

INTERACTIVE WHITE BOARD (IWB): LUXURY OR HURDLE IN KUWAITI SCHOOLS

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ABSTRACT: *The use of Interactive White Board (IWB) has spread in the field of education. This study aimed at investigating the attitudes of teachers toward using IWB in teaching. It is a twofold study which attempts to explore the way teachers perceive the use of IWB and pinpoint the obstacles that hinder its implementation in education. It is a unique study which highlights the issue of the availability and free access to abundant advanced technology in Kuwaiti schools, which is faced by several obstacles that put them off using IWB. Data were collected through a questionnaire distributed to 36 teachers. In addition, a checklist of structured observation focusing on a number of features of IWBs implementations was used by 20 non-participant observers. The results indicate a general acceptance level of the proficiency in the use of IWB as implemented by observed teachers. In terms of the students' level of engagement in the learning-teaching process, our findings signal high variability between different disciplines of teaching. Recorded group discussions were additionally analysed qualitatively, the findings of which revealed that using IWB in teaching and learning process is a hindering rather than a facilitating tool. Suggestions are made for further research in the use of IWB considering the variables that hurdle opportunities to utilize advanced technologies within educational contexts in future.*

KEYWORDS: interactive whiteboards; teacher attitudes; efficiency of implementation

INTRODUCTION

Technology embedded in Interactive White Boards (IWB) is an educational tool which is nowadays considered a quantum leap in teaching and learning, which should inspire teachers to use it as a window of the brain. It is a touch sensitive screen that works in conjunction with a computer and a projector; a device that was manufactured in 1991 (2004, Smart technologies). IWBs are claimed to be powerful tools in classrooms that add interactivity and collaboration. The device is mainly designed to engage students, and assist teachers to deliver unique presentations through creating a wide range of learning opportunities which could be an investment in modernizing classrooms to meet the needs of the digital generation of nowadays. While the review is overwhelmingly positive about the impact and potential of IWBs, a large extent of the technology change depends on what teachers think it is used for, and whether IWB increases efficiency to some extent when they are used to their full potential as teaching aids.

With the idea that tactile and kinesthetic learners absorb information best by experiencing, touching, moving, or being active in some manner; IWB allows the learner to touch the screen move, delete or add objects. Therefore, the learner participates actively rather than watching the teachers performing the tasks themselves. Similarly, some low-achievers may face learning difficulties when IWB helps them use Kinesthetic and tactile skills rather than depending only on visual or auditory skills. IWB allows the learner multitouch screen, and multiuser whether individually or in groups. (Betcher and Lee, 2009; Higgins, 2010).

Such concept has been recently adopted in Kuwait to add up to the innovative technology applications in the schools of Kuwait, precisely in a limited number of secondary schools in the country. Al-Qabas,

(2016) stated that the Ministry of Education had signed a contract with an aggregate value of approximately 4 million Kuwaiti dinars (equivalent to 13 million US dollars) for the installation and operation of eight thousand device integrated in 180 secondary schools. Kuwait News Agency (KUNA, 2015) announced that Assistant Undersecretary for Public Education, Ministry of Education Dr. Khalid Rashid asked the Global Technology Group staff to facilitate the supply and process the installation of hardware and software needed for these schools.

Whether the implementation of this technology over time would show significant increase in the teachers' pedagogical knowledge as much as it burdens them to merely use a different and innovative teaching and learning method will be the focus of the present study. The study will therefore be of twofold: investigation of the teachers' attitudes towards using IWB in the schools of Kuwait, and an exploration of the efficiency of using IWB in classrooms. The study additionally attempts to expose factors influencing IWB in pedagogy domain, based on which the authors of this study will highlight the problems which teachers face when implementing innovative technology in teaching and learning in general, and the use of IWB in particular.

In doing so, the present study raises the following questions to reflect on the views and the practice of using IWB by teachers in the schools of Kuwait:

The following are the research questions that could be elicited from the questionnaire:

1. How frequently do teachers within various disciplines use smartboards in their teaching?

What is the teachers' overall perception of using smartboards in teaching?

- a. Does it make the teaching process more efficient?
- b. Is it more successful in certain disciplines over the others?
- c. Is it time-efficient?
- d. Does it raise teachers' satisfaction in their teaching?
- e. Does it initiate more student-teacher interaction?

A set of questions that may be answered throughout the students' evaluation sheet may include:

Do teachers use the smartboard efficiently?

