

## **Nurse Educators' Knowledge and Opinions about the Use of Interactive Whiteboard (IWB)**

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### ***Abstract***

**Background:** Adolescents of today are the adults of tomorrow. They make significant contributions to the development of the community. **Objective:** This study is aiming to identify the relationship between emotional aspect of preparatory school children and their exposure to negative life experience. **Subjects:** The subjects of the study comprised 252 students, 69 of them were males and 183 females, 204 were from Arabic Governmental Schools, and 48 from Experimental Schools, their age ranged from 12 to 15 years. **Tools:** Five tools were utilized to collect the necessary data in this study. **Results:** The study revealed that, there is a significant relation between negative life experiences, anxiety and depression. **Recommendations:** The main recommendations were counseling services for parents and caregivers about how to manage adolescent anxiety and depression related to negative life events and social support should be offered, especially to high-risk families to help them in child rearing.

**Keywords:** Early adolescence, Negative life experience, Anxiety, Depression.

### ***Introduction***

Today, rapid and accurate acquisition of knowledge is essential in order to capture competitive advantages and remain viable. Administrators, educators and researchers alike are seeking ways to effectively

collaborate globally for life long learning and working<sup>(1)</sup>.

Different individuals learn at different rates with different stimuli and in different environments. Furthermore, learning takes place

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through the steps of attention, perception and conceptualization. One individual perceives information through one or more of five physical senses such as sight, hearing, touch, taste and smell. Another conceives information from an idea by analyzing and deriving meaning from the information perceived<sup>(2)</sup>.

One of the newest examples of technological developments in the field of education is Interactive Whiteboard (IWB). This device which is known as the "IWB", "electronic whiteboard", or sometimes by brand (SMART Board) is a device used in presentations<sup>(3)</sup>.

Branzburg (2006) said that the whiteboard's screen becomes a "live" computer desktop, which can be tapped to pull down menus, highlight, and move or open files. Users can also circle relevant sections on the projected image, draw geometric figures, and underline. Also, teachers can show streamed or downloaded video clips using programs like Windows Media Player<sup>(4)</sup>. Interactive whiteboards let users print or save anything they've written<sup>(5)</sup>.

Furthermore, IWB can be used to connect to video conferencing systems, show video clips that explain difficult concepts (in any curricular area), make notes in digital ink and allow presentation of student work in a more interactive and collaborative model<sup>(6,7)</sup>.

Moreover, the interactive electronic whiteboard is great for demonstrations and modeling. Many technology teachers and specialists reported enthusiasm for the board in staff development or computer class to show students how to use a particular application. Also, it enables teachers to demonstrate information in a clear, efficient and dynamic way. As students visualize the techniques or instructions, for example, they use the visual and kinesthetic stimuli to develop and reinforce their understanding<sup>(8,9)</sup>.

The interactive whiteboard increases the efficiency of teaching as at this point it is worth considering that the most obvious distinction between IWB technology and other technologies incorporating a data projector and dedicated computer is the facility to control the computer at the touch of the screen (or technical interactivity as we shall call it)<sup>(10)</sup>.

Another major advantage of IWB is establishing a clean classroom without chalk ash; the boards are clean and attractive tools. Undoubtedly, IWB is increasing the pace and depth of learning as it allows collective engagement with learning problems at greater depth<sup>(11)</sup>. Teachers can enjoy classroom instruction; and feel comfortable, easy, flexible, wonderful and stimulating by using IWB<sup>(12,13)</sup>.

Moreover, IWB increases students motivation and enthusiasm as, motivation in the context of the classroom is measured by a student's drive to participate in the learning process. Others are extrinsically motivated by

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enticements, rewards or teacher-defined objectives. Interactive whiteboards appeal to both intrinsically and extrinsically motivated students. Extrinsically motivated students are enticed by the “wow factor” of the technology and are motivated learners as a result of the enjoyment they experience from using the product<sup>(14)</sup>.

Also, IWB captures the attention of learners; and it ensure enduring learning. Since students pay more attention to a lesson and play an active role in it when smart-boards are used, what they learn lasts for a longer time<sup>(15)</sup>. The IWBs accommodate different learning styles and special needs. Educators continuously strive to develop strategies and tools that will reach students with unique or diverse learning needs. Many of students’ learning styles – even the requirements of visual, hearing-impaired and other special needs students – can be addressed when lesson delivery and learning activities incorporate use of an interactive whiteboard<sup>(16)</sup>.

