

Using interactive whiteboard as a pedagogical tool in teaching children with ID in inclusion classroom: Surveying teacher's perspectives

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Abstract

The aim was to survey teacher's perspectives regarding the use of interactive whiteboard as a pedagogical tool in teaching children with ID in inclusion classroom. Quantitative research is carried out with the aim to survey teacher's perspectives regarding the use of interactive whiteboard as a pedagogical tool in teaching children with ID in inclusion classroom. It uses a survey-based methodology to obtain data from the respondents. A t-test for independent samples and a one-way analysis of variance test. Cronbach's alpha reliability equation and Pearson correlation coefficients were used, using SPSS. It was found that there are statistically significant differences at the significance level ($\alpha = 0.05$) in teachers' attitudes towards using the interactive whiteboard as an educational tool in the educational process due to the gender variable in domains. The differences were in favor of males. It was found that there are no statistically significant differences at the significance level ($\alpha = 0.05$) in teachers' attitudes towards using the interactive whiteboard as an educational tool in the educational process due to the educational qualification variable in all fields except for the student's domain (the significance level is greater than 0.05 in all domains except the student's domain). It was also clear from the results of the LSD test that the differences in teachers' attitudes towards using the interactive whiteboard as an educational tool in the educational process in terms of students were in favor of teachers with diploma qualifications, whose attitudes were higher than those of bachelor's qualifications, and it was not clear that there were other differences between the rest of the groups.

Keywords: interactive whiteboard, pedagogical tool, children with ID, teacher's perspectives.

Introduction

In recent years, modern educational technology has introduced many innovations that played an important role in selecting the means that serve various goals in the educational process, and work to increase its efficiency and development. It has a variety of different sources that help meet the desires and tendencies of the student. Therefore, it has become very necessary to keep pace with this technological development, coexist with it, and use it in the educational process to reach the desired goal (Dron,2022).

The interactive whiteboard comes on the pyramid of these technological innovations, which represent a revolution in teaching aids, and this was confirmed by a number of educators in terms of its importance and impact in creating interactive learning, leading education to a new stage in terms of renewal, change and exit from the repetitive routine that dominates our teaching performance (Afrah and Wun,2022).

Therefore, at the present time, we find that many schools prefer to use the interactive whiteboard over the traditional board. Its features are very impressive, as it is flexible in use, and creates an interactive classroom environment, in addition to being attractive and close to the environment and lifestyle of the new generation and preparing it. To face the real world full of technological fluctuations (Kirbaş,2018).

The interactive whiteboard is a special type of interactive sensitive whiteboard or panels that are dealt with by touch, and are used to display various applications on the computer screen, whether in class or otherwise. It also enables the teacher to navigate the Internet programs freely, which directly contributes enriching the educational material by adding dimensions, special effects, and distinctive programs that help expand the learner's experiences and satisfy his needs(Afrah and Wun,2022).

The interactive whiteboard is distinguished from other educational means by its accuracy and

high degree of clarity, its ease of connection to a computer, its speed of response, its installation and operation, and its lack of need for an external source of nutrition. The lessons given by the teacher can be saved, printed, or sent via Bluetooth or e-mail, and to see all the contents of the computer. On a large screen from any direction clearly (Kaur , Bhatia , Stea,2022).

The blackboard has gone through many transitions since it was on slabs of stones, then wood slabs with stones, then the blackboard with chalk, then the whiteboard, until it has now reached interactive whiteboards as an alternative to traditional blackboards. Thinking about its design began in 1987 by David Martin and his wife Nancy, and in 1991 the first interactive whiteboard was produced, and in 1992 the Smart Company formed an alliance with Intel that led to its development, and the steps of development and addition continued until it reached the form used For now (Walaa ; Aly Aand Mervat ,2019).

The interactive board also plays an active role in establishing attitudes as motivational stimuli for the learner. It also has effective effects in enhancing learning, and providing a positive interactive atmosphere in the classroom as one of the most important elements that help develop the student's positive attitude towards learning the material(.Murat and Yalın ,2017).

Although the concept of attitude in education and psychology is old, scholars still differ in its definition, as is the case in most psychological and educational concepts, and trends are generally determined as an integrated system of gains generated by the experience of the individual within his environment in which he grew up, which works to direct his behavior.

Attitude is defined in general as a relatively stable acquired willingness of individuals that determines their response to ideas, people or things. Attitudes may be general or social trends and include general topics or events, and may be trends towards self and include life events or circumstances (Albarracín and Shavitt,2018).