The efficiency will be evaluated from the following aspects:

- a. Engaging their students in lessons.
 - b. Facilitating lesson objective fulfillment.
 - c. establishing a logical organization of the lesson.
 - d. Implementing suitable multimedia.
 - e. Presenting appropriate lesson title slides.
 - f. Reinforcing lesson content.
 - g. Accommodating students' various learning styles
1. What is the teachers' overall perception of using IWB in teaching?
- a. Does it make the teaching process more efficient?
 - b. Is it more successful in certain disciplines over the others?
 - c. Is it time-efficient?
 - d. Does it raise teachers' satisfaction in their teaching?
 - e. Does it initiate more student-teacher interaction?
2. Do teachers use the smartboard efficiently?
- a. Do they engage their students in lessons?
 - b. Is IWB facilitate lesson objective fulfilment?
 - d. Do teachers implement suitable multimedia?
 - e. Do they present appropriate lesson title slides?
 - f. Do they reinforce lesson content?

Background of the study

In order to establish a solid background of our study, two main issues were closely reviewed as presented in previous literature on the use of IWB in education.

Attitudes of teachers towards IWBs use in teaching

The findings from numerous studies revealed that the more teachers use Interactive White Boards, the more they like this technology (Armstrong et al. 2005; Glover & Miller, 2007; Hall & Higgins, 2005; Levy, 2002). Nevertheless, the most commonly noted problem by teachers was the need for sufficient training to use the IWBs properly. A number of studies on Interactive White Boards have also found positive impact on students' motivation and achievement. Some of the studies were conducted in similar contexts to the Kuwaiti context. A Turkish study, for example, conducted by Mathews-Aydinli and Elaziz (2010), focused on students' and teachers' attitudes toward the use of interactive whiteboards in EFL classrooms. In it, Mathews-Aydinli and Elaziz concluded that as the number of hours of IWB exposure increases, students' awareness of the distinctiveness of IWB technology increases.

Turel and Johnson (2012) evaluated both teachers' perceptions and their use of Interactive White Boards (IWB). The participants in the study were from different educational levels, whose practice revealed a strong belief that Interactive white boards can be used to facilitate teaching and learning if it occurs collaboratively with colleagues. However, intensive training is needed beside the frequent use of these instructional technologies. Miller, Glover and Avris, (2005) state that more evidence becomes available when teachers are aware of the benefits of kinesthetic learning strategies, which combine action and intellect alongside with verbal and visual learning, these teachers are more ready to support their use of IWBs.

Korkmaz and Cabkil, (2013) explore the reasons for which teachers may be reluctant to utilize IWB technology within the teaching-learning process. The study claims that In general, teachers find IWB useful. However, the technical problems encountered in using IWBs make the teachers avoid implementing them in their actual teaching.

Several additional studies conducted a survey of teachers who are IWBs users; a study by Muhanna and Mousa Nejem (2013) investigates attitudes of mathematics teachers from private schools in Amman city in Jordan toward the use of IWBs in teaching the subject to determine the effect of gender, experience, and qualification of teachers on their attitudes. The study reveals positive attitudes toward using IWBs in teaching mathematics; however, there were statistically significant differences due to the experience variable. The study results also present that teachers with experience of five years or less had a higher mean than teachers with experience above five years. This indicates that experience has an effect on teachers' attitudes. Some statistically significant differences have been also due to the qualification variable. Teachers holding Master's degree have a higher mean than those holding a bachelor's degree; which indicates that qualification has an effect on teachers' attitudes.

In Bruce Torff, Rose Tirota (2010) study, the two researchers try to determine the extent to which use of IWB increases motivation throughout the teaching learning process. Findings reveal that teachers' attitudes about the IWB are mainly associated with higher levels of motivation; in other words, the students with teachers who were more supportive of IWB technology report slightly higher motivation levels than those in the control group. The researchers conclude that claims about the motivation-enhancing effects of the IWB are not baseless, though they appear to be somewhat overstated.

In regard to user-perception of IWBs, Emeagwali and Naghdipour (2013) conducted a survey across six universities in north Cyprus. The survey investigated the usage of IWBs, and the results show that the majority of the students and lecturers perceive the use of IWBs as effective in the learning and teaching processes. However, a large body of review of literature relates such positive perception to

teacher training, teacher confidence, school culture, technical support, and lesson preparation practice time (Digregorio & Sobel-Lojeski, 2009).

Observation from the United Kingdom records students' attitude towards using IWBs as being enthusiastic to touch-on-screen applications (Smart technologies Inc. 2004). Latham (2002) found that two thirds of the teachers felt that the IWB offered strategies for teachers to develop interactive teaching. One third states that pupils from all ability groups have now become more willing to take part in lessons. Observations of lessons have also confirmed such positive perceptions. Almost all observed lessons indicate the use of a high level of whole class interactive teaching when implementing IWB. A study in the U.S has also revealed an increase in the students' excitement levels when teachers implement IWB in their classrooms (Gerad, 1999).