Interactive whiteboard enables collaborative work; perhaps one of the biggest challenges of integrating ICT into learning environments is maintaining dynamic interaction with students as they focus on their individual computer screens<sup>(17)</sup>. Interactive whiteboards encourage critical thinking. Imagine using the whiteboard with concept-mapping software like inspiration, for example. Students' ideas could be written directly on

the whiteboard; if the teachers switch to outline view, the class can brainstorm together in an organized fashion<sup>(4)</sup>.

The setup and maintenance of the equipment can be complicated because the board must be calibrated to ensure that the display is congruent with the position of the virtual digital ink<sup>(18)</sup>. Care must be taken to follow the manufacturer’s recommended maintenance schedule for the equipment. This may include regular cleaning and replacement of the projector filters and the use of specific cleaning products for the whiteboard surface<sup>(9)</sup>.

Also, the most frequently cited constraints by teachers and learners were the lack of ICT skills among teachers. The fact that in-service teachers do not have sufficient ICT skills is one of the largest ICT-related problems facing schools. In some cases, teachers may be ICT literate, but not competent enough to apply the skills in their teaching and learning environments<sup>(18)</sup>.

Concern is often expressed regarding the health and safety implications of the multitude of wires required for IWBs and associated equipment. <sup>(17)</sup> Also, the IWB depends on power and electricity source that is the only way to use it. The level at which an IWB is placed can be an issue, particularly where boards are permanently fixed and if students are to use them. If the board is placed too low on the wall, the screen may not be seen by students at the back of the class and some functions may be difficult to operate. If the board is placed too

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high, however, even teachers may have difficulty reaching the top<sup>(19)</sup>.

The most common types of interactive whiteboards are; eBeam ; Mimio; CleverBoard; ACT IVboard; SMART board for Plasma Display overlay; and Tablet PC's and wireless pads.

### **Significance of the study:**

There are different factors affecting the use of interactive whiteboard technology in teaching such as facilitating factors and inhibiting factors. The facilitating factors can be the availability of its components, the light of the classroom is suitable, the position of the whiteboard it self in the classroom. On the other hand, the inhibiting factors as lack of sufficient training program for using it, the design of electric wires are not safe, the program which makes the board ready to be interactive board not setup in the computer. <sup>(13)</sup>

Although there are many technologies have been developed, some teachers may not be comfortable with the humble teaching board. For these reasons, this study will provide answers to questions related to the knowledge of teachers about the use of interactive whiteboard, their perceived value about using interactive whiteboard technology in teaching, the obstacles of using interactive whiteboard, the benefits of using interactive whiteboard technology in nursing and the recommendation for the best use of interactive whiteboard in teaching nursing

### ***Aims of Study***

The Aim of the study is to:

- Assess nurse educators' knowledge and opinions about the use of the interactive whiteboard
- Explore the factors affecting nurse educators' use of the interactive whiteboard

### **Research Questions:**

- What is the knowledge of nurse educators about the use of the interactive whiteboard?
- What are the opinions of nurse educators about the use of the interactive whiteboard?
- What are the factors affecting nurse teachers' use of the interactive whiteboard?

### ***Materials and Method***

#### ***Materials***

**Design:** Descriptive research design was used in this study.

**Setting:** This study was conducted at the Faculty of Nursing at Minia University and Alexandria University including all nursing academic departments in the two faculties.

**Subjects:** The study subjects consisted of all available nurse educators in the Faculties of Nursing at Alexandria and El Minia Universities at the time of data collection (255), approximately (n=170) at Alexandria University from total (n=205) and (n= 85) at El Minia

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University from total (n=92) took part in the study.

**Tool:** One tool was used in this study:

### **“Knowledge and Opinions about the Interactive Whiteboard Questionnaire”:**

This tool was developed by researcher after reviewing the related literature<sup>(1,4,8,11,17)</sup>. It consisted of three parts as follows:

**Part I:** This part elicited the nurse educators' personal profile such as age, sex, academic qualification, academic position, department of work.

**Part II:** This part used to assess nurse educators' knowledge about the of IWB and technique. It included questions about availability of Interactive Whiteboard (2questions), the nurse educators' use of the interactive whiteboard (3questions), the training on the use of the interactive whiteboard(3questions) and nurse educators' knowledge about the interactive whiteboard (14 statements) by two responses know (1)and don't know(0).

In addition 50 statements of 5 Likert scale ranged from don't know(0)to excellent(4) to assess nurse educators' knowledge about the technique of using interactive whiteboard .The total Cronbach's Alpha of knowledge items was (0.996).

### **Scoring system:**

- Each statement related to knowledge about uses of interactive whiteboard was scored as one for know and zero

for don't know. The total knowledge was calculated to be 14, the converted to percent the total knowledge evaluated as the following; 0= Don't know, <50%low knowledge, 50%- 75%average knowledge and >75% high knowledge.

