

SAUDI SECONDARY SCHOOL TEACHERS ATTITUDES' TOWARDS USING INTERACTIVE WHITEBOARD IN CLASSROOMS

Isman, Aytekin

Professor of Computer and Educational Technology,
Faculty of Education, Sakarya University,
Isman@sakarya.edu.tr

Abanmy, Fahad AbdulAziz

Associate Professor of Islamic Education, Curricula and instruction Department,
Teachers College, King Saud University,
dr.fabanmy@ksu.edu.sa

Hussein, Hisham Barakat

Associate Professor of Mathematics Education, Curricula and Instructional Department,
Teachers College, King Saud University, Riyadh, Saudi Arabia,
Email: hbisher@hotmail.com , Website: <http://hishamh.net>

Al Saadany, Mohammed Abdelrahman

Associate Professor of Educational Technology, Educational Technology Department,
College of Specific Education, Port Said University, Port Said, Egypt
Teachers College, King Saud University, Riyadh, Saudi Arabia,
Email: dr.malsaadany@gmail.com

ABSTRACT

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 appositve attitude towards using Interactive Whiteboard. But a few number of teachers used effectively the Interactive Whiteboard effectively in the classrooms. These results indicated that the teachers need a professional development program for effective using of Interactive Whiteboard effectively to help them in improving their Teaching skills and the students learning. More details of the results are discussed in the study.

Keywords: Interactive Whiteboard, Teachers Attitude, E-Learning, Teaching Skills, Teacher Professional Development, Students learning

INTRODUCTION

Educational Technology plays an important role in Teaching and learning process, the main issue is how to have an effective using of educational technology in instructional practices in the classroom. Barbara Gruber (2011) investigated Initiative into the Classrooms, she argued that, the successful integration of a new technology is the goal of any educational technology initiative and it's especially critical when the initiative has substantial budgetary impact. (Gruber, 2011, p1).

Each equipments of a new technology has a chance to be involved in teaching and learning process, since the last 20 years, E-learning took a place in the classrooms as a new trend in using education technology. The E-learning is an important development taking advantage of computer technologies and software, communications and information, to be employed in the process of teaching and learning, where it has become one of the alternatives in the dissemination of education and activating the training, whether direct or indirect, overcoming the obstacles of space and time and risk, and provided for the teacher's experiences effectively, enriched the learning and development teaching, and has become a modern teaching method, employing modern communication mechanisms; to support the educational process, enrich and improve the quality. (Hussein, 2011, p43)

E-learning has many faces in classrooms; Interactive Whiteboard is one of many equipments of e-learning. Interactive Whiteboard is a large touch-sensitive and interactive display that connects to a computer and projector. A projector projects the computer's desktop onto the board's surface, where users control the computer using a pen, finger, or other device. (Gruber, 2011, p19).The Interactive Whiteboard software allows for teacher-cued animation; equations and word problems that can be retrieved, dragged, and dropped; projected information that a teacher can highlight, enlarge, or conceal; stored additional resources; and recorded student feedback. The Interactive Whiteboard allow for the creation of collaborative and interactive lessons by combining resources

with a trained instructor's ability to move and manipulate objects. (Essig, 2011, P3). In addition, Interactive Whiteboard allows teachers to do many rolls and got many benefits, for example, accessed and presented more relevant scientific content by linking to web resources and videos. Teachers can allowed students to manipulate variables, test predictions, and see phenomena that would otherwise be impossible to observe. (Schnittka ; Bell, 209, p.152).

There is an increasing awareness of the need to understand the match between technology and pedagogy in the development of interactive learning supported by the interactive whiteboard in schools (Glover; Miller; Averis, & Door, 2005, P155). Interactive whiteboard is becoming increasingly popular in schools outside the United States and the United Kingdom, Therefore, Many K-12 and higher-ed schools have made a substantial investment in interactive whiteboard technology. (Digregorio & Sobel-Lojeski, 2009, p255). Now Interactive whiteboards have been part of many Technological initiatives around the world; In Great Britain, Essig (2008) found that the Interactive whiteboards have been part of a nationwide ICT initiative in Great Britain for several years with national studies funded by the British Educational Communications and Technology Agency (BECTA) starting in 2003-2004.

