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Teachers' Attitudes towards Interactive Whiteboard Technology and the Drawbacks of Using it in Primary School Classrooms

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Abstract

This study explored the attitudes of teachers towards the use of interactive whiteboards (IWBs) in primary school classrooms and the drawbacks of its use. A descriptive analytical approach was undertaken in this study. The total number of participants was 30 teachers in a private primary school in Damascus where interactive whiteboards were installed and actively operated by teachers in classrooms during the academic year 2016-2017. The instrument of the study was an attitude questionnaire. The SPSS statistical program was used to analyze the study data. The results of the questionnaire revealed that teachers had positive attitudes towards the use of this technology in instruction. The results also showed that teachers considered IWBs to be useful devices for enhancing the teaching and learning process and motivating students .

Furthermore, There were differences regarding the frequency of teachers' IWB use, teachers who frequently used an IWB had more positive attitudes towards using IWB. No differences were found regarding teachers' years of using IWB. The current study recommended that teachers need more training to learn how to resolve technical and system problems; they also need to understand how to use all the options offered by the IWBs.

Keywords: interactive whiteboard (IWB), attitudes, drawbacks, primary school

Introduction

The world of education is changing at a rapid speed, and much of that is due to advances in technology. We know that our students are knowledgeable about and comfortable with technology. They are exposed to it every day. They play games on the computer. They receive and send e-mails and they search for information on search engines. They work, play, and socialize online. However, Betcher and Lee (2009) report that the most commonly used tools in schools are still the pen, paper and teaching board as a superior piece of equipment used by teachers to enable them to teach in classrooms. As long as information technology continues to have an impact on education, there will be a great interest in using teaching boards which combine all the previous teaching aids like chalkboard, whiteboard, television, video, overhead projector, CD player, and computer in one. Interactive whiteboards (IWBs) are one of the technological mediums which have the ability to transform our classrooms, bringing actions, colour and variety to teaching and learning. Therefore, IWB can create possibilities for students to process information in their own way and further their learning instead of being suppressed to using only a specific way of learning defined by the traditional school environment. Although there are many benefits for IWB technology, it falls upon the teachers to use the positive features

of IWB and integrate them into their current teaching methodologies. Isman, Abanmy, Barakat, & Al Saadany (2012) argued that the most critical factor in improving teaching experience is the perception of the teacher. If the teacher sees that IWB can improve teaching and learning process, then there will be better learning rewards (Essig, 2011). A clearer understanding of the attitudes of teachers toward IWBs is needed in order to provide a basis for their pedagogical use. Consequently, the current study **searched** the issue of teachers' attitudes towards using interactive whiteboard .

1- Research problem

As the IWB is such a new addition to classroom and a new global phenomenon, there is a need to know more about the equipment and its use. The impacts of IWBs in classroom settings have been examined recently in a number of studies. These studies have concentrated on different sides of the technology in educational sittings including motivation, attitudes, pedagogical benefits, and technical issues related to the incorporation of IWB in classrooms (Wallace, 2007; Turel, & Johnson, 2012; Sweeney, 2013). In a study by Moss et al. (2007) it was discovered that both the teachers and learners in classrooms had generally favorable attitudes towards the use of the IWB technology. Similarly, the findings of a study by Matthews-Aydinli and Elaziz (2010) both

the students and teachers indicated positive attitudes towards the IWB technology .However, after extensive research done by the researcher, there is little said about IWBs in Syria. IWB technology is novel in Syria and schools are increasingly implementing it without considering teachers' attitudes or the difficulties that may face them. The best employment of interactive whiteboard calls for full awareness of the attitudes regarding teachers' employment of IWB technology (Isman et al., 2012). IWBs are increasingly introduced in schools and teachers are anticipated to invest them appropriately in their teaching with the expectation it will sustain their students learning. Teachers' perceptions regarding the new introduced technology clearly affect their employment. According to Levy (2002), increasing use of technology is correlated to teachers' acceptance and positive attitudes about the technology use. Thus, there is a real need for an investigation related to the attitudes and practices of teachers regarding the use of IWB in learning and teaching in Syria.