Efficiency of deploying Interactive White Boards in teaching

IWB is designed to help the learner to overcome the challenge of maintaining the dynamic interaction with students during their use of computer screens by providing a large work space for hands-on materials. Learners should be enabled to learn actively and engaged in the learning process through reading, writing, discussion, analysis, synthesis and evaluation. (2004, Smart technologies) However, researchers in this field were trying to find out whether IWB was really doing what the device was designed for. A mega review of classroom case studies in the U.S, UK and Australia has come up with a number of findings on the issue. For example, observations from the U.S. suggests that IWB can be used in classrooms to increase student's engagement during the learning process (Beeland 2002). Reed (2001) states that when tutors introduce the sites by touching the screen without using a mouse or keyboard, they give a chance for the group members to ask questions and listen to answers before carrying on the task individually. This saves times and quickens the pace of the lesson. (Cunningham et.al 2003)

On another hand, Celik (2012) explores the efficiency of using IWB in Turkish primary schools and educational institutions. The results suggest that the confidence levels of the participant teachers in using IWB tools and its features are deemed to be unsatisfactory. Another study from Saudi Arabian setting by Al-Faki and Khamis (2014) tries to shed light on the challenges the teachers face when they implement IWB in teaching. The findings of this study have revealed a number of challenges that do interact and hinder IWB integration into teaching and learning processes. For example, most teachers were neither confident nor comfortable while integrating IWBs in their teaching practices; besides, they believe IWBs require more time to prepare and plan for the lesson. The study recommends providing teachers with extra training sessions to reach adequate competence levels in using the device.

In a pilot study, Manny-Ikan et al. (2011) attempts to evaluate the use of IWB in education; the results indicate that integration of technology into instruction poses some difficulties and challenges for teachers. Such as, *"How to use the board to advance the learning beyond the initial 'attraction' of the technology"*; not to mention, *"lack of technical support"*, and *"Over-burdening of the teachers: Preparing lessons for instruction using the IWB takes a large amount of time"*. The researchers announce that a need to focus on the pedagogical training of teachers, and an establishment of a database for instructional tools have become a must. Additionally, they suggest that the accessibility to technology is to be extended to a wider population of teachers and students.

Al-Qirim (2011) evaluates the effectiveness of IWB in teaching in the Faculty of Information Technology (FIT) in the UAE University, for which findings unveil the factors affecting the use of IWB. The study establishes various hurdles facing the integral use of IWB that interfere with deploying it in teaching some subjects. Different hurdles are found; such as, the technical support factor, software components to facilitate teaching process, and schools' Administration provides insufficient training, all these are still questionable and require the help of educators in weighing the benefits of

interactive whiteboards in education. Such a pressing issue is, unfortunately, accompanied by insufficient and inconclusive body of literature in this regard, despite the signs indicating that students may only accept the gradual introduction of the new technologies, along with their progression in study level.

In a European Lifelong Learning Project about educational resources for computer-assisted language learning (CALL) (teacher education using IWB), Whyte et. al. (2014) discuss the challenges and opportunities facing teachers when using IWBs. The study shows both benefits and drawbacks of IWB, in which it states that teachers of differing professional development levels perceive differing interpretations of “good practice”, and some may have lacked both experience and confidence in reflecting on classroom activities. Recommendation for more research has also been made.

Ball (2003) assured that a shared image in the classroom can boost discussion and encourage teachers to plan lessons which involve interactive whole-class activities. Similarly, Cunningham, et al. (2003) indicate that it quickens the pace of lessons and engages a larger number of students in the class.

Cox et.al (2003) state that teachers are given a better chance to observe their learners collaborating in pairs or team using IWBs, and note thorough feedback by listening to their comments.

Observations of learners from the United States’ schools indicate that IWBs reduce the level of anxiety and increase the concentration of the learner (Salintri and Clovis 2002). More studies find that teachers prefer using IWB rather than the traditional whiteboard; they claim that it is more flexible and allows individualized and collective assessment (Edwards, Hartnell and Martin 2002).

METHODOLOGICAL FRAMEWORKS

The methodological and technical elements were taken into consideration during the process of conducting this study in terms of design and procedures; for example, what to do, how to do it and why to do it’, (Petrina, 2007). Some of these elements were predetermined by the school system in which the study was conducted. The school falls under the umbrella of the Ministry of Education in Kuwait. The curriculum for all subjects is unified among public schools in the country. The school is a secondary school for girls only, where each classroom is recently equipped with an IWB. The study focused on the use of IWBS in five subjects, which were mainly using IWB in their lessons.

Sample of the Study

The participants of this study were from a mid-sized secondary public school in Kuwait during the second semester of the scholastic year 2014/2015. The sample involved 36 female teachers who were teaching six different subjects: English language, French Language, Arabic language, Islamic studies, Math and Science. They were recruited as bachelor degree holders and they have a teaching experience ranged from 4 to 12 years. All teachers have one to two years of experience in a compulsory implementation of IWBs in teaching.