The appearance of interactive whiteboards in schools has been accompanied by research that attempts to analyze their effects on teaching and learning processes. (Yanez & Coyle, 2011, p 446). Many studies related to the use of interactive whiteboards in educational settings have shown that interactive whiteboard technology can enhance presentations and developing student motivation and performance. (Syh-Jong, 2010, p1744). Therefore, the positive claims made concerning the benefits of learning through a pedagogy which makes use of an interactive whiteboard, leading to a rapid acquisition and implementation of the Interactive Whiteboard in schools. (Xu & Moloney, 2011, p 307).

Despite the availability of Interactive Whiteboard technology in a large number of schools, many teachers focus only on technical issues as opposed to pedagogical engagement in an attempt to incorporate the technology. Many researches suggest that the technology is being used for sophisticated transmission-style teaching as opposed to constructivist approaches. (Serow & Callingham, 2011, p 161).

The teacher's role has often been described as one of 'orchestration', and this musical analogy is a powerful one in characterizing the manipulation of features in the classroom setting in order to generate activity or 'performance' which leads to learning. However, a classical view of orchestration would fail to recognize the extent to which effective teaching and learning make use of serendipity and improvisation - characteristics more often associated with jazz. (Beauchamp; Kennewell; Tanner; Jones, 2010, p143). Teachers can use interactive whiteboards for wonderful interactive multimedia presentations for an entire class, combining many types of digital material with the touch of a finger, or they can use the boards with only a couple of students at a time. The presentations and student work can be annotated and saved. Interactive Whiteboards can be used with student response systems, visual presenters, podcasts, and much more. Used properly, they could even be the teaching tool that can compete for students' attention with TV, games, and other exciting external visual activities. (Doe, 2010, p30).

Many studies investigated the using of Interactive whiteboards in the classroom and its impact on Teaching and learning process. (Essig, 2008, p23). Including the effect of interactive whiteboards on pedagogy, motivation, interaction, perception, learning, and achievement. These effects are related to contextual factors such as teacher training, teacher confidence, school culture, technical support, lesson preparation and practice time. And support the classroom learning environment for increases in student motivation, student learning, and achievement. (Digregorio & Sobel-Lojeski 2009, p255).

The Technology integration using Interactive Whiteboard can potentially increase interactivity between teachers and students, enhance student engagement, support motivation and enjoyment, and ultimately increase student achievement, and the most important factor in enhancing learning experience is the perception of the teacher on their instructional methodology. if the teacher perceives that Interactive Whiteboard could enhance instruction and interaction, then the result could be a positive influence on students' learning. The most important factor in enhancing learning experience is the perception of the teacher on their instructional methodology. Therefore, if the teacher perceives that Interactive Whiteboard could enhance instruction and interaction, then the result could be a positive influence on students learning. (Essig, 2011, p41).

Many of research highlight that the best using of Interactive Whiteboard require teachers to have full understanding of interactive teaching and technology. Only in this condition, the results can have amazing effect on student learning. Therefore, Making the lessons more placement and enjoyable requires a good trainee teacher

that has a strong professional development program concentrates on changing teacher discourse. Otherwise the result will be very frustrated. (Essig, D, 2011, p41). When interactive whiteboards are used well they can increase student engagement and learning. This means that it is important to educate future teachers in how to use interactive whiteboards and how to incorporate them successfully into their teaching. (Campbell, Chris; Kent, Peter , 2010, p 447).

Gruber, Barbara (2011) examined the impact that a district-wide technology initiative involving interactive whiteboards had on teachers' attitudes, beliefs, and practices and whether this impact was consistent with the overall goals of the initiative. Findings examined patterns of use that emerged when a district-level Promethean board initiative was implemented, teachers' attitudes and beliefs related to the initiative, contextual influences on adoption of the innovation, and factors of social influence which impacted the initiative. The first goal established by the district for use of the Promethean board was generally met with some variations at the school and individual levels. However, the second goal directed at student achievement was poorly communicated and largely unmet. Patterns of use and teacher attitudes and beliefs were most strongly reflected in and influenced by four factors: professional development, school-based leadership, communication channels, and peer interactions. Together, these four factors were identified as the primary influences in the initiative's successes and limitations.

