Experimental and Control Groups

Students	Experimental Group		Control Group	
	Written Exam 1	Written Exam 2	Written Exam 1	Written Exam 2
Student 1	55	37	30	54
Student 2	35	48	8	56
Student 3	40	6	32	50
Student 4	20	39	8	28
Student 5	16	25	40	52
Student 6	38	30	4	30
Student 7	50	35	24	32
Student 8	59	37	20	36

Student 9	72	66	40	50
Student 10	83	59	16	36
Student 11	90	86	28	72
Student 12	100	90	1	32
Student 13	36	38	62	35
Student 14	66	35	72	68
Student 15	90	68	28	52
Student 16	36	38	8	38
Student 17	33	15	52	51
Student 18	55	60	1	1
Student 19	67	54	56	84
Student 20	66	73	12	2
Student 21	36	35	8	40
Student 22	59	70	46	45
Student 23			34	40
Student 24			12	70

Two written exams scores of the students indicate that the students in the experimental group have relatively higher scores compared to the ones in the control group. The statistical analysis of the first written exam scores are presented in Table 2.

Table 2. Independent Samples t-test Statistics for the First Written Exam

Groups	**N**	**Mean**	**Std. Deviation**	**Sig.**
Experimental	22	54,63	23,10	,000
Control	24	26,75	20,27	

*p<0,05

It is obvious from Table 2 that the mean score of the students in the experimental group in the first written exam is considerably higher than the ones in the control group. Independent samples t-test analysis suggest that there is a statistically significant difference between two groups with regard to the first written exam results. It is interesting that the means of the second written exam scores of the groups are not so different from each other. Table 3 below shows the statistical analysis of the scores in the second exam.

Table 3. Independent Samples t-test Statistics for the Second Written Exam

Groups	**N**	**Mean**	**Std. Deviation**	**Sig.**
Experimental	22	47,45	21,89	**,579**
Control	24	43,91	19,51	

*p>0,05

Table 3 indicates that there is not statistically significant difference between two groups' scores in the second written exam. This may be attributed to the fact that the scope of the second written exam has covered the subjects in the first one with similar question types which the students have become familiar with. However, the average scores as analysed in Table 4 indicate that the difference in the mean scores is still far from each other. Therefore, it can be inferred that considering the average scores of both groups, there is a statistically significant difference between the scores of the students in the experimental and control groups.

Table 4. Independent Samples t-test Statistics for the Average Scores

Groups	N	Mean	Std. Deviation	Sig.
Experimental	22	51,04	21,26	,009
Control	24	35,33	17,39	

*p<0,05

Findings regarding students' perceptions

In the semi-structured interview, randomly selected ten students were expected to answer following three questions;

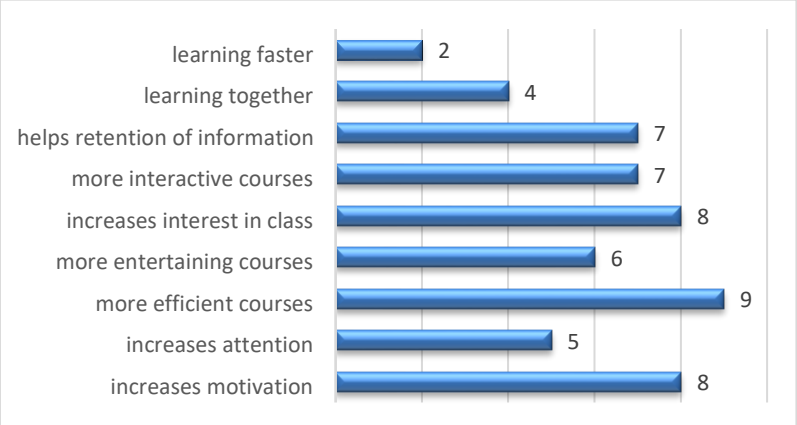
> Did you like using IWB in English courses during the year? Why? Why not?
> Do you think IWB has facilitated your learning? From what aspects?
> What are the most remarkable features/functions of IWB?