Some teachers are excited by this new piece of technology. They look forward to finding out what they can do with it, and how it can be used to enhance their teaching. Others wonder if they will ever get the effect of using it. There are also those who feel that it has nothing to offer that they cannot achieve in other ways. The

positive attitudes of the teacher towards the use of new technology in teaching was also found to play an important role in the implementation and success of the use of the Interactive Whiteboard and in turn led to the effective teaching and learning. The present study intended to shed light on teachers' attitudes towards interactive whiteboard as an innovative teaching tool and the obstacles they may face. So, the problem of the research can be summarized in the following question: What are teachers' attitudes towards IWB technology and the drawbacks of its use in primary school classrooms?

2–Significance of the Research

The research importance emerges from the following points:

- ▶ Investigating teachers' attitudes of the IWB use in the classroom would provide beneficial data and shed more light on the effective use of this technology.
- ▶ The findings of this study would lead governments, school administrators and teachers to make an assessment of the uses of this IWB technology installed in classrooms.
- ▶ Results regarding the drawbacks of IWB in this study may provide IWB manufacturers with feedback from actual users in order to design more efficient, functional and less problematic models for classroom settings.

3-Research Aims

The research aims at achieving the following:

- Exploring teachers' attitudes towards using IWB technology in classrooms.
- Investigating teachers' attitudes towards using IWB technology according to the following variables (the frequency of teachers' IWB use and years of using IWB)
- Investigating the drawbacks of IWB use.

4-Research Questions

The research tries to answer the following questions:

- What are teachers' attitudes towards using IWB technology in classrooms?
- Do teachers' attitudes of IWBs display differences according to their frequency of IWB use and years of using IWB ?
- What are the drawbacks of IWB use?

5-Research Hypotheses:

5-1- The Directional Hypothesis:

Primary school teachers have positive attitudes towards using IWB technology in their classrooms.

5-2-The Null Hypothesis

The following null hypotheses will be tested at the ($\alpha = 0.05$) level of significance.

5-2-1- There is no statistical significant mean scores difference in teachers' attitudes towards the IWB according to their frequency of IWB use .

5-2-2- There is no statistical significant mean scores difference in teachers' attitudes towards the IWB according to the years of using IWB.

6- Research Limitations

- Sample limitations

The research was restricted to teachers who actively operated IWB in their primary school classes. They were selected from various educational levels (from grade 1 to 6).

- Spatial limitations

The research was applied in a private primary school in Damascus:the Damascus Independent Academywhere IWBs are used as the main delivery medium in every classroom throughout the curriculum.

- Time Limitations

The study was carried out during the first semester of the academic year 2016-2017.

7- Research Methodology

A **descriptive** analytical approach was undertaken to investigate teachers' attitudes towards using IWB technology in primary school classrooms.

7-1-setting and participants

A total of 30 teachers (28 females and 2 males) form the purposeful sample who teach students through IWB in the private primary school : Damascus Independent Academy. The selected school was considered as pioneer in adopting new technologies among schools in Syria as well as of the first schools which installed IWBs in classrooms.

7-2-Research Instruments

The researcher used the following instrument:

- An attitude questionnaire designed by the researcher.

8-Operational Definitions of Terms

1-IWB:

The British Educational Communications and Technology Agency (BECTA) (2003) defines IWBs as follows:

An interactive whiteboard is a large, touch-sensitive board which is connected to a digital projector and a computer. The projector displays the image from the computer screen on the board. The computer can then be controlled by

touching the board, either directly or with a special pen. The potential applications are: using web-based resources in whole-class teaching, showing video clips to help explain concepts, presenting students' work to the rest of the classroom, creating digital flipcharts, manipulating text and practicing handwriting, and saving notes on the board for future use. (p.1)

Operationally:

IWB:

It is a piece of hardware connected to a computer and a projector in the classroom which includes a special software enabling the researcher to interact with images and text projected on the board: rearranging them, changing their size, colour and offers a much more interactive experience than using a standard whiteboard or using a data projector alone.