Essig, Dawn (2011). Aimed at making a better understanding of how classroom practices and perceptions change for teachers who participate in professional development. The study focused on how an interactive whiteboard professional development program for three elementary third grade teachers influenced changes in their pedagogy, technology integration of interactive whiteboard, and perceptions of students' learning of math concepts. The qualitative case study designed used interviews, classroom observations, field notes, and interactive whiteboard artifacts. The qualitative data were coded and analyzed using member checking and triangulation. The findings suggested that interactive whiteboard professional development that was ongoing and focused on content can lead to lessons that are highly scaffold, interactive, and interdisciplinary in their design. Findings also revealed that interactive whiteboard usage and purpose changed and teachers perceived that the interactive whiteboard enhanced the learning experience of the students. The social change implications for this study include the identification of an effective model of professional development that influenced change in classrooms.

Yanez, Lorena & Coyle, Yvette (2011) focused on interactive whiteboard use in a different learning context: an English language immersion class in a British primary school in Spain. Focus group interviews and annotated drawings were used with a class of NS and NNS children to identify their perceptions of the interactive whiteboards and how it helps them learn. Issues that emerged from the data included the children's desire to interact more with the interactive whiteboards, their frustration with frequently occurring technical problems, and the importance, particularly for the NNS, of the multimodal properties of the board.

Xu, Hui Ling & Moloney, Robyn (2011) presents a case study research which used both qualitative and quantitative data to collect teacher and student perceptions of the learning of Chinese through an Interactive Whiteboard pedagogy in one secondary school in Sydney, Australia, involving students in three levels of senior secondary school. The findings confirmed previous studies which stated that students endorse the use of new technology in education. Also the students believed that the Interactive Whiteboard was effective in enhancing various aspects of their Chinese language learning. 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 of Chinese.

Syh-Jong Jang (2010) integrates interactive whiteboard technology and peer coaching to develop the Technological Pedagogical Content and Knowledge (TPACK) of secondary science teachers in real classrooms. An interactive whiteboard based peer coaching model was developed. Participants of this study included four in-service science teachers. The sources of data included written assignments, reflective journals and interviews. The results displayed three major findings. First, science teachers used interactive whiteboards as instructional tools to share their subject-matter knowledge and to express students' understanding. Second, the interactive whiteboards helped the science teachers who encountered teaching difficulties in the traditional classroom better implement their representational repertoires and instructional strategies. Finally, the proposed model of integrating interactive whiteboards and peer coaching can develop the TPACK of science teachers.

Coyle, Yvette ; Yanez, Lorena & Verdu, Mercedes (2010) Analyzed the influence of the interactive whiteboard on the language use of a primary school teacher in monolingual contexts where English is the first language for learners, and a group of native speaker (NS) and non-native speaker (NNS) children in an English language immersion classroom. The study revealed that while the teacher used the interactive whiteboard to support the

children's learning by taking advantage of multimedia presentations in Numeracy and Literacy and by creating opportunities for the children to engage in tactile interaction with the board, opportunities to participate in the dialogic interaction beyond the production of one or two word utterances were much more limited and largely restricted to the NS children in the group. Since the failure to promote verbal interaction has important implications for the NNS pupils in the class, it is suggested that teacher education programmes should focus on developing teachers' classroom international competence as well as their technological skills.

Schmid, Euline Cutrim (2010) discusses the findings of a case study conducted with English as a Foreign Language (EFL) teacher at a German secondary school. This case study was part of a research project that investigated the new competencies that EFL teachers need to acquire in order to be able to use the interactive whiteboard to develop their practice, informed by a socio-cognitive approach to computer-assisted language learning. The findings pointed towards various competencies developed by the teacher as she integrated the technology into her teaching, namely: (a) the ability to design interactive whiteboard based materials which support opportunities for learner interaction with the whiteboard and with the learning content; (b) the appropriate management of interaction around interactive whiteboards in a way that ensures all learners are provided with opportunities to become actively involved; and (c) the ability to find the 'right balance' of technology use.