Measuring the attitude is of great importance, as it helps to facilitate the learning process and predict future behavior. It also sheds light on the validity or error of existing theoretical studies. It provides the researcher with various experimental fields that work to increase knowledge of the factors that affect the emergence of the attitude, its formation, development, stability, stability, and transformation. , and change it, which helps a lot in the event of a desire to modify or change the attitudes of individuals towards a particular topic (Buhagiar, and Sammut,2020) .

Purpose

The aim was to survey teacher's perspectives regarding the use of interactive whiteboard as a pedagogical tool in teaching children with ID in inclusion classroom

Significance

For teachers: directing them to use the interactive whiteboard and go beyond the traditional teaching style to modern teaching styles, which leads to improving and achieving quality and excellence in the educational process.

For the competent authorities (the Ministry of Education): It represents a kind of evaluation that can be used to intensify efforts and provide appropriate educational and training programs to achieve the desired goals.

For researchers: opening the way for other research and studies related to the use of the interactive whiteboard, and the link between theories of the use of technology and the technology of the interactive whiteboard and the actual practice of that technology on the ground.

Hypotheses

1. There are no statistically significant differences in teachers' attitudes towards using the interactive whiteboard as an educational tool in the educational process due to gender.
2. There are no statistically significant differences in teachers' attitudes towards using the interactive whiteboard as an educational tool in the educational process due to the academic qualification.
3. There are no statistically significant differences in teachers' attitudes towards using the interactive whiteboard as an educational tool in the educational process due to years of experience.

Method

Quantitative research is carried out with the aim to survey teacher's perspectives regarding the use of interactive whiteboard as a pedagogical tool in teaching children with ID in inclusion classroom. It uses a survey-based methodology to obtain data from the respondents.

Participants and procedure

An online questionnaire was used to collect data via Facebook and WhatsApp groups. I received a total of 156 questionnaire responses . the final sample consisted of 126 males(80.7%), and 30 females(19.3%). (See table 1. For the demographic characteristics of study sample

Table 1. demographic characteristics of study sample

Variables	No.	Percentage	
Sex	Males	126	80.7%
	Females	30	19.3%
academic qualification	diploma	25	16.02%
	Bachelor	100	64.10%
	Master's degree	31	19.87%
Years of Experience	less than one year	10	6.41%
	one year	22	14.10%
	Two years	86	55.12%
	Three years	26	16.66%
	Four years	12	7.69%

Instrument

A 53- item survey instrument was developed particularly for this research study. In light of the review of educational literature and previous studies related to the advantages of using the interactive whiteboard and the attitude towards it as an educational tool, the research tool (the questionnaire) was built, which was divided into two main factors: The advantages of using the interactive whiteboard in the educational process(28 items), and Teachers' attitudes towards the interactive whiteboard as an educational tool(25 items) . The first part concerns with the demographic information, while the second parts concerns with scale items . The internal consistency of the survey was measured through Cronbach's alpha estimated at 0.89, 0.87 for The advantages of using the interactive whiteboard in the educational process and Teachers' attitudes towards the interactive whiteboard as an educational tool respectively. A group of 4 experts examined the content validity. They indicated whether questions were, irrelevant, or highly relevant . All items were highly relevant. A content validity index at the item level (I-CVI) = 0.90.

Data Analysis

After collecting the research data, the researcher reviewed it and prepared it to be manipulated into the computer. Data was manipulated, i.e. by converting the verbal answers to numerical. The five-point Likert scale (strongly agree, somewhat agree, disagree, disagree, strongly disagree) was used to score the research tool . The research hypotheses were examined at the level ($\alpha = 0.05$), by means of a t-test for independent samples and a one-way analysis of variance test. Cronbach's alpha reliability equation and Pearson correlation coefficients were used, using SPSS .

Ethical Procedures

Participants were informed about their role in the study, the purpose of the study and the data collection methods. The author wishes they can continue with him till the end of the study. However, they were free to discontinue at any time.

Results

To test the first hypothesis , which stated that " There are no statistically significant differences in teachers' attitudes towards using the interactive whiteboard as an educational tool in the educational process due to gender", t-test for independent samples was used(See table 2). It is clear that there are statistically significant differences at the significance level ($\alpha = 0.05$) in teachers' attitudes towards using the interactive whiteboard as an educational tool in the educational process due to the gender variable in domains. The differences were in favor of males ($t=4.07$) versus females ($t=3.85$). Thus, the previous null hypothesis is rejected. This indicates that males are more interested in technological

means than females, who tend to use the traditional board.