2- Attitudes:

An attitude is "a relatively enduring organization of beliefs, feelings, and behavioral tendencies towards socially significant objects, groups, events or symbols" (Hogg, & Vaughan 2005, p. 150).

Operationally:

Attitude:

It is a psychological tendency that is expressed by teachers towards using IWB in primary school classrooms with some degree of favor or disfavor.

3- Drawbacks:

It is defined according to the American Heritage Dictionary as " features that renders something less acceptable; the negative part of a situation" (AHD, 2016).

Operationally:

Drawbacks:

The obstacle and problems that primary school teachers had faced during their uses of the IWB in their classes.

4- Primary school:

It is defined according to the American Heritage Dictionary as " a school in which children receive primary or elementary education from the age of about five to twelve " (AHD, 2016).

Operationally:

Primary school:

a school for young children from grade one to grade 6.

9- Literature Review:

The researcher reviewed most of the published articles, theses, dissertations and conference proceedings relating to teachers'

attitudes towards using IWB technology in classrooms. The researcher reviewed literature in a chronological order starting with the oldest studies and ending with the up-to date ones.

1- Aytakin, AbdulAziz, Barakat & Abdelrahman, (2012):

Saudi Secondary School Teachers Attitudes' Towards Using Interactive Whiteboard in Classrooms

The research aims at investigating the Saudi Secondary school Teachers' Attitudes towards using Interactive Whiteboard in the classrooms. The research uses the Quasi- Experimental approach, with one group (100) teachers, and limited to the Secondary school Teachers that enrolled in the first semester of (2011/2012) academic year. The research uses Interactive Whiteboard Attitude Survey, observation skill card for using Interactive Whiteboard in the classrooms and structured interviews with students.

The results indicated that there were appositive attitude towards using Interactive Whiteboard. But a few number of teachers used the Interactive Whiteboard effectively in the classrooms. These results indicated that the teachers need a professional development program for effective using of Interactive Whiteboard to help them in improving their Teaching skills and the students learning.

2- Türel & Johnson, (2012):

Teachers' Belief and Use of Interactive Whiteboards for Teaching and Learning

this study aimed at investigating the perception of teachers and examining the actual usage and behaviors associated with promising IWB features in practical settings. The main goal of this paper was to evaluate both teachers' perceptions and their use of IWBs. A questionnaire was developed based on an extensive literature review as well as related instructional theories and models. The questionnaire consisted of questions about demographics, usage, and teachers' perceptions related to IWBs. For this study, 174 teacher-participants, who have actively used IWBs for instruction, were selected from various educational levels (from grade 6 to 12).

The results of the study showed that participants were satisfied with the IWB use and they accepted IWBs as a powerful and practical technology that facilitates teachers' instructions as well as students' learning and motivation and makes them more up-to-date. However, findings indicate that teachers were not able to design a social constructivist environment where students could be involved in active and collaborative learning process using IWBs. In addition, most teachers believed that IWB sprovided time efficiency for their instruction; however, a majority of them

admitted that they could not find enough time to let their students use IWBs.

3- Penttinen, (2013):

Teachers' perspectives on interactive whiteboard technology in foreign language teaching

The aim of this study was to shed light to how language teachers of FLT are adapting to welcoming and using the IWB and to find out what their views on it as teaching equipment were. Furthermore it aimed to discover how teachers were actually using the IWB, their views on new educational technology and whether today's technology training is meeting their needs. The data was collected through an online questionnaire and a semi-structured thematic interview. The questions relating to the IWB, were designed on the basis of the SWOT-analysis and divided under four categories (strengths, weaknesses, possibilities and disadvantages or negative effects) with two subcategories (for the teacher and for the pupil). The results indicated that teachers' responses both in the questionnaire and the interview showed a quite positive outlook towards new educational technologies, indicating that given the time, training and support teachers would be most willing and able to learn their use. However, on the basis of the teachers' answers there still seems to be significant

variation in the accessibility and aptness of technology training and the support teachers are getting to acquire training.

