

# Investigating Teachers' Attitudes towards the Effectiveness of Using Interactive Whiteboards When Teaching English as a Foreign Language

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**Abstract:** This paper investigates teachers' attitudes towards Interactive Whiteboards (IWBs) in English language (ELT) classrooms in Jeddah, Kingdom of Saudi Arabia (KSA). The paper is based on the theoretical framework of the Technology Acceptance Model (TAM), which explains individuals' behaviour in accepting and adopting the use of technology. A two-phase case study approach using questionnaires and interviews was employed to investigate the attitudes of teachers towards integrating IWBs in English classrooms with the objective of identifying their different features, usages, usefulness, and ease of usage. The study took place at six male state schools. The results show that the majority of teachers in the sample have positive attitudes towards the usefulness and ease of using IWBs. Teachers believe that IWBs provide a productive teaching method to enable them to motivate their pupils and work cooperatively and that they remarkably improve children's cognitive learning, particularly in primary schools. Teachers believe that the basic system of IWBs is easy to use and helps them to save time; however, there are some functions of IWBs that could be used to increase teachers' productivity through providing appropriate training sessions. This paper concludes with teachers' belief that IWBs are a potential means of receiving knowledge and information. Further investment is required into providing more training sessions by professional trainers to enable teachers to use all the features of IWBs.

**Keywords:** English teachers, attitudes, IWBs, TAM

## 1. Introduction

The use of Information and Communication Technology (ICT) in education is increasing at a great speed today in developing countries and has become a critical component in classrooms during the 21st century. ICT is used to improve teaching, facilitate learning, and increase engagement and motivation in the classroom. ICT offers a powerful technique to work with language and provides new ways of communication and receiving knowledge; it also facilitates the users' access to all kinds of different texts. This gives pupils a great opportunity to be active learners (Glover, Miller, Averis & Door, 2005). ICT has also made enormous strides over the past two decades. For example, the introduction of the Interactive Whiteboard (IWB) as an instructional tool to help learning has resulted in a number of positive outcomes (Glover et al., 2005). BECTA (2003) defines the IWB as an instructional touch-sensitive board tool that allows computers to display images onto a board by connecting to a digital projector. The IWBs are designed to enhance the quality of teaching and learning in classrooms, supporting

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teachers to make their lessons more exciting, effective, and attractive for learners.

The majority of Saudi teachers and students are familiar with using technology in everyday life, and it would be interesting to discover if regular use of IWBs in English Foreign Language (EFL) classrooms would improve teaching English (Bakadama & Asiri, 2012). However, questions have been raised about teachers' beliefs regarding the potential outcomes of IWBs and how teachers might use IWBs effectively in EFL classrooms. A number of current studies which focus on teachers' attitudes towards the usefulness and the ease of using IWBs when teaching English have mainly used either qualitative or quantitative data at specific levels and ages. So far, there has been little or no research conducted that employs a mixed methods approach which would potentially offer a holistic and deeper understanding of English teachers' attitudes regarding the use of IWBs at all educational levels and ages. Previous studies have also had limitations, such as short overall duration (possibly due to the strict policy of the Ministry of Education KSA towards the duration of collecting data), as well as small number of participants due to the lack of time.

As a result, the nature of the effectiveness of IWBs in teaching English in KSA remains unclear. Therefore, this study is conducted at different educational levels (Primary, Intermediate and High schools), which could provide an exciting opportunity to advance our knowledge of whether IWBs can be effective or not in classrooms. The aim of this study is to use a mixed methods approach to extend our understanding of English teachers' attitudes towards the effectiveness and ease of using the IWBs as an instructional tool in teaching English.

The main questions under investigation were:

- (1) What do teachers identify as the possible benefits of using IWBs in their teaching?
- (2) How do teachers perceive the ease of use of IWBs when teaching English?

The study is guided by the Technology Acceptance Model (TAM) theoretical framework, which explains an individual's behaviour in accepting and adopting technology. The TAM theory has two belief variables which refer to perceived usefulness and perceived ease of use (Teo et al., 2009). The former deals with the belief that the job performance and productivity can be improved based on the use of technology. The latter can be defined as the degree of individual beliefs towards using a particular system, in terms of leading toward a reduction of effort and freeing up of time (Davis, 1989). According to Davis (1989), there is a relationship between users' beliefs about a technology's usefulness and the attitude and the intention to use the technology. Consequently, both perceived usefulness and technology usage have been affected directly by perceived ease of use (Adams, Nelson & Todd, 1992; Davis, 1989). However, the focus of this study will be on the two belief variables of perceived usefulness and perceived ease of use, which reflect teachers' attitudes towards IWBs.