- Each statement related to knowledge about the technique of interactive whiteboard was scored as (0=don't know, 1=poor, 2=good, 3=very good and 4=excellent). The total score was calculated to be (200) then converted to percent and evaluated as the following: 0= Don't know, <50%low knowledge, 50%- 75%average knowledge and >75% high knowledge .

**Part III:** It was used to measure the nurse educators' opinions about the use of interactive whiteboard by using 5 point Likert scale ranged from (5)strongly agree to don't know (zero) .It included 44 statements covered areas as the nurse teachers' opinions about the importance and limitations of the interactive whiteboard. The Cronbach's Alpha was (0.982).

Also this part included three open ended questions related to factors facilitating the use of interactive whiteboard, factors that hinder the use of interactive whiteboard, and recommendations to encourage the nurse educators and students to use the interactive whiteboard.

**Scoring system:** Each statement was scored as (0=don't know, 1=strongly disagree, 2=disagree, 3=no opinion, 4=agree and

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5=strongly agree). The total score was summed up to be (220) the converted to percent .The nurse educators' opinions measured as the following 0 to < 50% negative opinion , 50% to < 75% neutral opinion and  $\geq 75\%$  positive opinion .Tool was reliable and test coefficient values were (0.996- 0.982).

### **Method**

An official permission to conduct the study was obtained from the deans of the Faculties of Nursing, and all responsible authorities after explanation of purpose of the study at Alexandria and El Minia Universities. The developed tool was submitted to a jury of 8 Faculty members from nursing education and education field to determine its applicability and content validity. The necessary modifications were done accordingly. Reliability for tool(partII, III) was done by the method of Cronbach Alpha (0.996- 0.982) . Pilot study was conducted on a random sample of participants as (Minia= 10) and (Alexandria=15) (from the total sample) prior to starting the field work in order to obtain information that may improve the research plan and facilitate the execution of the study. Data were collected over a sixty-day period from 1 May to 30 June 2011.

Data were collected from nurse educators during the end of the second term. The questionnaire was given individually to the nurse teachers and they were given a period

of time to respond to it. The questionnaire was distributed at Minia and Alexandria at the same time.

### **Ethical Considerations:**

Approval was obtained from the ethical committee to conduct this study. An informed consent was obtained from the identified nurse educators

to collect the study data before data collection. After explanation of the purpose of the study, the privacy and confidentiality of the answers were guaranteed by the researcher.

### **Statistical Analysis**

Upon completion of data collection, data entry was done using SPSS 14.0 computer software for analysis.

Analysis for numerical data: Descriptive statistics in the form of the mean score with standard deviation / median with semi inter quartile range for quantitative data or percentages for quantitative data. Analysis of categorical data: 1. Pearson's chi square test: it is used to test for the association (or relationship) between the categories of two independent samples (row and column variables) 2. Mont Carlo exact test and Fishers exact test: they are alternatives for the Pearson's chi square test if there were many small expected values.

### **Results**

**Table (1)** Distribution of nurse educators according to their personal profile in Faculties of Nursing at Alexandria and Minia

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Universities. **Table (1)** shows that two thirds of the nurse educators were from the Faculty of Nursing at Alexandria University (66.7%) and one third were from Minia University as (33.3%). Regarding to the age, near half of the nurse educators were less than 30 years old (47.6%) at Alexandria University, and about three quarters (70.6%) were at Minia University. In relation to the gender of the studied subjects, the majority of the nurse educators at Alexandria and at Minia were females (98.8%, 91.8%) respectively.

As for the academic position, nearly one third of the nurse educators were demonstrators (28.25%) at Alexandria, but more than half (54.1%) were at Minia University. As regards the academic department the majority of nurse educators were working in the Medical Surgical Nursing Department (28.2%) at Alexandria University, while the majority of nurse educators were working in the Administration Nursing Department (16.5%) at Minia University.

**Table (2)** Distribution of nurse educators' use of interactive whiteboard in Faculties of Nursing at Alexandria and Minia Universities. **Table (2)** illustrates the nurse educators' use of the interactive whiteboard. Only one third of the subjects were use the IWB (31.8%) but, more than two thirds (68.2%) of them don't use the IWB. Also, the majority of those used IWB were used it as a screen for data show only.

Regarding the causes of not using the IWB, more than two thirds (65.6%) of nurse educators didn't use the IWB because of the lack of sufficient training. Regarding the use of the IWB at Alexandria and Minia university it was (28.8%, 37.6% respectively) with no statistically significant difference was found between two Faculties ( $X^2 = 2.1, P = 0.157$ ).