4- Saltan& Arslan, (2013):

Teachers' Perception of Interactive White Boards: A Case Study

This study aimed at investigating teachers' perceptions and acceptance towards IWBs. This case study was conducted in a primary school in Turkey. 34 teachers from different subject matters participated in the present study. Data were collected through a questionnaire consisting of three parts --perceived usefulness, perceived ease of use and attitude towards interactive white boards. Descriptive statistic was utilized to analyze the data. Mainly frequencies and percentages were run on the likert-type questions.

Results showed that teachers found interactive whiteboard relatively easy to use and useful, in addition they had a positive attitude toward the IWB. However means of the perceived ease of use and attitude toward IWB is lower than perceived usefulness.

5- Anatürk ,(2014):

High School Science Teachers' Beliefs and Attitudes Towards the Use of Interactive Whiteboards in Education

This study aimed at exploring high school science teachers' beliefs and attitudes towards the use of IWBs by considering six different FATİH Project pilot high schools in Ankara. Science teachers (biology, physics and chemistry) from six of the high schools were selected and 36 teachers participated to the questionnaire out of 46. The study utilized mixed-methods approaches so quantitative data (questionnaire) were complemented by qualitative data (interviews and classroom observations).

The results showed that teachers agreed that IWBs are teaching tools which facilitate reaching different sources and displaying them to the whole class immediately. However, although teachers have positive attitudes towards the use of IWBs, it was seen that most of them do not feel comfortable while using IWBs in the classrooms.

6- O'Donnell, (2015):

Getting On Board: Investigating the Opinions and Attitudes of ESL Teachers on the Use of Interactive Whiteboards in the ESL Classroom

The aim of this study was to investigate the opinions and attitudes of four ESL teachers on their use of IWBs in a K-12 classroom setting. The four participants' answers revealed that they believe IWBs to be a very powerful, useful tool to have in the classroom.

However, they did not feel they received adequate training with the technology. Therefore, for the IWB technology to be used more efficiently and effectively in schools, more training must be provided for the educators.

The results showed that teachers believe that IWBs can be used for different subject domains. Also, teachers believe that IWBs can be used to facilitate learning and instruction under the following conditions, 1) collaboration with colleagues, 2) training about effective instructional strategies using IWB, and 3) more frequent teacher use of IWBs to improve IWB competency.

Duran& Balta, (2015):

Attitudes of Students and Teachers towards the Use of Interactive Whiteboards in Elementary and Secondary School Classrooms

The purpose of this study was to determine the attitudes of both teachers and students against the use of interactive whiteboards and to determine the differences between their attitudes across their genders, ages and schools. It also compared the attitudes between groups of teachers in different subject areas. Data was collected by using a survey administered to students and teachers in three private schools possessing and actively using interactive whiteboards. The sample of the study consisted of 255 students and 23 teachers from three private schools.

The result of the study showed that interactive whiteboards are highly rated by both teachers and students. Students mostly preferred the usage of interactive whiteboards in math courses, and their attitudes differ across their genders. The mean of the scores of the males was significantly higher than that of female students showing that male students having more positive attitudes toward the interactive whiteboards and it has been found out that there is no difference between teachers' and students' attitudes. The correlational analysis between age and attitude showed that as students get elder their positive attitudes decrease. In addition, results indicated that students' attitudes differ across school levels.