Mercer, Neil; Hennessy, Sara & Warwick, Paul (2010) Focused on the use of interactive whiteboards as a tool for encouraging and supporting classroom dialogue. The authors' concern here was with the promotion of 'dialogic' communication between teachers and students, which is now widely recognized as educationally valuable. They investigated how teachers could use the technical interactivity of the interactive whiteboard to support dialogic interactivity. The design of the study was predicated upon a partnership between the authors and three UK (primary, middle school and secondary) teachers. Outcomes include illustrative examples of teachers' effective strategies for using the interactive whiteboard for orchestrating dialogue. Implications for teachers' initial training and professional development are considered.

Campbell, Chris & Kent, Peter (2010) indicates that a teacher's pedagogy or 'how they teach' has a major influence on the quality of student learning outcomes. Thus how teachers use ICT has a great effect on student outcomes. A range of pedagogical models concerned with the concept of authentic pedagogies are commonly used within Australian classrooms. Training designed for pre-service teachers dealing with the pedagogical application of interactive whiteboards is designed to guide and assess the implementation according to these pre-existing and widespread pedagogical models. They examine examples of how interactive whiteboards can be used in teacher education as well as how to integrate their use across courses that pre-service teachers undertake.

Lai, Horng-Ji (2010) explores secondary school teachers' perceptions of interactive whiteboard training workshops in Taiwan. Also sought to identify potential problems associated with the design of interactive whiteboard training workshops in order to improve their effectiveness. He employed observations and interviews to collect research data. Observations were made at the training sites, and interviews were conducted with six secondary school teachers from two junior high schools located in central Taiwan. The results suggest that teachers valued the benefits of using interactive whiteboard in classrooms and recognized the necessity of attending training workshops. And the teachers also emphasized that knowing practical interactive whiteboard uses was extremely important and helpful to them to integrate this promising tool meaningfully into their teaching.

Mathews-Aydinli, Julie and Elaziz, Fatih (2010) Explored the attitudes of students and teachers toward the use of interactive whiteboards in a foreign language teaching and learning context. Also they investigated possible factors affecting teachers' and students' attitudes toward interactive whiteboard technology. Data were collected through questionnaires distributed to 458 students and 82 teachers in different institutions across Turkey, ranging from primary schools to universities. Questionnaire results revealed that both students and teachers have generally positive attitudes toward using of interactive whiteboard in language instruction and are aware of the potential uses of this technology. The result revealed that the more teachers use interactive whiteboards, the more they like this technology. It was also found that as the number of hours of interactive whiteboard exposure increases, students' awareness of the distinctiveness of interactive whiteboard technology increases. Suggestions are made for further research and for administrators considering whether or not to invest in interactive whiteboards.

Lisenbee, Peggy Suzanne (2009) aims to investigate student's behavior, engagement level, and representation during storytelling using an interactive whiteboard. The intention of examining these constructs during storytelling was to provide a way to understand and explain how using an interactive whiteboard influences

students. The research questions were: 1. in what ways does using an interactive whiteboard can influence students' representations of the story during storytelling? 2. In what ways does using an interactive whiteboard can influence students' behaviors during storytelling? 3. In what ways does using an interactive whiteboard can influence students' engagement levels during storytelling?. The purpose of this descriptive naturalistic study was to contribute to understanding of students' use of technology by identifying behaviors, engagement level and representations of thought during a storytelling experience. The researcher observed children storytelling using an interactive whiteboard in their classroom and interviewed them about their experience. The intention of examining these constructs was to descriptively explain the phenomena so a general understanding of student's behavior, engagement level and representations as they used an interactive whiteboard was provided.

Morgan, G. Lyn. (2008) examined the impact the interactive whiteboard use on student engagement and appropriate at-task behaviors of junior high school students. Two hundred twenty-six students at two public schools in northeast Florida were observed during the second quarter of the school year. Data were collected using an at-task checklist, and students completed an attitude survey regarding their perception of their own engagement and enjoyment with interactive whiteboard use. Significant differences were noted in student behavior between instruction without interactive whiteboard use and instruction with interactive whiteboard use. No significant correlations were found between the variables gender and ethnicity and improved student behavior. Results indicated that the use of interactive whiteboard as an instructional tool has a beneficial effect on student engagement in classroom lessons and led to improved student behavior. Suggestions for further research were incorporated as part of the study results.