**Figure (1)** shows that nurse educators who received training about IWB at Alexandria and Minia, it can be observed that only (47.6%, 43.5% respectively) of nurse educators had training about IWB.

**Figures (2)** reveals the total score of nurse educators' knowledge about the IWB at Alexandria and Minia Universities, it was observed that the majority of the studied subjects had low total score knowledge as at Alexandria university (74.7%) and at Minia university (76.5%) and only 2.4% had high score of knowledge at the two Universities with statistically significant difference between two Faculties ( $X^2 = 8.4, P = 0.014^{*^A}$ ).

**Figures (3)** illustrates the total score of nurse educators' opinions about the IWB, it was observed that (41.2%) at Alexandria university and (43.5%) at Minia university had positive total score of opinions about IWB. But (5.9%) at Alexandria University didn't have any opinions while none (0.0%) at Minia University also, there were (2.4%) at Minia University had negative opinions but none (0.0%) at Alexandria University with statistically significant difference ( $X^2 = 9.4, P = 0.024^{*^A}$ ) between two Universities.

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**Figures (4)** shows that nearly two thirds of nurse educators (63.1%) had neutral opinions about IWB, and only 32.2% had positive opinions about it.

**Table (3)** shows that most common factors that facilitate the use of IWB, was the training of the nurse teachers on the use of IWB (79.2%) and second factor was the availability of IWB resources (43.5%) and the third factor was the supervision from faculty administration toward IWB (8.0%) with no statistically significant difference.

Regarding the hindering factors, lack of teacher training on the use of IWB was the major factor that hinders the use as it was (64.7%). The second factor hindering the use of IWB was lack of resources to use IWB, it was different as (60.4%) at Alexandria University and (45.6%) at Minia university with statistically significant difference ( $p=0.045^*$ ). Another factor was the technique of using IWB, there was a difference as being (20.1%) at Alexandria university and (34.2%) at Minia university with statistically significant difference ( $p=0.048^*$ ). The last factor was the attitude of teachers toward using the IWB, it was (18%) with no statistically significant difference between the two groups.

**Table (4)** displays the relationship between the nurse teachers' total score of knowledge about IWB, their training and their use of IWB. It was observed that a statistically significant differences were found between the nurse teachers use of the

IWB and their total score of knowledge ( $X^2=17.3, P=0.001^{*^}$ ). As the nurse teachers who use the IWB, had high total score of knowledge (6.2%), while the teacher who didn't use it had only (0.6%) high total score of knowledge.

In relation to trained nurse teachers and their total score of knowledge, it can be observed that the high total score of knowledge (4.2%) was found among trained teachers, while untrained teachers had only (0.7%) had high total score of knowledge with statistically significant differences observed between the trained and untrained nurse teachers groups ( $X^2=30.1, P=0.001^{*^}$ ).

## Discussion

The present study is unique and new in Egypt. It helps to shed light on the use of IWB in teaching by nurse teachers at the higher education level. Also, it helps to assess the nurse educators' knowledge, opinions and the factors affecting them to use IWB.

As regards the use of IWB it was clear from the present study that, more than two thirds of nurse educators don't use the IWB and the majority of those used it, used as a screen for data show only. This was attributed to the lack of the respondents' knowledge, skills, and training to use it. Some of respondents have some knowledge, but didn't have enough skills to use it.

Most of the available studies showed that all of subjects use the IWB after the effective training program but differ from teacher to another and from Faculty to another, this



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finding was explained by Glover and Miller (2001) who mentioned that, all teacher staff in their studied school uses the IWB, but it differs from teacher to teacher in the number of use. As, 4% use it the most of their lesson, 20% use it at least once per day, while 40% use IWB at least once per week and 36% make occasional use of the facility.<sup>(20)</sup> and supported by BECTA (2007) reported that one of the great challenges for schools today is figuring out how to get all their staff—and not just some of them—to embrace the use of digital technologies as a normal part of classroom teaching.<sup>(21)</sup> Also, Somyurek et al (2009) was found that 49 of 76 teachers (64.5%) had not used IWBs at all, even though there was at least one IWB in their school.<sup>(22)</sup>

In addition, McCormick and Scrimshaw (2001) found in their study that staff are using the interactive whiteboards in one of three ways: *as an aid to efficiency* – in humanities teaching, where the enhanced screen size has led to improved vision of video material; *as an extension device* – in science teaching with the integration of multimedia materials to the point that the quality of teaching is improved; *or as a transformative device* – in mathematics teaching, where learning takes place through board interaction and associated group and class discussion.<sup>(23)</sup>