The relation between the present study and the previous ones

Most of the above mentioned studies emphasized the positive attitudes of teachers towards using IWBas in the studies of Saltan and Arslan (2013), Duran and Balta, (2015) and O'Donnell (2015). Türel & Johnson (2012) found that teachers feel that working with IWBs makes them more up-to-date. Miller, Saltan and Arslan (2013), who examined teacher attitudes in various studies, reported that teachers find working with IWBs relatively easy. All the previous studies indicate that teachers valued the benefits of using interactive whiteboard in classrooms and

recognized the necessity of attending training workshops. However no studies focused on exploring the relation between participants' attitudes and different variables. The researcher benefited a lot from the above- mentioned studies in developing the instruments and providing the theoretical knowledge. Furthermore, the researcher in the present study felt that it would be beneficial to investigate the drawbacks of IWB and try to overcome difficulties and use IWB effectively.

10- Research Procedures

The researcher examined previous studies looking at problems and perceptions of IWB users in order to create a questionnaire consistent with the study's purpose. The developed questionnaire included both qualitative and quantitative questions. This approach allowed teachers to answer specific question by giving them the chance to express their views without limiting their responses. The quantitative part consisted of 22 items under 4 categories (table1). The qualitative contained open-ended question inquiring the drawbacks of using interactive Whiteboard in class. A five- point Likert scale (5= strongly agree, 4= agree, 3= undecided, 2= disagree, 1= strongly disagree) was designed to measure teachers' attitudes towards using IWB (Appendix1).

Table (1)

The Division of the Attitude Questionnaire

N	Category	Number of Items
1	As a teaching tool	6
2	As a learning tool	5
3	Motivational issues	6
4	Usability of IWB	5
Total	Total	22

10-1-The pilot study of the attitude questionnaire:

It was conducted to examine the validity and reliability of the attitude questionnaire

- Validity of the Questionnaire

The validity was tested in many ways. First, it was evaluated by a number of referees to refine the content and wording of the items. They reviewed the questionnaire and suggested some modification of some items and omitted others. Most of them agreed that the items were appropriate for the questionnaire. The researcher took their notes into consideration, so the content validity was achieved. Secondly, it was implemented on 25/9/2016 on a sample of (20) teachers other than the research sample. The researcher tested the discrimination validity and the internal consistency of the items.

- Discrimination Validity

The researcher used Mann-Whitney U Test to test the discrimination ability of items of the questionnaire at the percentage 25% of the high scores of answers of the teachers and a percentage 25% of the low scores too. The number of teachers in each group was (7).

Ranks				
	highlow	N	Mean Rank	Sum of Ranks
iteams	1	7	4.00	28.00
	2	7	11.00	77.00
	Total	14		

Test Statistics^a

	iteams
Mann-Whitney U	.000
Wilcoxon W	28.000
Z	-3.137-
Asymp. Sig. (2-tailed)	.002
Exact Sig. [2*(1-tailed Sig.)]	.001 ^b

The data above shows that there is a statistically significant difference between the two group. This indicates that the items of the questionnaire were discriminating.

- Internal Consistency of the Items

The correlation between the scores of the items with the total scores of each category of the questionnaire (Person Correlation) was calculated. The results indicated that all the items of the categories were significant at level (0.05). (appendix 2)

Table 2
Pearson Correlation Coefficient for Every Category of the Attitude Questionnaire with the Total Degree of the Questionnaire

Pearson Correlation	Category one	Category two	Category three	Category four
		.768**	.876**	.661**

Table (2) indicates the correlation coefficient of each category with the whole questionnaire. According to table (2) and (appendix 2), it could be concluded that the scale was highly consistent and valid as a tool for the study.

- Reliability of the questionnaire:

The researcher applied the questionnaire on 9/10 / 2016 on the same (20) teachers of the pilot sample who were different from the research sample. It was found that correlation coefficient of the two applications was (0.951) which indicates that the questionnaire was reliable. Also, the reliability of the questionnaire was tested for internal consistency by Alpha Cronbach coefficient (α) which was

(0.862). So, the attitude questionnaire was reliable and ready for application. The attitude questionnaire was administered to teachers who use IWB in their classes on 17/ 10/ 2016.

11- Answering Research Questions

Q1- What are teachers' attitudes towards using IWB technology in classrooms?