## **2. Literature Review**

### **2.1 The Attitude of EFL Teachers towards the Benefits of IWB in Teaching**

Miller and Avris (2005) highlight the positive attitudes expressed by teachers towards using IWBs in classrooms, pointing out a considerable satisfaction among teachers with using IWBs to make lessons more interesting and to enhance learning. For instance, teachers are able to make lessons more attractive and interesting by highlighting and colouring or annotating crucial information and content (Türel & Demirli, 2010); they can also use these tools to revise and review the lesson, reinforcing their pupils' comprehension, when they flip back and forth to show the previous content (Levy, 2002; Smith, Higgins, Wall & Miller, 2005). Teachers can also use IWBs to improve pupils' collaborative writing and collaborative problem solving through using pictures, images,

and animation (BECTA, 2006; Beauchamp, 2004). They can hide, reveal, drag and drop images, and make notes, as well as navigate websites, due to the IWB's connection to a computer, enabling teachers to create interactive lesson plans and activities (Türel & Demirli, 2010). These features seem useful for component and expert teachers in using IWB to deliver lessons but it might be obstacle for novice teachers in using IWB along with different settings, ICT skills, and ICT facilities.

According to Bakadam and Asiri's survey in Saudi schools in 2012, IWBs play a powerful role for teachers in drawing their pupils' attention by increasing their own productivity in terms of coming up with new teaching styles and strategies. This can be achieved through IWBs' features, and through making lessons more comprehensible through repetition as well as through reducing teachers' time and effort. The same study revealed that teachers use the IWB's abundant features to increase pupils' understanding as well as to improve their own teaching style, even though IWBs do not change teaching styles completely. This result is similar to BECTA (2008), who claimed that there is no clear evidence of pedagogical change among teachers who used IWBs, although IWBs are a beneficial technology for teachers to use to engage pupils' learning and participation in classrooms. For example, when teachers use IWBs to present their lessons, they can use a wide range of their features to deliver dynamic interactive lessons, which can make the classroom a more enjoyable space. Hence, teachers can help pupils to absorb the subject knowledge more easily through allowing pupils to become more active and engaged; in some cases, pupils might also become more well-behaved thanks to the attraction of the new technology. IWBs may help students to assimilate the content and they may develop new skills such as communication skills when they solve a task physically on the board and explain it to their peers.

Some researchers, however, have discussed the barriers that users of IWBs face and the drawbacks to their use in classrooms. Schmit (2009) and Smith et al. (2005) point out that IWBs have drawbacks regarding technical problems that link the computer to the board, its network connection and the projector, which make both teachers and learners frustrated. They believe that preparing and designing lessons that make use of IWBs requires much time, in particular for those who do not receive proper training in using IWBs, who may find ready-to-go textbooks easier. For example, novice teachers who lack many of the basic ICT skills may find difficulty in connecting their computers to the IWBs or the projector, or in installing software. Due to technical issues, teachers may struggle to present words or images on the screen, making the teacher feel frustrated and under-confident. As a result, teachers find IWBs to be a complicated and troublesome tool to use. IWBs are still expensive, although their price has been decreasing since first launching in schools in the 1990s. A number of schools are not able to provide IWBs and their equipment, which can minimize the provision of diverse facilities in each class due to a lack of funding (Miller, Glover & Avris, 2005; Hennessy & Deane, 2007; Walker, 2005). One can question that the IWBs have advantages and disadvantages like any technology but if their benefits are more than their drawbacks, then the IWBs can be worth being used. In addition, Smith et al. (2005) and Levy (2002) argue that the IWBs can cause boredom, and distract pupils' concentration from the content of the lessons, since pupils may focus on the tool if IWBs are used inappropriately. For example, when teachers use animation, pictures or video clips, the majority of students may focus their attention on the tool itself rather than the content. Therefore, this situation may result in undervaluing the importance of the teacher in classrooms and lose the ability to encourage students to be engaged in lessons.