Data gathering Instrument

This study aimed to elicit the views of teachers on the use of IWB in the subjects they teach. Therefore, a questionnaire was given to 36 teachers, who actually use IWBs during the break time. The questionnaire which includes 10 items was designed to elicit users’ attitude towards IWB implementation in their lessons. The researchers then collected the questionnaires directly from teachers at the end of the school visit, and the data was analysed quantitatively.

In addition to the questionnaire, a checklist of structured observation focussing on a number of features of the use of IWBs, and was used for non-participant observation. The observers

visited the classroom and had no relationship with the teachers during the process of the pedagogical activities and they did not take part in teaching.

Another method of data collection in this study was of focus group discussions with a number of teachers who implemented IWB in their lessons. This was conducted as a final phase of the study with the purpose of viewing how teachers perceived technology embedded in IWBs. They were asked if IWB differs from other multimedia applications, such as, PowerPoint; and allowed them to mention these differences. They were also asked if they agree that using IWB in class makes a smarter teacher. The last question was whether they feel the need for in-service training sessions in IWB use.

Procedure

The researchers visited four secondary schools in different provinces in Kuwait, then decided on one secondary school for girls as all the classes are equipped with IWBs. A letter of request was sent to Mubarak Al-Kabir province. After receiving an approval from the Minister depute, the authors set for the study in May 2016. The visits to the appointed school took three successive days; the days were scheduled as convenient class visits, collecting data from teachers via non-participant observation, group discussion and filling in a survey. 20 Observers were selected from Computer-assisted language Learning (CALL) course to conduct a structured observation, as they had already studied the applications of IWBs in classrooms and have a thorough knowledge about the ideal use of IWB.

A summary of each step in conducting the research was as follows:

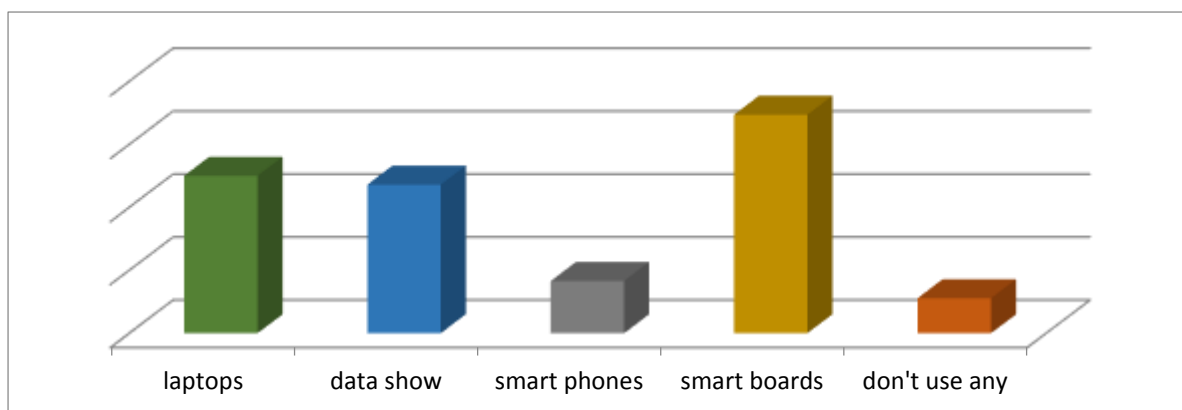
- 1) A request letter was sent to the administration office seeking the agreement to conduct a study in the assigned secondary girls' school. Both the administration and the teachers welcomed the researchers and designed a timetable to visit the classes, each as specified in a span of three days.
- 2) A structured non-participant observation sheet was distributed among five observers. They observed the whole lesson in each period according to the timetable and checked the checklist, then took notes.
- 3) Participants of each subject were given a questionnaire consisting 10 questions. They were given 15 minutes during their break time to complete the questionnaire and hand it back.
- 4) A group discussion was designed of random teachers two for each subject. The group of participants were given four questions to answer without restrictions on their views. They were asked to reflect on their experiences while using IWBs. The researchers recorded their discussion and then interpreted them qualitatively.

RESULTS

Teachers' questionnaire:

The questionnaire was distributed to 36 teachers from different disciplines. The first question inquired about the devices teachers used in class. Although most teachers stated they use multiple devices in class, the majority of teachers used the smart board (69.4%), while 11.1% of the teachers did not use any electronic or digital devices in class. Chart (1) below shows the devices use in class.

Chart (1) Amount of use of different devices in class



From chart (1), it is clear that most teachers use devices in teaching, and that IWB is one of the most common teaching aids.

Despite the fact that 75% of the teachers believe that IWB helps teaching, 63.9% stated that having an IWB in class is positive, as opposed to 30.6% who feel neutral towards the availability of smart boards in classrooms. 40% of the teachers believed that IWB is most useful in English classes. 34.3% believed that smart boards could be better used in Science classes, whereas only two participants felt that an IWB could be useful in all subjects.