To answer this question the researcher tested the following directional hypothesis:

- ▶ Primary school teachers have positive attitudes towards using IWB technology in their classrooms.

To determine the nature of teachers' attitudes towards IWB, teachers' mean of attitudes scores was calculated. A Likert five-dimensional scale was applied to measure teachers' attitudes, as table (3) shows and a hypothetical mean was decided for all the questionnaire and for each section of the questionnaire as in table (4).

Table (3)

Teachers' Means of Attitudes scores

Category	N	Mean	Std. Deviation	t	df	Sig.(2-tailed)
As a teaching tool	30	22.43	3.170	38.764	29	.000

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As a learning tool	30	19.07	3.373	30.965	29	.000
Motivational issues	30	22.23	3.025	40.257	29	.000
Usability of IWB	30	18.17	3.395	29.313	29	.000
Total	30	81.90	9.159	48.978	29	.000

In the questionnaire, the items were given (5-4-3-2-1) scores in order. The questionnaire total score was (5x 22= 110).

Table (4)

The Hypothetical Mean

Category	Items	Low score	Hypothetical Mean	High score
As a teaching tool	6	6	18	30
As a learning tool	5	5	15	25
Motivational issues	6	6	18	30
Usability of IWB	5	5	15	25
Total	22	22	66	110

A comparison between the mean scores of teachers' responses towards the questionnaire and the hypothetical mean shows that the mean of their responses was ($m= 81.90$) higher than the hypothetical mean ($m= 66$). This outlines the positive attitudes of teachers regarding the questionnaire in general. In category one

(As a teaching tool) the mean of teachers' attitudes scores was ($m= 22.43$) higher than the hypothetical mean ($m= 18$) which indicates that teachers strongly agreed that IWB was a good supplement for teaching. The mean of teachers' attitudes scores of category two (As a learning tool) was ($m= 19.07$); whereas the hypothetical mean was ($m= 15$). So, teachers' attitudes scores of category two were positive which indicates that students who learned with the IWB were more attentive and engaged in learning, participated more actively in the class-room, and interacted much more with their teachers, their peers, and even with the IWB. In category three (Motivational issues) The mean of teachers' attitudes scores was ($m= 22.23$) higher than the hypothetical mean ($m= 18$) It seems that learning via the IWB is pleasurable, interesting, efficient, and comprehensible to the students and teachers. In Category four (Usability of IWB) the mean of teachers' attitudes scores was ($m= 18.17$) higher than the hypothetical mean ($m= 15$) which indicates that IWB can be used in all courses with various instructional methods and techniques.

► The means of items scores were divided into five levels:

- a) Very low level below (1.80)
- b) low level between 1.81 and 2.60
- c) Intermediate level between 2.61 and 3.40
- d) High level between 3.41 and 4.20

e) Very high level over (4.21)

The majority of questionnaire items got high level of acceptance except (7-9) which got intermediate level of acceptance. This reveals teachers' positive attitudes towards IWB (appendix 3).

Q2-Do teachers' attitudes of IWBs display differences according to their frequency of IWB use and years of using IWB ?

To answer this question the researcher tested the following null hypotheses:

- ▶ There is no statistical significant mean scores difference in teachers' attitudes towards the IWB according to their frequency of IWB use.
- ▶ There is no statistical significant mean scores difference in teachers' attitudes towards the IWB according to the years of using IWB.

The researcher used one-way ANOVA test to find out whether there was any statistically significant difference of attitudes among teachers according to their frequency of IWB use and years of using IWB.