Some Saudi researchers, such as Bakadam and Asiri (2012), found that even though a number of English teachers are satisfied with the positive outcomes of integrating IWBs in their classes, they faced some issues and obstacles when using them. This is because of a lack of training, causing inexperienced teachers to struggle to

manage time and use IWBs' available features efficiently and effectively. For example, if the teachers lack basic IWB competence, then they will spend too much time and effort in preparing lessons and teaching materials, while their pupils will become more frustrated and bored. Thus, teachers should have basic skills concerning IWBs, should develop their own skills in order to create positive teaching and learning outcomes. A clear strength of the IWBs, which can be seen from research studies in literature, is a useful tool for both teachers and learners, but their potentially powerful outcomes rely on different settings, teachers' ICT skills, teachers' experiences and ICT facilities in schools.

To sum up, there is a need to examine these issues, and TAM theory can help to do this (Pynoo, Tondeur, Van Braak, Duyck, Sijnave & Duyck, 2012). As mentioned earlier, this theory suggests that users accept technology based on its perceived usefulness and ease of use. However, the literature review suggests that IWBs have the potential to increase learner collaboration and interaction, saving time and effort and leading to some independent learning. This potential can be limited by teacher's ability to exploit it and also depends on the teacher's own attitudes to learning, which do not seem to be influenced by the technology itself. Therefore, teachers truly need to examine different aspects of the IWB's use, and think critically about integrating the IWB into their pedagogical practice. For instance, teachers can assume the role of facilitators and leave students to work individually and then as a cooperative group as well as delivering lessons independently through using the IWBs. At this stage, students can be confident in using the IWB as an effective and interactive tool.

### **3. Methodology**

#### **3.1 Sample**

Six state male schools were selected for this study because they had relatively similar facilities, such as a Wi-Fi network, projectors, computers and IWBs in each classroom. All the schools had morning classes and IWBs are installed in all classrooms. The main difference between the six schools was that each school represented a different age group, covering ages from 6 to 18. The participants were 12 English teachers working with pupils in primary (ages between 6 and 12), intermediate (ages between 13 and 15) and secondary schools (ages from 16 to 18) in Jeddah, KSA. Two teachers were from *A* and two from *B* Male Secondary Schools, two from *C* two from *D* Intermediate Male Schools, and two from *E* and two from *F* Primary Male Schools. The key criteria of selection of the participants was that all of them had the experience of teaching using a traditional board but are now using IWBs. Therefore, they can give a better understanding of the effectiveness of IWBs in teaching English. All teachers were men (because of strict religious and cultural rules in reference to interviewing women by men). In addition to the 12 male teachers who were interviewed, 111 teachers participated in completing an online survey. From the total of all participants, 9% have been teaching for less than six years, 54% between six and ten years, 28% between 11 and 15 years and 9% for 16 years or more. The age of respondents ranged from 25 up to 50 years of age, with most teachers aged between 30 and 40 (55%). The interviews and the questionnaires were conducted in 2015.

#### **3.2 Data Collection**

A pilot study were conducted first with 6 teachers; three in state and three in private schools and each teacher taught in different levels. Each teacher was interviewed once and based on the results of the pilot study, the researcher improved the main study.

Data was collected via a mixed methods approach, which allowed quantitative data to inform qualitative data

collection. Two phases were used. The first phase involved an online survey of EFL teachers using Survey Monkey, which was collected from 111 EFL teachers. The teachers could complete the online questionnaire whenever and wherever it suited them, which offered an efficient way to gather data quickly and effortlessly. The questionnaire included ten closed-ended questions and a number of multiple-choice questions that allowed for an exploration of strength and direction in responses. Questions explored how IWBs can facilitate preparation for lessons, reduce physical effort, and help in controlling pupils' behaviour. Questions also aimed to identify the most common barriers of IWBs that English teachers face in classrooms.

The second phase included the use of in-depth telephone interviews with 12 EFL teachers who are Saudi and Arabic native speakers. The teachers were invited to participate in the study by sending consent letters to their heads of school via email to set an appointment. The semi-structured telephone interviews lasted approximately 25 minutes with each teacher, and were recorded and transcribed. The interviews helped the researcher to investigate and understand the survey responses in more depth. Some examples of the questions of the interviews are provided as follows:

- (1) What do you think of using the IWB?
- (2) Do you rate your IWB skills as a novice or component?
- (3) Do you use it in all your lessons?
- (4) Do you think the use of IWB is useful, if so, how and why?
- (5) What do you think of the usefulness of IWB as an instructional tool for EFL teachers and their pupils?
- (6) Do you think the use of IWB ease teaching and learning?