When asked about the amount of time needed to train to use IWB, 38.9% of the teachers felt that they needed a week; however, 36.1% only needed a few hours. Yet, it appears from the data that many teachers are not completely comfortable with the use of smart IWB. On the one hand, 47.2% of the teachers feel completely comfortable using IWB in their classes, and 33.3% noted that IWB has different applications that can always be used by students to learn different topics. On the other hand, 44.4% of the teachers sometimes feel comfortable using IWB in classrooms, and 58.3% reflected their belief that students could sometimes use applications to learn different topics. This reflects the amount of confidence in the use of IWB.

Observer's evaluation checklist

20 observers were selected based on their high skills in a course of CALL, designed to qualify the students at the College of Basic Education with a set of teachers of English requirements. Observers were provided with a checklist which includes seven main points addressing the appropriateness of IWB use; namely, students' engagement, facilitating objective teaching, logical organization, suitability of multimedia, appropriate slides, reinforcing content, and accommodating different learning styles.

It appears from the results obtained that most aspects were found to be proficient in terms of use. The majority of observers felt that the use of IWB was proficient (47.6%). However, high significance was found in a one-way ANOVA by discipline $f \leq 0.01$ (where significance was calculated at ≤ 0.05). The reason of the significance lays in the fact that most French teachers were rated as "beginning" in the use of IWB to engage in lessons. The mean of engagement of the French teachers was $m=1.25$, where the average mean was $m=2.24$.

Although the facilitating of the lesson objectives was also mostly believed to be proficient (52.4%), significance of $f \leq 0.01$ was found. This is due to the fact that the mean gained by the

French teachers was $m=1.50$, and the average mean was 2.38. 42.9% of the students felt that the teachers were proficient in the use of IWB to help establish a logical organization of lessons. Mainly, the science teachers gained a high mean of 3.14, while the total mean was found to be 2.33.

As for the teachers' ability to implement suitable multimedia in class, 42.9% of the observers believed the implementation was proficient as opposed to 28.6% who noted it was developing. While the French teachers received the lowest mean from an average mean of 2.33, the science teachers received the highest ($m=1.25$ and $m=3.29$ consecutively). While a high 28.6% of the evaluators felt that the teachers were beginners in the use of the IWB to help present appropriate title slides, 47.9% felt they were proficient. This difference was reflected in a one-way ANOVA by discipline, where $f \leq 0.01$. The significance was due to the fact that the French teachers gained a very low average $m=1.00$, where the total average was $m=2.38$.

Most observers evaluated the ability of teachers to reinforce lesson content as proficient (42.9). Nonetheless, Science teachers gained the most points where the mean for Science teachers was found to be $m=3.00$, as opposed to the French teachers who gained a low mean of 1.5; hence, $f \leq 0.01$ in a one-way ANOVA by discipline. Finally, the majority of teachers were believed to be developing in the use of IWB to accommodate for students' various learning styles (42.9), as French teachers $m=1.25$. In addition 38.1% were found to be proficient. This is due to the fact that Science teachers scored $m=3.00$, out of a total average of $m=2.19$. Chart (2) below reflects the percentages gained by French teachers.