Table (5)
The difference between teachers' means of Attitudes scores according to their frequency of IWB use

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
< 6	7	72.43	7.323	2.768	65.66	79.20	66	83
sometimes	11	81.36	7.420	2.237	76.38	86.35	67	93
always	12	87.92	6.708	1.936	83.65	92.18	74	99
Total	30	81.90	9.159	1.672	78.48	85.32	66	99

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1065.524	2	532.762	10.521	.000
Within Groups	1367.176	27	50.636		
Total	2432.700	29			

The results of One-way ANOVA test demonstrated that there were statistically significant differences between teachers according to their frequency of IWB use $F(2) = 10.521, p=0.000, p < 0.05$. This analysis of variance was further followed by a post-hoc comparison in which Tuckey's post-hoc test was conducted to find out exactly where the significant differences between groups existed.

Table (6)
Multiple Comparisons

Tukey HSD

(I) Frequency of IWB use	(J) Frequency of IWB use	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
< 6	sometimes	-8.935*	3.440	.039	-17.47-	-.40-
	always	-15.488*	3.384	.000	-23.88-	-7.10-
sometimes	< 6	8.935*	3.440	.039	.40	17.47
	always	-6.553-	2.970	.088	-13.92-	.81
always	< 6	15.488*	3.384	.000	7.10	23.88
	sometimes	6.553	2.970	.088	-.81-	13.92

The post hoc comparisons using the Tuckey’s HSD test revealed that significant differences were found in this study regarding the frequency of teachers’ IWB use. There was statistical significant mean scores difference between teachers who use IWB less than 6 hours and those who use it sometimes in favour of teachers who use it sometimes. There was statistical significant mean scores difference between teachers who use IWB less than 6 hours and those who always use it in favour of teachers who always use it. This result indicates that teachers who frequently used an IWB had more positive attitudes towards IWB use.

Table(7)

The difference between teachers' means of Attitudes scores according to the years of using IWB

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
					less than one hour	6		
1-3 years	13	82.31	10.307	2.859	76.08	88.54	66	99
more than 3 years	11	79.64	8.465	2.552	73.95	85.32	66	93
Total	30	81.90	9.159	1.672	78.48	85.32	66	99

ANOVA

total

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	122.552	2	61.276	.716	.498
Within Groups	2310.148	27	85.561		
Total	2432.700	29			

As shown in Table 7, no significant difference was found among teachers with respect to their years of using IWB. $F(2= .716, p=0.498, p> 0.05)$. This can be attributed to the fact that teachers predominantly are aware of the instructional and motivational advantages of IWBs since they start using them.

Q3- What are the drawbacks of IWB use?

Studies maintain that benefits of IWBs outnumber the drawbacks but there are still some difficulties and drawbacks, which can hinder the expansion of this technology to grow. To answer this question the researcher included also a qualitative open-ended question in the attitude questionnaire inquiring further about the obstacles teachers may face in their classes.

One of the teachers in the open-ended question mentioned, "sometimes technology stops working for no reasons". Another teacher explained, " We need extra time to plan and prepare the lesson plan... sometimes I spent two to three hours looking for a good video clip or trying to create a nice presentation" .One more teacher said, "I wasted a lot of time learning how some features and applications of the IWB work". Also, there was one teacher who thought, "I personally think that before asking me to use it, you should teach me how to deal with something I never saw before". Another teacher said, " I had technical problems very often and was unable to resolve them by myself then I had to wait for a technician.. sometimes it takes weeks"

The analysis of teachers' responses to the questionnaire thus revealed the following drawbacks of IWB:

- The extensive amount of hours required of the teachers to prepare the interactive lesson plans.

- Technical problems that arose when use technology in teaching which decrease the value of this technology.
- Shortage of supporting interactive learning materials (software) at schools.
- Lack of training programs