Concerning the training program, it was observed in the present study that less than half of the nurse teachers received

training, while the majority more than half does not received training and the effectiveness of the training program given was insufficient neither for knowledge nor skills as reported by the majority of them. This finding is relatively similar to the result of a study at the University of Wales Swansea at England by Kennwell and Morgan (2003) was carried out to determine the number of students and teachers who received training on the use of IWB? They found that only 44% of students and teachers received training program.<sup>(24)</sup>

As regards the total score of knowledge about the IWB, it was observed that the majority had low in total knowledge as at Alexandria University and at Minia University. For, the total score of opinions about the IWB, also it can be observed that the majority of the studied teachers either had neutral or positive opinions at Alexandria University and Minia University and this finding was supported by Winzenried et al (2010) mentioned that teachers in their study were very positive about the introduction of IWBs and this seems to be common to each teacher.<sup>(25)</sup> and Hayes (2010) indicated that the teachers had positive attitudes at the prospect of having to use an IWB in their classrooms, with 84% indicating they would use it at least weekly, and 46% anticipating daily use.<sup>(26)</sup> In addition, Dagan and Ikan (2011) found positive teacher attitudes towards working with IWBs.<sup>(27)</sup>

Glover & Miller (2001) said that staff tends to follow three attitudes to the technology: *as missionaries* intent on securing a following for

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the technology based upon their own enthusiasm and obvious technical skills and with a readiness to embrace interactive learning styles; *as tentative* prepared to use the technology but lacking the confidence to change their approaches to teaching so that there is only limited development of interactive learning; *as Luddites* unwilling to make use of the technology except as an improved visual aid and with no shift from largely transmissive teaching styles.<sup>(20)</sup>

In this study, it was a major concern to know the factors affecting nurse teachers to use IWB. The nurse teachers in two Faculties at Alexandria and Minia Universities agreed about the factors that facilitate or hinder their use of IWB. The majority of teachers agreed upon that the major factors which helped them to use IWB were the effective training program with knowledge and skills; and the frequency of the training program should be frequent not once only. The presence of responsible person always in the Faculty for training, the availability of IWB resources and facilities, and the maintenance and support from the faculty and administration.

As regards the factors that hinder the respondents to use the IWB, in the present study as mentioned by teachers were lack of effective training; the attitudes of teachers toward the ICT technology, technique of using IWB as the placing of IWB on the wall and the time needed to activate; the lack of IWB resources and facilities; and

lack of financial support and maintenance for its use. In the present study there was a difference between the two Universities. At Minia University the technique of using IWB was a common problem especially the height of the IWB on the wall was a major problem to respondents to use it. At Alexandria University the lack of resources especially the unavailability of IWB in all of the classrooms was a common problem.

The present finding was supported by Cogille, (2002) who mentioned that there is a correlation between effective use of ICT and IWB.<sup>(28)</sup> Also, Moss et al (2007) who stated that, to be a professional in using IWB, you must be professional in ICT.<sup>(29)</sup> and Jennifer (2003) who stated "In order to achieve the proper training in technology integration, schools must make in-service relevant and recurring training programs".<sup>(30)</sup>

Beauchamp (2004) reported that the interaction between students and the IWB can be affected by very pragmatic issues. One such is the height that the IWB is mounted from the ground, as student, even with a step used in many classes, cannot reach the board enough to make meaningful interaction with it.<sup>(31)</sup> In addition to these factors, the screen of IWB when sunlight is shining directly on it; visual problems may occur when using an inappropriate colors and fonts and the presence of dust on the screen or projector lens; the health and safety implications of the multitude of wires required for IWBs and associated equipment.<sup>(10)</sup> Moreover, Higgins et al (2007)

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also identified many drawbacks related to the use of IWB such as, the cost of installation and maintenance in comparison to other methods of visual display which were discussed.<sup>(32)</sup>

Somyurek et al (2009) found that lack of support and maintenance was a major problem such as hardware problems; power cuts or low voltage; broken IWB switches and pens; malfunction of the computer connected to the IWB, wasted time due to the slow start-up of connected computer and the lack of printers and scanners connected to the IWB.<sup>(22)</sup>

In addition to all of the above factors, Baek et al (2008) added that logistic factors hinder the use of technology such as lack of time, software, hardware, keyboarding skills, knowledge of available information technology resources, and unavailability of computer labs and computer lab technicians, as well as individual perceptions in finding the information technology frustrating, believing that changes are too fast to keep current, and not thinking information technology will enhance the subject area.<sup>(33)</sup>

Finally, is the IWB effective and useful tool to use in teaching? Especially in Nursing? The answer to this question is very difficult, because the nurse educators in the study setting did not use IWB as interactive teaching method that it made for; they used it only as a screen for data show.