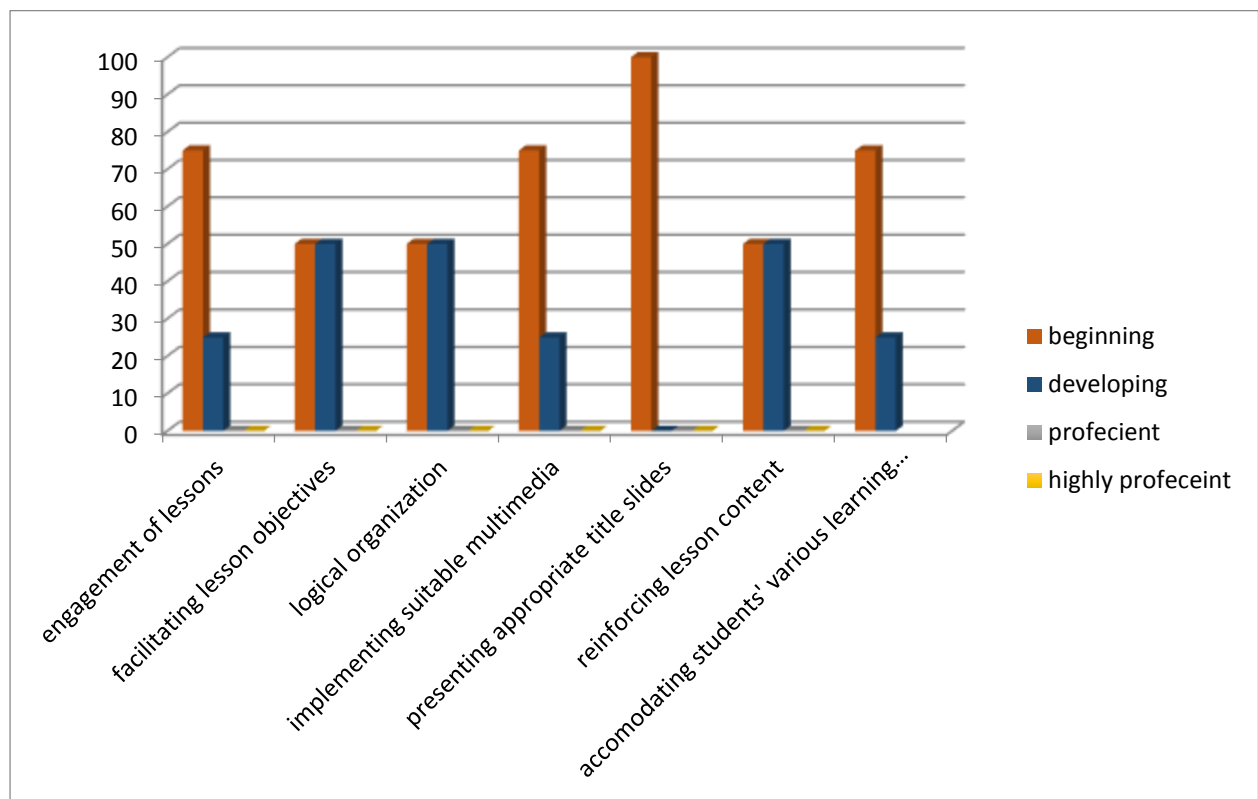


Chart (2) Percentages of the Evaluation of French teachers in regards to the use of IWB

From Chart (2), it is clear that French teachers are considered mainly beginners in the use of IWB. It was found from the analysis of statistics that most Science teachers were found to be able to use IWB proficiently across various aspects of teaching. On the other hand, French teachers were held to be mainly beginners when it comes to the use of IWB. Therefore, it appears that the teaching discipline has a major effect on the effectiveness of the use of IWB. Unlike our review of literature, our study tends to bring a new intervening factor in IWB use to the surface, hence, teaching discipline.

DISCUSSION OF THE STUDY'S FINDINGS

Quantitative Findings/ Questionnaire

The questionnaire items were designed to elicit responses in relation to the following issues:

1. The prominence of the use of IWB across various disciplines.
2. The overall perception of using IWB in teaching.
3. Material and time efficiency of IWB.
4. IWB potential in raising teachers' satisfaction in teaching.
5. IWB potential in initiating student-teacher interaction.

The results of the questionnaire items indicate a general positive perception towards IWB implementation in teaching. Nevertheless, an investigation of a number of precise aspects of the use of the tool suggested a number of challenges. The majority of IWB users tends to agree on the efficiency of its use in teaching, as it helps teachers to deliver their lessons. Yet, about 25% of the users finds it not helping lesson material delivery at all. An investigation of the efficiency of the tool in delivering taught material suggests that users believe the tool tends to be more efficient in some disciplines than others. In other words, IWB may better facilitate information delivery in science base subjects. A possible explanation could be the objective nature of such subjects as opposed to the subjective nature of fine arts and humanities.

As for time efficiency, users felt they only require a few hours -up to a week time- of training to gain the required competency in IWB use; hence, the implementation of the tool seems to be time efficient, as perceived by its users. However, a further investigation of the general feeling when implementing IWB in classes show a general discomfort in its use; a finding that indicates a possible dissatisfaction towards the tool, and directs our study towards a process of a deeper digging into the issue. The results also signal users' feeling of dissatisfaction in one of the ultimate purposes of the tool as a student-teacher initiator.

Quantitative Findings/ Observation check list

IWB level of efficiency was evaluated across a number of efficiency aspects, as follows:

1. Learners' levels of engagement.
2. IWB potential in fulfilling lesson objectives.
3. IWB potential in lesson organisation.
4. Users' ability in implementing suitable multimedia.
5. Appropriateness of lesson title in the presented slides.
6. Users' skills in using IWB to reinforce lesson content.
7. IWB's potential in accommodating for learners' various learning styles.

The results indicate a general acceptance level of proficiency in the use of IWB as implemented by observed teachers. In terms of the students' level of engagement in the learning-teaching process, our findings signal high variability between different disciplines of teaching. Teachers

of French, for example, were mostly evaluated on the aspect of engaging their students as beginners, as opposed to other disciplines, who were mostly evaluated as proficient/highly proficient

The study's findings also suggests that IWB is a good lesson objective facilitator, with at least half of the evaluators believing that teachers were using IWB proficiently on the aspect. However, a significant discrepancy is presented between teachers of French and teachers of Science, with the former evaluated mainly as beginners, and the latter being mainly evaluated as proficient users. The results have also suggested a higher ranking of Science teachers towards high proficiency, as opposed to an average ranking of teachers of all other disciplines towards less levels of proficiency. Similar findings were also obtained on the aspect of implementing appropriate multimedia throughout the use of IWB in lessons. One more time, Science teachers were ranked towards high proficiency levels, while French teachers were ranked lower towards a beginner level. The pattern has also repeatedly indicated along the aspect of presenting appropriate lesson title slides.