THE STUDY

The aims of this research were investigating the Secondary school Teachers Attitudes towards using Interactive Whiteboard in classrooms. Moreover, how their performances in using Interactive Whiteboard at classrooms were? The research team selected the sample by sending an online questioner to the most secondary school teachers in Riyadh city which enrollment in the first term of (2011/2012) academic year, to answer if they use Interactive Whiteboard (which called locally smart board) and decided if they want to participate in the research. We received (300) acceptance responses, we chose randomly (100) secondary school teachers to be the research sample, their specialties explained in table (1).

Table (1) the secondary Teachers Specialties

Code	Subject	Numbers
1	Mathematics	30
2	Arabic Language	20
3	English	25
4	Computer	15
5	Islamic	10
	Total	100

The research used three instruments, the first instrument was Interactive Whiteboard Attitude Survey, which developed by the research team from many Attitudes inventories, questionnaires and surveys (for e.g.: Whiteboard Attitude Survey which developed by (Morgan, 2008), The Computer Attitude Questionnaire (CAQ) which developed by The Technology Applications Center of Educator Development). The survey responses were graded according to five point Likert scale (Strongly agree - agree - neutral - refuse - strongly refuse). The validity and reliability were ensuring. The survey final form is composed of (20) items, which divided into (4) Domains (personal view, the Interactive Whiteboard roll in professional development, the Interactive Whiteboard role in devolving the students academic performance, The Interactive Whiteboard role in keeping peace with Technological Innovations). (Appendix 1). The second instrument was observation skill card for Teachers who used Interactive Whiteboard in classrooms (Appendix 2). The third instrument was structured interviews to identify the benefits of using Interactive Whiteboard in classrooms from the viewpoint of secondary school students. In addition, the researches tried to answer the following questions:

1. What are the Secondary school Teachers Attitudes towards using Interactive Whiteboard in classrooms?
2. What are the secondary school teacher's levels in using Interactive Whiteboard in classrooms?
3. What are the benefits of using Interactive Whiteboard in classrooms from the viewpoint of Secondary school students?

FINDINGS

The total Survey items were (20), and then the final score of any participant didn't exceed (100) degrees. Statistical coefficients of the Survey calculated to determine the attitudes of Secondary school Teachers Attitudes towards using Interactive Whiteboard in classrooms; they are shown in the following tables:

Table (2) shows the Attitudes of Secondary School Teachers

		The first domain: personal view	The second domain: Teachers professional development	The third domain: devolving the students academic performance	The forth domain: keep peace with Technological Innovations	Over all
Average		27.11	16.78	21.64	12.95	78.48
Percentage Ratio		67.11	83.9	86.56	86.33	78.48
Std. Error of Mean		.282	.198	.233	.15723	0.676
Standard deviation		2.817	1.983	2.329	1.57233	6.766
Variance		7.937	3.931	5.425	2.472	45.78
Rang		4	3	4	4	37.00
One-Sample t-Test	t	-81.248	-167.553	-121.764	-235.638	42.08
	df	99	99	99	99	99
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000

The previous table shows that Secondary School Teachers revealed positive attitudes towards using Interactive Whiteboard in classrooms. in general terms as the average degree of the group in the scale represents (78.48 degree) (78.48 %) of the total scores. At the Domains level, survey results indicated that there were positive attitudes of the Secondary School Teachers towards using Interactive Whiteboard in classrooms, the highest score was for the Third Domain (the Interactive Whiteboard role in devolving the students academic performance) which representing (21.64 degree) (86.56 %), followed by the forth Domain which representing (12.95 degree) (86.33%), followed by the second Domain (the Interactive Whiteboard role in professional development) representing (16.78 degree) (83.9%), and finally by first Domain (personal view), representing the lowest score (27.11) (67.77 %). And all differences were significant at (0.01) level

About the significant of differences between domains, they showed in the following table:

Table (3) shows the significant of differences between domains of the Teachers Attitudes.