Also, the majority of them had low scores of knowledge about IWB and had neutral opinions about the IWB. From the researcher' point of view this may be due to the lack of training that they have received or even if they had the training, it was an insufficient training program.

So, IWB is an attractive and effective tool that could help teachers and students in learning. But, without effective continuous training and workshops more than once, the IWB will never be used effectively.

## **Conclusion**

It was concluded that:

- The majority of nurse teachers don't use IWB. Nurse educators , who use IWB, use it as a screen for data show only. The causes of not using the IWB were lack of sufficient training; the inappropriate knowledge to use IWB and, the absence of IWB program in the classrooms.
- The most of the studied educators had neutral opinions about the use of IWB.
- The factors that hinder nurse teachers to use the IWB were: insufficient training program; lack of IWB knowledge and computer skills; low of the teachers' interest and motivation to use IWB; frustration from staff and administrative persons; teachers' ignorance and reluctance to use IWB or a new technology; the placing of IWB on the wall and the time needed to activate, and the lack of IWB resources and facilities.

***Recommendations***

- 1- Effective and continuous workshops should be planned and implemented to enhance IWB use for all nurse educators in all departments.
- 2- The training program must be flexible enough to adapt the needs of the teachers involved. For example,

adapting the subjects and the duration according to the teachers' ICT skills. It highly valued the combination of theoretical, practical and technical sessions during training.

- 3- Periodical maintenance and check up on computers systems and IWB software programs to prevent viruses.

**Table (1) Distribution of nurse educators according to their personal profile in Faculties of Nursing at Alexandria and Minia Universities**

Socio demographic data	Alexandria University (n=170) %66.7		Minia University (n=85) %33.3	
	No	%	No	%
<b>Age:</b>				
▪ < 30	81	47.6	60	70.6
▪ 30-	45	26.5	18	21.2
▪ 40-	14	8.2	7	8.2
▪ >50	30	17.7	0	.0%
	<b>Median (31.0) Min-Max (23-69)</b>		<b>Median (28.0) Min-Max (23-46)</b>	
<b>Sex:</b>				
▪ Male	2	1.2	7	8.2
▪ Female	168	98.8	78	91.8
<b>Academic position</b>				
▪ Clinical Instructor	18	10.5	0	.0%
▪ Demonstrator	48	28.2	46	54.1
▪ Assistant Lecturer	44	25.9	22	25.9
▪ Lecturer	28	16.5	15	17.6
▪ Assistant Professor	9	5.3	2	2.4
▪ Professor	12	7.1	0	.0%
▪ Professor Emeritus	11	6.5	0	.0%
<b>Academic Qualifications:</b>				
▪ Bachelor Degree	66	38.8	46	54.1
▪ Master Degree	44	25.9	22	25.9
▪ Doctorate Degree	60	35.3	17	20.0
<b>Academic Department:</b>				
▪ Medical Surgical Nursing	48	28.2	11	12.9
▪ Emergency and Critical Care Nursing	11	6.5	8	9.4
▪ Obstetric and Gynecological Nursing	15	8.8	13	15.3
▪ Pediatric Nursing Department	23	13.5	11	12.9
▪ Psychiatric and Mental Health Nursing	16	9.4	12	14.1
▪ Community Health Nursing	17	10.1	9	10.6
▪ Gerontology Nursing	15	8.8	5	5.9
▪ Nursing Administration	13	7.6	14	16.5
▪ Nursing Education	12	7.1	2	2.4

**Table (2) Distribution of nurse educators' use of interactive whiteboard in Faculties of Nursing at Alexandria and Minia Universities**

The use of interactive whiteboard(IWB)	Place of data collection				Total N=255		X <sup>2</sup>	P
	Alexandria (n=170)		Minia (n=85)					
	No	%	No	%	No	%		
<b>The use of IWB in the classroom</b>								
▪ Yes	49	28.8	32	37.6	81	31.8	2.1	0.157
▪ No	121	71.2	53	62.4	174	68.2		
<b>The teachers using of IWB as:</b>	<b>(n=49)</b>		<b>(n=32)</b>		<b>(n=81)</b>			
▪ Whiteboard only	6	12.2	1	3.1	7	8.6	5.14	0.076
▪ A screen for data show only	39	79.6	31	96.9	70	86.5		
▪ An interactive whiteboard	4	8.2	0	.0%	4	4.9		
<b>The reasons of not using IWB</b>	<b>(n=121)</b>		<b>(n=53)</b>		<b>(n=174)</b>			
▪ Lack of sufficient training	77	63.6	37	69.8	114	65.6	1.04	0.903
▪ Lack of chance to give a lecture yet	13	10.7	5	9.4	18	10.3		
▪ The place of IWB is too high on the wall	4	3.3	2	3.8	6	3.4		
▪ Lack of administration support and supervision for IWB	4	3.3	2	3.8	6	3.4		
▪ Don't answer	23	19.1	7	13.2	30	17.3		