12- Discussion of the results

The result indicated that teachers thought that IWBs were useful to enhance teaching and learning process. They expressed their strong positive attitudes towards this technology. These results were similar to previous attitude studies about IWBs. For example, In Levy (2002) and Lee and Boyle (2004), the teachers reported that IWBs made it easier to draw on a greater number and wider variety of information and learning sources and these sources can be used flexibly and spontaneously in response to different pedagogical needs. Expectedly in this study, teachers who frequently used an IWB were more likely to have a higher level of IWB competency and more positive perceptions towards an IWB use. As Glover et al. (2007) stated, ‘teachers need time to develop their technological fluency, apply pedagogic principles to the available materials or to the development of materials, and then to incorporate the IWB seamlessly into their teaching’ (p. 17). This finding confirms the study of Türel and Johnson (2012) which indicates that the frequency of technology use are other

essential indicators for the acceptance of IWB technology. Therefore, encouraging teachers to use an IWB more frequently may help them to effectively integrate the IWB in their instructions and to have more positive attitudes towards IWBs. As far as teachers' years of using IWB, there was no significant difference among teachers. All teachers perceive that IWBs are time-saving facilities which help them have access to a wide variety of resources during the teaching process, develop self-confidence and enhance their self-efficacy, making them more efficient teachers while having adequate control of their classes. The results of the study revealed some difficulties faced teachers throughout their use of IWB. In this regard, the researcher suggested paying more attention to train teachers to integrate IWB into the educational process. This issue is also mentioned in Smith (2005), where they note that in order to use IWBs to their full potential, there is a need for adequate training because inexperienced manipulation of IWB feature decrease the value of this technology. The researcher felt that it would be beneficial to provide an adequate level of technical support through organizing regular training workshops and seminars for teachers before investing in IWBs because teachers need to be confident that they will have technical support when problems occur. Furthermore,

teachers can use prepared material for their classes and can save more time for extra activities.

13- Conclusion

Teachers' attitudes towards IWB was studied looking at four main themes: as a teaching tool, as a learning tool, motivational effects, and usability. Most teachers agreed that using an IWB is motivating, engaging, and enjoyable. The results also show that teachers believe that IWBs can be used for different subject domains. Also, teachers believe that IWBs can be used to facilitate learning and teaching.

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For the paper in Arabic see pages (252)

اتجاهات المدرسين نحو استخدام تقنية السبورة التفاعلية في صفوف المدرسة الابتدائية وعوائق استخدامها.

ديمة حسن *

المخلص

هدفت الدراسة الحالية إلى تعرف اتجاهات المدرسين نحو استخدام تقنية السبورة التفاعلية في صفوف المدرسة الابتدائية وتحديد عوائق استخدامها. اعتمدت الباحثة المنهج الوصفي التحليلي حيث قامت الباحثة باختيار عينة مقصودة مؤلفة من (30) مدرس يستخدمون هذه التقنية داخل الغرفة الصفية في مدرسة خاصة في مدينة دمشق، قامت الباحثة بتطبيق استبانة مؤلفة من أربعة محاور على العينة وعولجت البيانات إحصائياً.

أظهرت نتائج الدراسة اتجاهات إيجابية لدى المدرسين نحو تقنية السبورة التفاعلية حيث اعتبروها أداة هامة في التعليم وزيادة دافعية الطلبة نحو التعلم، كما أظهرت النتائج وجود فروق في اتجاهات المدرسين تعزى لمتغير تكرار استخدام السبورة التفاعلية، فكلما استخدم المدرسون السبورة التفاعلية بشكل أكبر زادت اتجاهاتهم الإيجابية نحوها ولم تظهر أي فروق في اتجاهاتهم نحو السبورة التفاعلية وفقاً لمتغير عدد سنوات استخدامها. أكد معظم المدرسين أن المشكلات التقنية والوقت الكبير الذي يحتاجونه لتحضير الدروس عبر السبورة التفاعلية و نقص المواد التعليمية التفاعلية الخاصة بهذه السبورة تعد أكثر العوائق التي واجهتهم أثناء استخدامها. كما أكدت الدراسة ضرورة عقد دورات تدريبية للمدرسين للاستفادة من جميع مزايا السبورة التفاعلية و مساعدتهم على حل المشكلات التقنية التي تواجههم أثناء استخدامها.

<< وصل هذا البحث إلى المجلة بتاريخ 2016/11/23، وصدرت الموافقة على نشره بتاريخ 2017/2/13 >>

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