The responses from ten students were categorized and coded. The analyses of the responses to the first question regarding the students overall perceptions indicate that all students' answers were in favour of IWB use in English courses. Some of the responses of students are as follows;

> *ST1: I liked IWB very much, because we never got bored in the class.*
> *ST2: We really liked it. We always found something to do with IWB.*
> *ST3: I am sure all of my friends liked using IWB in English courses. First of all, it was more enjoyable than ordinary boards that makes the lessons monotonous. Second, it gives you a chance of saving everything what the teacher has written on. This is really amazing.*

The second question was about facilitating aspects of IWB. Almost all of the students provided positive responses to the question. The facilitating aspects the students stated are indicated in the following graph;

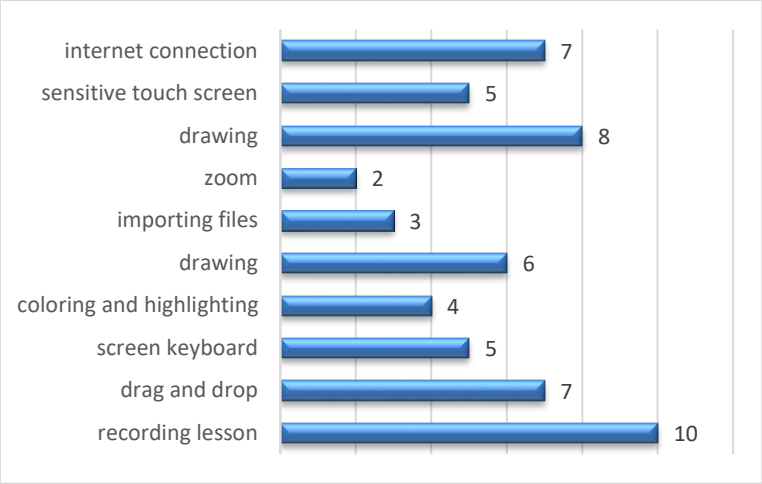
Graph 1. Pros of Using IWB in English Courses



As it is clear from Graph 1, almost all of the students (nine out of ten) found IWB-integrated courses more efficient. Eight students reported that IWB increased their interest and motivation towards English courses during the fall semester. In addition, the students stated that IWB drew their attention and they had more entertaining and interactive courses through IWB. They also reported that IWBs helped them learn faster together with their peers.

With regard to the third question in the interview about the most remarkable functions of IWBs, all of the students agreed that IWBs enabled teachers to record what they did during the whole course. Moreover, dragging, dropping, using screen keyboard, colouring, highlighting, drawing, and importing files were reported among the most remarkable functions of IWBs. The related graph indicating the frequency of students is presented in Graph 2 below:

Graph 2. Most Remarkable Functions of IWB



CONCLUSION AND SUGGESTIONS

This experimental study aimed to find out the effects of IWBs on high school students' achievements and motivation in EFL context in Turkey. Two groups of students in a vocational technical high school following the same syllabus and coursebook were assigned as the experimental and control groups. The experimental group was instructed in IWB-furnished classroom during the whole semester. All classroom activities based on the coursebook were conveyed through IWB. All functions of IWB such as audio, video, drawing, dragging, recording, and etc. were used. On the other hand, the control group was instructed in the classroom without IWB. The courses were based on the coursebook and coursebook-related activities led by the teacher. The students were given the same written exams prepared by the two teachers. The analysis of the average scores of the exams indicated that there was a statistically significant difference between two groups. It was found that the students in the experimental group were more successful than those in the control group. This difference may not be merely attributed to the use of IWB although the same coursebook, syllabus, and supplementary materials were used in both groups. However, as the semi-structured interview results showed, the effects of on the students' success cannot be ignored.

IWBs have some drawbacks as the other technological tools used in education. For instance, the teacher of the experimental group in this study observed that the students were more exciting and enthusiastic about IWB use at the beginning of the semester, however they started to lose their

interest towards the end of the semester. In addition, some technical problems such as no or slow internet connection affected the efficiency of IWB from time to time. It was also observed that students made much noise while using IWB, but it is thought that this proves students' involvement into learning to a great extent. Therefore, the noise problem can be tolerated.

The study revealed similar results with regard to the studies (Swan, Schenker and Kratcoski, 2008; Altun, 2016; Ahmad, Ali, Sipra and Taj, 2017) about IWBs and their effects on achievement and motivation. However, the study is different from the others in terms of the subject group and the EFL context it has been conveyed. The study is a small-scale research and limited to vocational technical high school students in Turkey. The findings of such a small-scale study cannot be generalized, but it is thought that it may give some strong hints about the effects of integration of IWBs into language learning.

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