Table 2 t-test results

<i>Domain</i>	<i>sex</i>	<i>No.</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>Sig.</i>
In terms of use	males	126	4.03	0.60	2.967	0.003
	females	30	3.80	0.62		
In terms of educational content	males	126	4.19	0.65	2.812	2.812
	females	30	3.98	0.63		
In terms of learning	males	126	3.97	0.76	3.180	0.002
	females	30	3.71	0.80		
In terms of the student	males	126	4.08	0.83	2.187	0.030
	females	30	3.91	0.85		
Total	males	126	4.07	0.83	3.251	0.001
	females	30	3.85	0.85		

To test the second hypothesis, which stated that "There are no statistically significant differences in teachers' attitudes towards using the interactive whiteboard as an educational tool in the educational process due to the academic qualification", ANOVA was used. As shown in table 3, It is clear from the previous table that there are no statistically significant differences at the significance level ($\alpha = 0.05$) in teachers' attitudes towards using the interactive whiteboard as an educational tool in the educational process due to the educational qualification variable in all fields except for the student's domain (the significance level is greater than 0.05 in all domains except the student's domain), and thus concludes the acceptance of the previous null hypothesis in all domains except the student's domain. Table 4 shows the results of the least significant difference (LSD) test for two-dimensional comparisons to examine the differences in teachers' attitudes according to the educational qualification variable in the student's domain. It is clear from the results of the LSD test that the differences in teachers' attitudes towards using the interactive whiteboard as an educational tool in the educational process in terms of students were in favor of teachers with diploma qualifications, whose attitudes were higher than those of bachelor's qualifications, and it was not clear that there were other differences between the rest of the groups.

Table 3. ANOVA test results (academic qualification)

Domain	Source of variables	Sum of squares	DoF	mean squares	F	Sig.
In terms of use	Between	1.794	2	0.897	2.344	0.098
	Within	96.838	153	0.620		
	Total	98.632	155			
In terms of educational content	Between	0.339	2	0.169	0.468	0.627
	Within	91.571	153	0.598		
	Total	91.909	155			
In terms of learning	Between	1.197	2	0.599	1.319	0.269
	Within	114.801	153	0.750		
	Total	115.999	155			
In terms of the student	Between	2.370	2	1.185	3.181	0.043
	Within	94.246	153	0.615		
	Total	96.615	155			
Total	Between	1.208	2	0.604	2.069	0.128
	Within	73.887	153	0.482		
	Total	75.096	155			

Table 4 Results of the least significant difference (LSD) test for two-dimensional comparisons

academic qualification	1	2	3
1.diploma		0.387*	0.225
2.Bachelor			0.162
3.Master's degree	0.225		

To test the third hypothesis, which stated that "There are no statistically significant differences in teachers' attitudes towards using the interactive whiteboard as an educational tool in the educational process due to years of experience", ANOVA was used. As shown in table 5, It is clear that there are no statistically significant differences at the significance level ($\alpha = 0.05$) in teachers' attitudes towards using the interactive whiteboard due to years of experience in all domains (the significance level is greater than 0.05 for all domains), and thus we accept the null hypothesis.

Table 5. ANOVA test results(years of experience)

Domain	Source of variables	Sum of squares	of DoF	mean squares	F	Sig.
In terms of use	Between	2.251	4	0.563	1.466	0.213
	Within	96.381	151	0.638		
	Total	98.632	155			
In terms of educational content	Between	0.983	4	0.246	0.678	0.608
	Within	90.927	151	0.602		
	Total	91.909	155			
In terms of learning	Between	0.850	4	0.213	0.463	0.763
	Within	115.148	151	0.762		
	Total	115.999	155			
In terms of the student	Between	1.274	4	0.319	0.839	0.502
	Within	95.341	151	0.631		
	Total	96.615	155			
Total	Between	0.740	4	0.185	0.624	0.646
	Within	74.356	151	0.492		
	Total	75.096	155			

Discussion

The aim was to survey teacher's perspectives regarding the use of interactive whiteboard as a pedagogical tool in teaching children with ID in inclusion classroom. It was found that there are statistically significant differences at the significance level ($\alpha = 0.05$) in teachers' attitudes towards using the interactive whiteboard as an educational tool in the educational process due to the gender variable in domains. The differences were in favor of males ($t=4.07$) versus females ($t=3.85$). This indicates that males are more interested in technological means than females, who tend to use the traditional board.