Domain		Sum of Squares	df	Mean Square	F	Sig.
The first domain	Between Groups	1180.950	4	295.237	8.367	.000
	Within Groups	3352.010	95	35.284		
	Total	4532.960	99			
The second domain	Between Groups	187.080	4	46.770	7.421	.000
	Within Groups	598.710	95	6.302		
	Total	785.790	99			
The third domain	Between Groups	71.033	4	17.758	5.303	.001
	Within Groups	318.127	95	3.349		
	Total	389.160	99			
The forth domain	Between Groups	80.457	4	20.114	4.185	.004
	Within Groups	456.583	95	4.806		
	Total	537.040	99			
Over all	Between Groups	29.260	4	7.315	3.225	.016
	Within Groups	215.490	95	2.268		
	Total	244.750	99			

The previous table shows that, the differences between domains of the Teachers Attitudes are significant at (0.001) levels.

The second instrument, the observation skill card for using Interactive Whiteboard in classrooms, revealed that (42 %) of research sample teachers used the Interactive Whiteboard to write on it as a normal Whiteboard, (28%) of teachers use the Interactive Whiteboard to show the power point presentations, (19%) of teachers used the

most feature of Interactive Whiteboard but with out students participations the rest (11%) of teachers the most feature of Interactive Whiteboard with fully students participations. which means (90%) of teachers in research sample doesn't use the Interactive Whiteboard in right way. In general the teachers identified many obstacles in using Interactive Whiteboard in classrooms that refers that they don't have the essential training in using it effectively. This result means that the teachers need urgent, essential and advanced professional development program to use the Interactive Whiteboards in an effective way.

The structured interviews with secondary school students revealed that the student, who studied with teachers using the most feature of Interactive Whiteboard with fully student's participations, concluded that using interactive Whiteboard : raise their motivation, engagement in classroom lessons, lead to improved their behavior, helped them to gain a greater understanding of the subject matter, Increase their motivation to learn, develop their academic performance, and enhance their ability to recall and retain information.

DISCUSSION

These results indicated, firstly the effectiveness of using Interactive Whiteboard in developing the learners' skills, Motivations, perception, attitudes, attention, behavior, level of interaction, learning, pedagogy, and enriching the environment within the learning communities. (Digregorio, & Sobel-Lojeski, 2009); (Yanez, & Coyle, 2011); (Xu & Moloney, 2011); (Coyle ; Yanez & Verdu, 2010); (Schmid, 2010); (Mercer; Hennessy & Warwick, 2010), (Morgan, 2008).

Secondly, the result indicated the secondary school teachers need professional development programs in effective using of Interactive Whiteboard to help them in improve their Teaching skills and the students learning. (Essig, 2011); (Xu & Moloney, 2011); (Coyle; Yanez and Verdu 2010); (Campbell; Kent, 2010); (Schmid, 2010); (Mercer; Hennessy and Warwick, 2010) ;Campbell & Kent, 2010); (Lai, 2010).

Thirdly the students' viewpoint towards the interactive Whiteboard was consistent with (Xu & Moloney, 2011); (Lisenbee, 2009); (Morgan, 2008). Which indicates that, the students will have a positive attitude if the teachers use it in an effective way. Finally the result indicated the need to change the school culture, classroom pedagogy to support enthusiastic and innovation in teaching and learning (Schuck & Kearney, 2007); (Glover et al., 2005a, 2005b, 2007); (Lewin, Somekh, & Steadman, 2008).

ACKNOWLEDGEMENT

the Authors extend their appreciation to the Deanship of scientific research at King Saud University, for funding the work through the research group project No: (RGP – VPP - 132).