As for observers' evaluation of IWB as a reinforcing element of the lesson content, around half of the teachers were generally ranked as proficient. Yet a strong discrepancy was discipline based as a result of Science teachers excelling on the aspect as opposed to French teachers gaining a very low rank towards the beginner level. An overall low ranking was indicated through the results on the aspect of IWB as a learning style accommodator, with around 40% of the users ranked around a developing proficiency point. A very close average of 38% have contrastively ranked the users as being proficient. Such discrepancy was caused by a strong variability between French teachers and science teachers. All in all, our study results present an overall high ranking on proficiency across all investigated aspects amongst Science teachers use in particular, yet a lower ranking on the competency of French teachers.

Qualitative Findings/Group Discussion

5.3.1 Mini-structured group discussions (questions/answers) tabulated:

Question	Response
1. Is IWB different from other multimedia applications such as PowerPoint (PP)?	Yes: 18/18 responses. No: -
2. If yes, what are the differences?	• IWB is a data show/PP is a software. • IWB has rich information, more helpful, more efficient. • PP contains fixed information; IWB can be written and drawn on. • Applications of graphs can be more precise in IWB. • IWB raises the efficiency of the class. • IWB is a multi-purpose device (can be used for lesson presentation, can be written on, shows videos, breaks lesson

	monotony, attracts the students' attentions and raises their motivations and interests. • PP serves one application of the multi-applications in IWB; can be used at a wider scope. • IWB has a higher potential than PP. • IWB is more interactive; can be written on. • IWB is so much touch-sensitive which makes it freeze at several points. • PP is a slideshow; IWB can be written on, and has a number of other applications.
3. How far do you agree/disagree with the following statement? "Interactive White Boards make smarter teachers".	• Could be true; it includes several applications that facilitates learning. • Yes, IWB includes a number of applications that require more knowledgeable teachers. • Sure, makes teachers capable of using such devices easily. • Yes, it makes teachers more intuitive, know how to deal with various problems, and adds to the variety of teaching tools. Yes, it helps teachers in using modern technology, and makes them more confident. • No, it only facilitates and enriches the teaching-learning process. • No, it can only serves as facilitator; has nothing to do with how smart the teacher is. • No, it only facilitates subject presentation; does not develop teachers' intelligence. • No, teachers who lack intelligence will not be able to use IWB in teaching. • Of course not; there is no relationship between using IWB and teachers' intelligence; IWB enriches the lesson and teaching-learning process. • No, IWB can work as a facilitator only; makes lessons more interactive. • No. • IWB might only work towards broadening teachers' ways of question-

	answer techniques; never reinforces teachers' intelligence. • No, IWB is a facilitator device; it should be named interactive not smart board. • No, there is no relationship between the two concepts; it's a tool in teaching that can be replaced by other tools. 2 • I don't find IWB amazing at all. I prefer conventional boards and data show. • I disagree; IWB facilitates the teaching-learning process, but never makes an intelligent teacher.
4. Do you feel that you need more in-service training sessions for IWB use?	• No. • No, I do not need it. • No, I'm used to it. • No, I had enough training. • No, I prefer using data show. • No, I'm so competent in using it. • No, it is easy to use. • No, practice makes perfect. • No, I have enough information on how to use it.2 Is, • I don't think so; IWB has a limited number of applications that can be dealt with easily. • Yes. • Yes, I'd like to know more on its different applications and usages. • Yes, I'd like to be up-to-date in using the technology. • Yes, IWB has multiple usages, while many are only using it as a data show board. • Yes, it includes various applications. • Yes, it requires more training, especially when you have to move from videos into writing; you have to be trained on how to write neatly on it, and how to use different colours in your writing.

The tabulated responses on teachers' responses indicate the following tendencies:

- All teachers believe that IWB is a different teaching-learning tool from conventional power-point application.

- A set of the responses on the nature of such differences show a number of perceptions on IWB as held by teachers using it in teaching:
 - a. IWB is a data-show, while Power point is a software.
 - b. IWB is a multi-purpose, multi-benefit tool when compared to the ‘primitive’ conventional power-point.
 - c. IWB is more flexible, as it enables the user to write, present videos (live/recorded), highlight, add, omit, expand, reach out, and manipulate the presented materials. Power-point on the other hand, does not implement any of those features.
 - d. IWB is an interactive tool, which makes its application more satisfying and beneficial to the teaching-learning processes.
 - e. Only three teachers pinpointed a serious drawback in using IWB, that is, the sensitivity of the screen, which makes it too difficult to deal with in lessons. Having weak internet connections makes the problem even more intense, and leads to some teachers abandoning the tool in their teaching.