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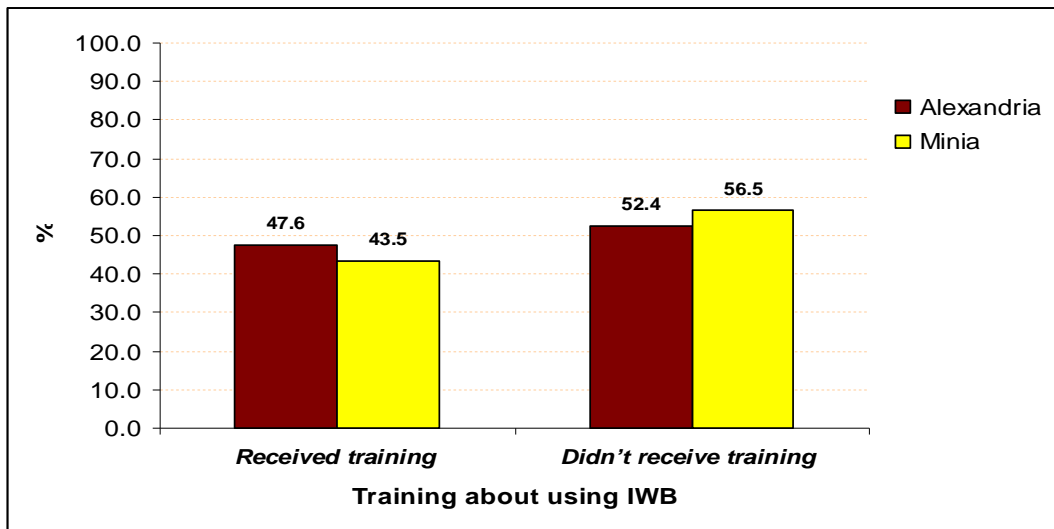


Figure (1) Distribution of nurse educators who received training about the use of IWB in Faculties of Nursing at Alexandria and Minia Universities

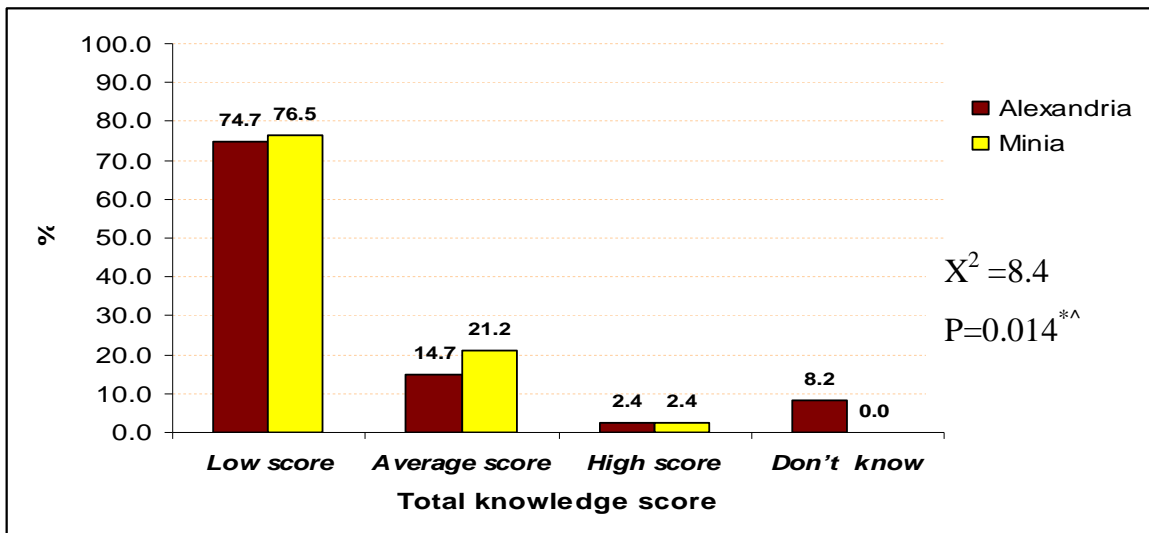


Figure (2) Distribution of nurse teachers total score of knowledge about the IWB at Alexandria and Minia Universities