### **3.3 Reliability and Validity**

Internal consistency was used to test the reliability scale through SPSS which Cronbach's Alpha showed very reliable (8.34). In terms of the validity, correlation bivariate was used to test the validity which showed a positive correlation and a significant level with (Sig. 2-tailed level is .000). This showed that there was significance between the ease of IWB use and the usefulness of using IWB. The relationship is a positive 76.1%, which indicated that as one variable goes up or down so will the other one.

### **3.4 Data Analysis**

The online survey questions were analyzed with the use of the SPSS statistical package, using frequencies of response tests such as descriptive statistics to analyze the frequencies. Using frequencies allowed the researcher to develop an overall picture of the data. The interviews' data were recorded and transcribed manually. In the first instance, data were coded and categorized, based on certain themes to be recognized, such as the positive and the negative outcomes of the use of IWBs. By coding and categorizing data, the researcher was able to increase their validity and reliability. In the second instance, the interviews were recorded, and the researcher re-listened to recordings and went over the transcriptions to make sure that interviews were transcribed verbatim, aiming to further increase validity and reliability (Yin, 2009).

### **3.5 Findings and Discussion**

In terms of quantitative method, frequencies of responses among variables are used. For instance, the frequency and duration of IWBs' use, the role of IWBs in increasing teachers' productivity and students' motivation and engagement, how IWBs are used effectively, and obstacles that the teachers face with regard to IWBs. The qualitative method includes the same quantitative questions, while adding some new questions

regarding increasing cognitive thinking to discuss them in depth.

#### **4. The Perceived Usefulness and Perceived Ease of Use**

##### **4.1 IWBs Increase: Teachers' Productivity; the Achievement of the Curriculums Objectives; Pupils' Motivation; and Pupils' Engagement**

Of those surveyed, all teachers considered themselves to be regular IWBs users, with almost all also believing that the use of IWBs in teaching English is an important part of their teaching. IWBs are considered an important technology to increase teachers' productivity, with 30 out of 111 teachers linking the IWBs to teachers' computers, which allows them to convert handwriting to different typed texts and to hide and reveal information to be used afterwards. This result was also supported by Bakadama and Asiri (2012) who conducted an empirical study in Saudi Arabia (KSA). They found that IWBs enhance the quality of teaching and learning in classrooms, enabling teachers to make their lessons exciting, effective, and attractive for learners. In terms of the achievement of the curriculum's objectives, nearly half of the respondents (50%) believed that IWBs play an important role in facilitating pupils to understand the subject materials and the four skills (speaking, listening, reading and writing). A possible explanation for this might be that the IWBs may be considered a new tool in classrooms in KSA and students find them an attractive and interesting tool. Thus, teachers should benefit from this and they genuinely use the various features of the IWBs.

The study's findings also support the results from previous research (e.g., Higgins et al., 2005; Hennessy & Deaney, 2007; Walker, 2005; BECTA, 2003), which claim that IWBs are a fundamental technology in increasing productivity of teaching and in providing more opportunities for interaction and discussion in the classroom between teachers and students. This could be achieved through more varied and dynamic use of resources, such as the creation of digital flipcharts, and dragging out audio and video clips, CD-ROMs, internet pages, and websites. With regard to pupils' motivation and pupils' engagement, the results show that, for the former, 21 out of 111, and for the latter, ten out of 111 teachers believe that IWBs increase pupils' motivation and engagement during class. Nevertheless, there were other studies that showed different results, such as Higgins et al. (2005), Smith et al. (2005), and Glover et al. (2005). These studies found that IWBs facilitate teaching and learning, and increase engagement and motivation in the classroom. Although 70 out of 111 of the teachers used IWBs only once or twice a week (and the rest used it from 3–4 to 5–6 times per week), the teachers found IWBs very helpful in terms of pupils' motivation and engagement. Interestingly, for those who were concerned about the achievement of the curriculum's objectives, the striking result shows that nearly half of respondents (50%) said that IWBs helped them to achieve the curriculum's needs. For example, they assisted in improving listening skills through using audio and video clips, as well as increasing vocabulary by using an abundance of software options. This result may be explained by the fact that teachers construct a good way of achieving the curriculum's needs through using varying features although they might be not very competent in using the IWBs and lack of competence of using the wide range of this technology's features.