It was found that there are no statistically significant differences at the significance level ($\alpha = 0.05$) in teachers' attitudes towards using the interactive whiteboard as an educational tool in the educational process due to the educational qualification variable in all fields except for the student's domain (the significance level is greater than 0.05 in all domains except the student's domain). It was also clear from the results of the LSD test that the differences in teachers' attitudes towards using the interactive whiteboard as an educational tool in the educational process in terms of students were in favor of teachers with diploma qualifications, whose attitudes were higher than those of bachelor's qualifications, and it was not clear that there were other differences between the rest of the groups.

It was also found that there are no statistically significant differences at the significance level ($\alpha = 0.05$) in teachers' attitudes towards using the interactive whiteboard due to years of experience in all domains (the significance level is greater than 0.05 for all domains),

The interactive whiteboard improves the learning process. It helps the student to play an active role in participating in the classroom, building concepts in a sound and logical manner, and stimulating dialogue and discussion during the presentation of the lesson because it can attract attention and make students focus throughout the time of the lesson (Al-Faki, and Khamis,2014)

The interactive whiteboard is characterized by the possibility of using most of the Microsoft Office programs and it is possible to use the Internet, adding dimensions and special effects that make the presentation of the material in exciting, interesting and attractive ways (DeSantis,2012).

The smart interactive board can be used to overcome the problem of lack of faculty members in some disciplines, so that the entire annotated lesson can be re-presented by a faculty member to another

hall after downloading it into the board's computer (Essam and Asiri, 2012)

Conclusion

The interactive board serves the process of teaching people with special needs. The images used through the interactive board, for example, and how to move them, would attract the attention of the disabled and focus the information in their minds. A high percentage of teachers have positive attitudes towards this technological tool. The use of an Interactive Whiteboard, on the other hand, provides a way in which the board becomes the focus of learning for the whole class, and the teacher is able to deploy all of the affordances of ICT to facilitate the learning of her students. Teachers consider its effect to be significant in supporting students' learning process by enhancing the quality of learning environment, excitement of use and importance of use.

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References

- Afrah R. and Wun T.(2022). Effect of the interactive whiteboard on mathematics word problems: evidence from Kuwait. *International Journal of Innovation and Learning*,30(1): 122-136.
- Albarracín, D., & Shavitt, S. (2018). Attitudes and attitude change. *Annual review of psychology*, 69, 299-327.
- Al-Faki, I. M., & Khamis, A. H. A. (2014). Difficulties facing teachers in using interactive whiteboards in their classes, *American International Journal of Social Science*, 2(3). 136-158.
- Buhagiar, L.J., & Sammut, G. (2020). Attitude Measurement. In G. Ritzer & C. Rojek (Eds.), *The Blackwell Encyclopedia of Sociology*. Oxford, UK: John Wiley & Sons. DOI: 10.1002/9781405165518.wbeos1587
- DeSantis, J. (2012). Getting the most from your interactive whiteboard investment: Three guiding principles for designing effective professional development. *The Clearing House*, 85, 51–55. DOI: 10.1080/00098655.2011.607867
- Essam, B., & Asiri, M. J. S. (2012). Teachers' perceptions regarding the benefits of using the interactive whiteboards (IWB): The case of a Saudi intermediate school. Paper presented at International Educational Technology Conference. *Procedai- Social and Behavioral Sciences* 64, 179-185.
- Kaur A, Bhatia M, Stea G. (2022).A Survey of Smart Classroom Literature. *Education Sciences*.; 12(2):86. <https://doi.org/10.3390/educsci12020086>
- Kirbaş, A.(2018). The Effect of Interactive Whiteboard Applications Supported by Visual Materials on Middle School Students' Listening Comprehension and Persistence of Learning. *Universal Journal of Educational Research* 6(11):2552-2561 DOI:10.13189/ujer.2018.061120
- Dron, J.(2022). Educational technology: what it is and how it works. *AI & SOCIETY* 37(4) DOI:10.1007/s00146-021-01195-z
- Murat, S. and Yalın ,K.(2017). Teaching Turkish as a Foreign Language with Interactive Whiteboards: A Case Study of Multilingual Learners. *Tech Know Learn*. <https://doi.org/10.1007/s10758-017-9350-z>
- Walaa A; Aly A and Mervat S(2019).An Interactive Whiteboard Activities-based Program to Enhance EFL primary learners' Writing skills and Motivation. *Journal of curriculum , instruction and educational technology* , 4(2): 127-148 https://jrriet.journals.ekb.eg/article_31943.html