- When teachers were asked about their agreement/disagreement on the statement “IWB makes smarter teachers”, teachers’ responses indicated:
 - a. Most respondents (11/15 comprising about 70% of the sample) believe that IWB does not add to the competence of a teacher; it facilitates the teaching process; does not make a teacher more knowledgeable. In fact, one of the responses indicates a strong negative perception towards IWB, with the teacher stating her preference of using conventional boards and data-shows.
 - b. A few teachers (4/15 comprising about 27%) perceive IWB as a tool that adds to its users’ competence in teaching, enriches users’ knowledge, and makes teachers more tech-literate.

- Teachers’ responses on whether they need extra training courses on the use of IWB show the following:
 - a. The majority do not find the need for extra training (12/18 comprising about 67%), a surprising result when we take into consideration teachers’ responses on other items. The concept has, therefore, been further investigated through oral discussions with the respondents, as well as the school manager (who also coordinated and facilitated the researchers’ data collection). The school manager’s justification of the discrepancy was as follows:

Teachers are overwhelmed with a huge number of tasks that they have to fulfil using this technology. They therefore might be reluctant to respond affirmatively to such question, as they may not want to be further overwhelmed with training courses.

5.3.2 Qualitative Findings/ Oral Group Discussions:

An oral discussion of what might turn IWB into a hindering rather than a facilitating tool with a number of teachers has also pinpointed the following concerns:

- Crowded classes: The number of the students in each class (35-40), which results in limiting their access to the IWB.
- Unsuitable setting: The classrooms are not designed to fit an e-learning process, which results in unequipped infra structure and hardware platform.
- Inefficient Internet connection (slow in many areas, and missing in others), makes the implementation of IWB as a teaching-learning technique less productive than expected.
- The management offices are not prepared to organize an appropriate timetable for the use of the IWB in different classrooms. This leads to overlapping lessons and lack of preparation at a number of occasions.

- Some teachers were never provided with adequate training, which makes them reluctant to use the tool in their lessons. Students of such teachers are left with no access at all to IWB, leaving them at a less advantageous situation than their peers.
- Lack of enough research to accredit/discredit the implementation of advanced technology in general, and IWB in particular.
- Implementation of IWB in teaching requires extended lesson time frame than the conventional one, a measure that has never been taken into consideration when the schools have decided to endorse the technology in teaching-learning process.

LIMITATION OF THE STUDY

- In a strictly gender segregated society setting like Kuwait, access to the boys' secondary schools would be so difficult. In spite of the fact that female researchers might be allowed to conduct studies for a limited time at boys' schools, the presence of female researchers visiting the schools may be considered an external variable that could result in inaccurate findings. We are looking forward to extending this study to boys' secondary schools in future so that we can compare male teachers with female ones.
- With such a limited sample size, it might be unsafe to overgeneralize the findings of this study beyond the study's setting. It should be borne in mind that Kuwait has very versatile demographical features, which could be in effect based on the population's social status. Future researchers in this field should consider widening the sample size to include two schools of each gender in each of the five provinces in Kuwait.

CONCLUSION

Generally speaking, our study tends to intersect with the main body of literature in terms of the users' ambivalent attitudes towards implementing IWB in teaching. In other words, although our respondents have tried to present some positive perceptions of their usage of the device, our qualitative work has revealed some contradicting findings at a deeper level.

As for the efficiency of IWB in education, the results of the present study have clearly announced a number of hurdles that should be urgently accounted for by the leading body of educators in Kuwait. The study has therefore come up with the following recommendations:

1. Prior to the implementation of any innovative technological device in schools, the Ministry of Education should pave the way to its success by providing the suitable infrastructure for the new technology. Enabling fibre optic broadband should be one of the main features of any future educational institutions in the country. Building a bigger number of classrooms and limiting the number of students in each class has also become an urgent matter.
2. Future teachers should be technologically qualified during their years of study for a teaching degree. Apparently, our teachers seem to lack enough training in technology. Such consideration should be forwarded to curriculum development departments in all teaching preparation programs. Current teachers should also be provided with compulsory training courses to enable them to utilise IWB and any future device efficiently.

2. When introducing teachers to a new teaching device, school administrators should consider the burden of implementing such new device on the teacher, and therefore, lessen the load of the teacher so that s/he can maintain her/his time to the proper use of the new technology. This, we believe, will help teachers to welcome allocating enough time in practising the new device.

To sum up, we believe that the findings of the present study reveals that implementing IWB in a setting like the one we explored might be safely described as a hurdle rather than a luxury. Our findings also suggest a gradual transfer towards technology rather than a strong and a sudden one, one that takes into account the abilities of our current teachers, the schools' infrastructure, and the exposure to the practice on technology for future educators.

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