##### **4.2 How Teachers Use IWBs Efficiently: Making Lessons Interesting; New Approach to Teaching; and A Variety of Features to Use**

The overall response to this question was less positive, although teachers were almost all familiar with the basic skills of using IWBs. About half of the participants believed that this technology has a considerable role in making lessons interesting based on using varied IWB features (such as surfing the Internet and using files on the

computer). This might be done when teachers drag out these features from the computer to display them on the IWB. Almost half of the teachers said that IWBs provide new approaches in teaching, and 18.2% of them revealed that IWBs have a wealth of features to use regarding more positive teaching and learning outcomes. These findings were rather disappointing, as just twenty of respondents believed that IWBs helped them to change their pedagogical teaching. The reason for this is not clear but it may have something to do with those teachers in terms of their good background in ICT skills and having higher qualifications in teaching or advanced training courses overseas such as from the UK and USA.

On the one hand, these results seem to be consistent with other empirical studies (e.g., Al-Faki & Khamis, 2014; Bakadam & Asiri's survey in Saudi schools in 2012) which found that IWBs are a powerful technology when creating attractive and active lessons, since they can provide new teaching approaches, even if, on the other hand, there is no significant change in teachers' pedagogy.

#### **4.3 IWBs Improve: Planning Lessons; and Saving Time and Effort**

The most striking result emerging from this study is the fact that 80 out of 111 of the respondents believed that IWBs facilitate them in preparing lessons easily and more swiftly, with another 31 out of 111 stating that IWBs help them to save time and reduce physical effort with good planning. Therefore, they can use the rest of the time to allow pupils to work in some collaborative or individual tasks. This is probably because IWBs are linked to a computer, which allows users to surf and search the internet and also drag audio or video clips or images and animations. Similarly, teachers can use previous content that has been saved on the teacher's computer or IWBs to re-use it, which can help to save time and effort. The above results are in line with Miller et al. (2005), Levy (2002) and Smith et al. (2005) and in agreement with empirical studies in KSA conducted by Al-Faki and Khamis (2014); Bakadam and Asiri (2012) in Saudi schools. These specific studies showed that IWBs offered flexibility and accessibility in order to take advantage of class time to revise or review the lessons or to do some tasks in pairs or individually. Again, these results may explain the relatively good correlation between good training in the use of IWBs and the positive outcomes of their usage.

#### **4.4 Obstacles that Teachers Face regarding IWBs: Lack of Teacher Training; Lack of School Funds; and the Difficulty of Accessibility**

The results of this study indicated that slightly under half of teachers surveyed (40) believed that the lack of school funds was the most considerable barrier to using IWBs in every lesson, although all the participants teach at schools which are provided with the technology. 30 out of 111 of the respondents believe that the lack of teacher training is a common obstacle in regards to the use of IWBs, but it was not seen as the main barrier. One unanticipated finding was that just 11 of the teachers surveyed believed that they had problems with its technical maintenance. These results differ from some published studies (e.g., Schmit, 2007; Schmit, 2009; Teo et al., 2009; Smith, 2005), which indicated that the lack of teacher training and the difficulty of accessibility are the main barriers that teachers face, which may harm teachers' self-confidence and make their pupils feel frustrated.

Some researchers, such as Glover and Miller (2001), found that teachers who trained to use IWBs adequately became more confident, competent and productive in their teaching. Al-Faki and Khamis (2014) similarly found that English teachers have difficulty in using IWBs in English classes due to teachers' lack of ICT-competency and ongoing technical support, and a lack of knowledge regarding technology in general and computers in particular. These findings cannot be extrapolated to all teachers, but the vast majority of them need more training to use this technology effectively.

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The descriptive qualitative analysis resulted in five categories, namely: the usefulness of IWB as an instructional tool for EFL teachers and their pupils; increasing engagement; providing new methods; perceived effectiveness of using IWBs for teaching EFL; and perceived ease of use of IWBs, but the researcher has only given an example of the first category due to the word limit.