REFERENCE

- Beauchamp, gary ; kennewell, steve; tanner, howard; jones, sonia. (2010). interactive whiteboards and all that jazz. the contribution of musical metaphors to the analysis of classroom activity with interactive technologies, technology pedagogy and education, 19 (2),143-157 ,
- Campbell, chris; kent, peter (2010). using interactive whiteboards in pre-service teacher education. Examples from two Australian universities, Australasian journal of educational technology. v26 (4) special issues. SI pp 447-463
- Coyle, yvette ; yanez, loren and verdu, Mercedes (2010) . the impact of the interactive whiteboard on the teacher and children's language use in an esl immersion classroom, system 38 (4) ,614-625.
- Digregorio, p. And sobel-lojeski, k (2009). the effects of interactive whiteboards (iwbs) on student performance and learning. a literature review, journal of educational technology systems volume. 38 issue. 3 pages. 255-312
- Doe, c (2010) . interactive whiteboards, multimedia & internet@schools volume. 17 issue. 1 pages. 30-4
- Essig, Dawn. (2011). A Case Study of Interactive Whiteboard Professional Development for Elementary Mathematics Teachers, PhD , Walden University, April 2011
- Glover, D., Miller, D., Averis, D., & Door, V. (2005a). Leadership implications of using interactive whiteboards. *Management in Education*, 18(5), 27-30.
- Glover, D., Miller, D., Averis, D., & Door, V. (2005b). The interactive whiteboard: A literature survey. *Technology, Pedagogy & Education*, 14(2), 155-170.
- Glover, D., Miller, D., Averis, D., & Door, V. (2007). The evolution of an effective pedagogy for teachers using the interactive whiteboard in mathematics and modern languages: An empirical analysis from the secondary sector. *Learning, Media, & Technology*, 32(1), 5-20.
- Gruber, Barbara (2011) . A Case Study of an Interactive Whiteboard District-Wide Technology Initiative Into Middle School Classrooms, PhD , George Mason University , Fairfax, VA.

- Hussein, Hisham Barakat. (2011). Attitudes of Saudi Universities Faculty Members towards Using Learning Management System (JUSUR). Turkish Online Journal of Educational Technology - TOJET, v10 n2 p43-53 Apr 2011.
- Lai, Horng-ji (2010). secondary school teachers' perceptions of interactive whiteboard training workshops. a case study from Taiwan, Australasian journal of educational technology Vol 26 (4) pp 511-22.
- Lisenbee, Peggy Suzanne (2009). Influences on young children's behavior, engagement level and representation during storytelling using an interactive whiteboard, PhD, Oklahoma State University.
- Mathews-aydinli, julie and elaziz, faith (2010). turkish students' and teachers' attitudes toward the use of interactive whiteboards in efl classrooms, computer assisted language learning Vol 23 (3) pp 235-252,
- Mercer, neil ; hennessy, sara and warwick, paul (2010). Using interactive whiteboards to orchestrate classroom dialogue, technology pedagogy and education, Vol 19 (2) pp 195-209 , .
- Morgan, G. Lyn. (2008). Improving student engagement: use of the interactive whiteboard as an instructional tool to improve engagement and behavior in the junior high school classroom, PhD, school of education, Liberty University.
- Schmid, Euline Cutrim (2010) . Developing competencies for using the interactive whiteboard to implement communicative language teaching in the English as a foreign language classroom, technology pedagogy and education vol19 (2) special issue. SI, pages. 159-172.
- Schuck, S., & Kearney, M. (2007). Exploring pedagogy with interactive whiteboards: A case study of six schools (Sydney, University of Technology Sydney. Available online at: https://www.det.nsw.edu.au/detresources/pedagogy_sVIYVjvNJH.pdf (accessed November 10, 2011).
- Serow, penelope & callingham, rosemary (2011). Levels of use of interactive whiteboard technology in the primary mathematics classroom, technology pedagogy and education 18 (2) ,161-173.
- Schnittka, Christine; Bell, Randy (2009). Preservice biology teachers' use of interactive display systems to support reforms-based science Instruction, Contemporary Issues in Technology and Teacher Education (CITE Journal), v9 n2 p131-159 2009
- Syh-jong jang (2010) . integrating the interactive whiteboard and peer coaching to develop the TPACK of secondary science teachers, computers & education volume. 55(4), 1744-51.
- xu, hui ling & moloney, robyn (2011). Perceptions of interactive whiteboard pedagogy in the teaching of Chinese language, Australasian journal of educational technology, 27 (2) 307-325.
- Yanez, Lorena & coyle, Yvette (2011). Children's perceptions of learning with an interactive whiteboard, ELT, 65(4), 446-457.