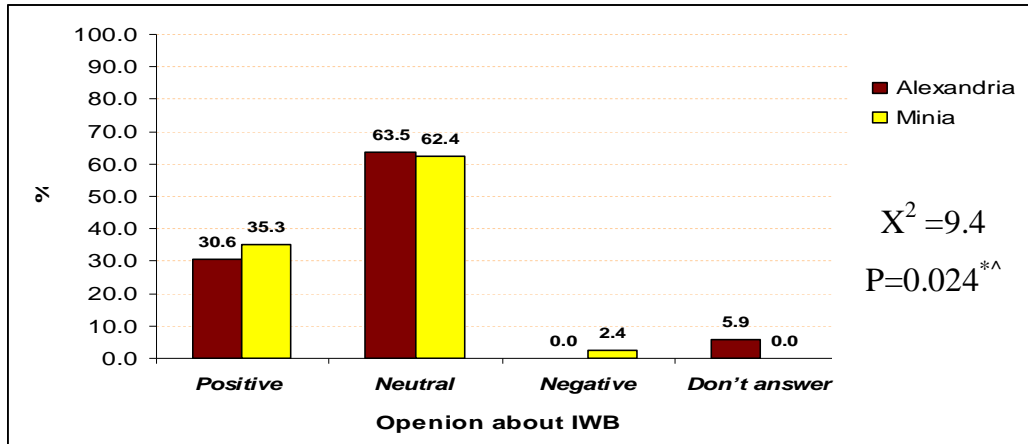


Figure (3) Nurse educators' total score of opinions about Interactive Whiteboard

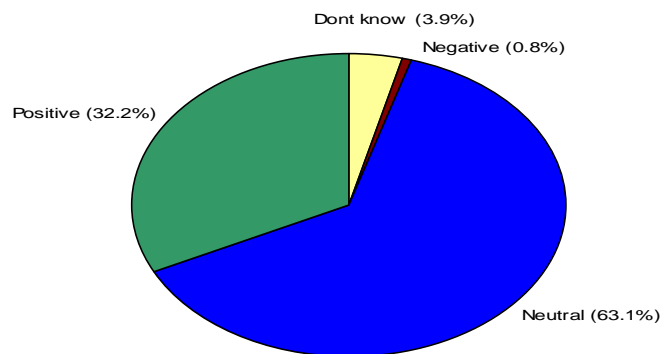


Figure (4) the nurse educators' total score of opinions about Interactive Whiteboard



**Table (3) Nurse educators' opinions regarding the factors affecting the use of IWB in Faculties of Nursing at Alexandria and Minia Universities**

Factors affecting the use of the interactive whiteboard (IWB)	Place of data collection				Total N=255		P
	Alexandria (n=170)		Minia (n=85)				
	No	%	No	%	No	%	
<b>* Factors facilitate the use of IWB</b>							
Availability of resources to use IWB	70	50.4	41	52.6	111	43.5	0.528
Training of teachers about the use of IWB	129	92.8	73	93.6	202	79.2	0.817
Supervision from the faculty administration	14	10.1	7	9.0	21	8.2	0.836
<b>* Factors hinder the use of IWB</b>							
Technique of using IWB	28	20.1	27	34.2	55	21.5	0.048*
Lack of teachers' training program about IWB	109	78.4	56	70.9	165	64.7	0.718
Lack of resources to use IWB	84	60.4	36	45.6	120	47.0	0.045*
Attitudes of teachers toward using the IWB	30	21.6	16	20.3	46	18.0	0.882

\*: More than one response was allowed

# P value based on Z test for two independent proportion

Knowledge and Opinions about Interactive Whiteboard

**Table (4) The relationship between the nurse teachers' total score of knowledge, the training received and the use of the interactive whiteboard in Faculties of Nursing at Alexandria and Minia Universities**

Training & the use of interactive whiteboard	Total score of knowledge about IWB								X <sup>2</sup>	P
	Don't know		Low score		Average score		High score			
	No	%	No	%	No	%	No	%		
<b>Use of IWB</b>										
• Yes (n=81)	0	0.0	57	70.4	19	23.5	5	6.2	17.3	0.001*
• No (n=174)	14	8.1	135	77.6	24	13.8	1	0.6		
<b>Training</b>										
▪ Received training (n=118)	1	0.8	79	66.9	33	28.0	5	4.2	30.1	0.001 <sup>*^</sup>
▪ Didn't received training (n=137)	13	9.5	113	82.5	10	7.3	1	0.7		

<sup>^</sup>: P value based on Mont Carlo exact probability

\* P < 0.05 (significant)

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