<b>Question: 1</b>		
<b>Teachers</b>	What do you think of the usefulness of IWB as an instructional tool for EFL teachers and their pupils?	<b>Categories</b>
PT1	"...I found a dramatic improvement in my pupils' learning and thinking when I started using IWB comparing to the traditional board due to its various features. I also prefer to use IWB for vocabulary teaching because it links to my PC where I can use some vocabulary sites which provide the synonyms, antonyms and part of speech to the word you want. This method enables my pupils to [gain] exposure [to] and acquire more vocabulary."	Improving cognitive thinking, a variety of methods, improving reading skills
IT2	"From my perspectives, IWB makes lessons easy to [understand] and become more exciting. It also encourages me to develop my ICT skills to be competent and take advantage of its rich features based on linking it to my PC. I believe that I become more productive in my teaching based on improving their ICT skills to provide better teaching methods and using a wide range of features through linking IWB to my computers."	Understanding, exciting, encouragement, ICT competency, and teaching productivity
ST1/2	"...both teachers' responses were quiet similar in that they believe IWB helps them to motivate, engage, encourage their pupils to learn and allows them as teachers to prepare their lessons easily and make subject materials more enjoyable."	Motivation, engagement, learning, enjoyment, saving time, effort, organization, and preparation

PT1 (teacher number 1 in primary schools); PT2 (teacher number 2 in primary schools); IT1 (teacher number 1 in intermediate schools); IT2 (teacher number 2 in intermediate schools); ST1 (teacher number 1 in secondary schools); ST2 (teacher number 2 in secondary schools).

These findings were in accordance with recent studies (e.g., Walker, 2002), which indicated that IWBs provide teachers with the ability to use web-based resources in whole-class teaching. This allows teachers to bring the outside world (real-world) inside and to use the internet directly in the classroom. IWBs also allow teachers to present and to explain different approaches and concepts based on using their different features, such as multimedia materials. In addition, the results above agree with those of earlier studies (e.g., Glover & Miller, 2001; Walker, 2005), which claim that IWBs help teachers to share and re-use materials and reduce workloads, as well as enabling teachers to save and print what is on the board (including notes made during the lesson) to reduce duplication of efforts and facilitate revision for future use. Conversely, the most interesting finding was that the use of IWBs helped teachers to improve their pupils' cognitive thinking in primary schools (children aged between 9 and 12 years old).

This result refuted the aforementioned researchers' ideas (Higgins & Smith, 2005; Gallin, 2004; Kennewel, 2006; Gary & Mohon, 2008), which claimed that technology in general and IWBs in particular do not help teachers to improve pupils' thinking and meet individual children's needs, whereas the previous studies found that technology allows children to think deeply and to give logical reasoning, helping them to solve some task problems and meeting individual children's needs (Cook & Finlayson, 1999; Smith, 2000; Glover, 2001; Wood, 2007). There are two likely explanations for this: one might deal with different settings and experiences regarding the use of ICT (between developed countries, e.g., UK & USA and developing ones, e.g., KSA). The other



explanation might refer to the misunderstanding of the terms of cognitive thinking and critical skills among Saudi teachers.

In summary, the findings suggest that IWBs are very useful and supportive tools in teaching and learning, and can help teachers to prepare lessons in less time and with less physical effort thanks to their diverse features and advantages. Conversely, teachers should be trained adequately and use IWBs wisely to achieve better outcomes. Even though the results show positive outcomes through teachers' perspectives, it needs more empirical study such a classroom observations and experimental study to have strong evidence regarding the ease and usefulness of IWB in teaching.

## **5. Conclusion and Future Implications**

From the results of the study, the use of IWBs show that IWBs can enable teachers to teach English interestingly and can promote pupils' enjoyment by creating a learning environment based on cooperative work and the wide range of IWBs' features. IWBs are seen by teachers as a tool to improve their productivity, to reduce preparation time and to allow them to put less effort into preparing for teaching. IWBs are also seen as a means of increasing pupils' thinking, motivation, participation and engagement, along with receiving knowledge and information. This is because IWBs can be used to attract pupils' attention, develop their thinking, and to improve the interaction between teachers and their pupils and subject materials. However, the study is still limited due to the few number of participants in the questionnaire and its items which may not provide with solid evidence.

In terms of the findings, the results show positive attitudes towards the use of IWBs to help teachers to increase their pupils' motivation, engagement, learning skills and interactivity. They can also enable teachers to develop new teaching approaches and increase interaction between teachers and pupils and pupils and textbooks. The findings indicate that some teachers find some difficulties in using IWBs due to their novice background regarding their basic skills for this technology, which can be resolved through providing professional training and support to the teachers. Another obstacle is the technical issues and maintenance that teachers face when they use IWBs, which can be handled by recruiting IT service support in schools. Further research should be conducted to identify the potential impact that IWB training can have on teaching outcomes for both teachers and their pupils.

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