Appendix (1)

Survey of Saudi secondary Teachers Attitude towards Interactive Whiteboard

No	Statement	Responses				
		1	2	3	4	5
1	Interactive Whiteboard gives me more opportunities to teach my student new things					
2	I am tired of technology use in the classroom					
3	interactive whiteboard gives me more time to interact with students					
4	interactive whiteboard help me to teach easier					
5	If I know how to Use an interactive whiteboard I will be able to get a good job					
6	I believe that it is important for me to be able to use technologies such as the computer and the interactive whiteboard					
7	I feel comfortable when I use the interactive whiteboard in Teaching					
8	I feel confidant using interactive whiteboard to design new instructional situations.					
9	Teaching with interactive whiteboard makes student Happy					
10	Using the interactive whiteboard does not scare me					
11	I can concentrate better in teaching practices when I use the interactive whiteboard					
12	Using interactive whiteboard required Hard Work Outside Class					
13	Using interactive whiteboard allows me to share learning resources with other teachers					
14	Using the interactive whiteboard does not make me nervous					
15	interactive whiteboard restrict the movement of students in the classroom					
16	Using the interactive whiteboard is Difficult because its need for an educational model					
17	Using the interactive whiteboard provides Teachers many of the multimedia Resources					
18	Using the interactive whiteboard help me to deal with new technologies.					
19	Using the interactive whiteboard is very expensive					
20	Using the interactive whiteboard Requires high experience in Teaching					

1: Strongly Disagree; 2: Disagree; 3: neutral; 4: Agree; 5: Strongly Agree

Appendix (2)
Interactive Whiteboard Teachers Skills

N	Skills	To what extent The teacher has the skills				
		1	2	3	4	5
	<i>Domain One: Using Interactive Whiteboard System</i>					
1	Using Projector					
2	Using Interactive Whiteboard					
3	Using the Extended Control Panel (ECP)					
4	Using the RCA Connector Pod					
5	Using the laptop computer					
	<i>Domain Two: Integrating other devices</i>					
1	Adjust Video format					
2	Adjust HD and SD signal format					
3	Adjust Video system signal					
4	Connecting peripheral sources and outputs					
	<ul style="list-style-type: none"> • Connect a laptop computer • Connect a DVD/Blu-ray player or similar device 					
	<i>Domain Three: Maintaining interactive whiteboard</i>					
1	Cleaning the projector					
2	Focusing and adjusting the projector image					
3	Replacing the projector lamp					
	<ul style="list-style-type: none"> • Removing and replacing the projector lamp module • Resetting the lamp timer 					
	<i>Domain Four: Using interactive whiteboard in Teaching</i>					
1	Navigate the operating system.					
2	Save and open files.					
3	Management Files.					
4	Click and Drag.					
	Dealing with the square of the main tools					
	<ul style="list-style-type: none"> • Create an new illustration 					
5	<ul style="list-style-type: none"> • Opening and closing of the planned demonstration • Save a demonstration scheme • Customize the toolbox: (size - direction - color). 					
	Dealing with the toolbar of demo planned					
	<ul style="list-style-type: none"> • Insert a new pages . • Jump between pages. 					
6	<ul style="list-style-type: none"> • Change the page setup. • Specific page. • Organizer page. • Reset Page. 					
	Dealing with the main toolbox : Store tools .					
	<ul style="list-style-type: none"> • Instrument in writing texts • Tool for keyboard floating 					
7	<ul style="list-style-type: none"> • Revealer Tool • A tool to highlight • Zoom tool • Organization of the tires. • Undo tool - a tool-off (Cancel decline). 					
	Dealing with library resources					
	<ul style="list-style-type: none"> • Drag and drop • rubber stamp • larger objects • transparency 					
8						
	Dealing with advanced tools					
9	<ul style="list-style-type: none"> • Dice 					

N	Skills	To what extent The teacher has the skills				
		1	2	3	4	5
	• Builder fracture					
	• Calculator.					
	• The camera					
	• Pass-through text messaging					
	• Indicator & Observations.					
	• Timer					
	• Sound Recorder					
	• Add an audio file to a library of resources					
	• Dealing with the shortcuts bar					
	• Video					
	• Linking the object in the chart					
	• Show objects and not to show the procedure					
	• Export diagrams to a file (Word, Power point, PDF, Html, Flash)					
	• Import a file (Power point) Presented as a blueprint for a demonstration.					
	• Print the chart illustration with all the options					

1: the low; 5: the best