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The Impact of an Instructional Program Basted on Interactive Whiteboard (IWB) Technology on Physical Education Student's on a Cognitive Achievement in Shot Put Competition at the University of Sadat City.

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Abstract

The current study attempts to investigate the impact of an instructional whiteboard (IWB) technology on physical education students' the cognitive achievement in shot put competition at the university of Sadat city. The participants of the study included 40 first year female students divided into an experimental group (N=20) and a control group (N=20). The researcher prepared a cognitive achievement test and designed an instructional program based on interactive whiteboard to be used in teaching the experimental group. The control group students were taught using the regular (traditional) board. Both groups were pre-post tested. The findings revealed that the cognitive achievement of the experimental group students improved and they out performed the control group students in shot put competition .This was attributed to the instructional program based on the interactive whiteboard. .

Introduction:

The current study aimed at investigating the effect of using an instructional program based on interactive whiteboard technology on the cognitive achievement of 1 st year female students in shot put competition at the university of Sadat city. The researcher attempted to make use of modern technology, the interactive whiteboard in particular in developing students' achievement as it offers many benefits represented in enhancing students', motivation, enjoyment and interest, thereby maximizing students' learning. As Amer (2007) indicated that the interest of educational institutions in education technology considers one of the witnesses for education development and individual and society development (p.17). As Beeland (2001) pointed out that interactive white board uses an educational tool which increases participation and adds a lot of enjoyment to an education process in a manner that gives opportunity for every student to physically interact with materials shown on screen (p.1). As Ishtaiwa & Shana (2011) said that the involvement of IWB in an educational process has many advantages such as creating atmosphere of enjoyment and developing motivation for learning (p.18). As Bastawisy (1997) indicated that the shot put entered in the Olympic Games in Athens 1896 and varies Performance kinetic for Shot Put Competition From the technical and legal aspects on throwing other competitions where not throwing Shot Put (p.436) . Zaki & Abdul Hafiz (1994) pointed out that the Competition of Shot Put easiest ways technical performance from four throwing competitions this is due to for ease of analysis of shot put (p.36).

Therefore, the researcher considered the need to take advantage of modern technology through the use of interactive whiteboard technology Through the presentation of information (cultural and historical - Legal Aspects and the Technical stages) for the experimental group To identify the cognitive achievement in the shot put , As well as display the same information (cultural and historical - Legal Aspects and the Technical stages) for the control group To get to know the level of cognitive achievement in shot put through the use of traditional blackboard by chalk, It was the work of pre measurement for the two experimental and control groups measured the cognitive test for two groups, Using form do the students to answer them, Then display the information (cultural historical stages of a technical legal aspects) of the experimental group through the interactive whiteboard, As for the control group who introduced them information (historic cultural stages technical legal aspects) through the use of traditional blackboard chalk, Then in the posttest measurement was measured (cultural and historical - Legal Aspects and the Technical stages) for cognitive testing for both the experimental and the control group.

Aims of the study:

The aims of the study are three fold:

1. The effect of educational program using the interactive whiteboard in posttest measurement on a cognitive achievement by experimental group in the Shot Put.
2. The effect of educational program using of method (conventional) in posttest measurement

on a cognitive achievement by control group in the Shot Put.

3. Measuring the differences of both the control group and the experimental group in posttest measurement on a cognitive achievement in shot put.

Hypotheses of the study

1. There are statistically significant differences between pretest measurement and posttest measurement of the Experimental group by using interactive whiteboard on a cognitive achievement for the posttest measurement favor in shot put.
2. There are statistically significant differences between pretest measurement and posttest measurement of the control group by using method (conventional) on a cognitive achievement for the posttest measurement favor in shot put.
3. There are statistically significant differences between the experimental group and the control group in the posttest measurement the experimental group in the cognitive achievement in shot put.

Method and procedures:

* The design of the study:

The researcher used the experimental method of two groups (experimental - control). The experimental groups using the interactive whiteboard.Whereas the control group were taught via the method (conventional) by Using pretest and posttest for both groups.

Study: The sample The study sample was intentionally selected out of 1 st year

Physical education students at the university of Sadat city. The participants included 40 students divided into an experimental group (N=20) and a control group (N=20).

Pre-testing:*

Both the experimental and the control group were pre-tested to make sure that participants in equivalent in their entry level in terms of age, height, weight, and achievement. As the researcher apply the cognitive achievement test which included information (cultural and historical - Legal Aspects and the Technical stages) to Competition Shot Put for the two experimental and control groups by Using Form to students answer them. Attachment (1).

*Program:

The program includes educational explain the competition by displaying the information (cultural, historical, Legal Aspects and the Technical stages) using traditional blackboard by the use of the control group. Attachment (3).

As The instructional program relied on explaining the shot put competition to the experimental group students using the interactive whiteboard. It also included viewing / watching cartoons. pictures and videos to exemplify the technical phases and the legal aspects. Following each instructional unit and there were some questions for assessment. The program contained 10 instructional units distributed to 3 weeks, 3 units per week. Each instructional unit lasted for 60 minutes.

The instructional units which included information (cultural and historical - Legal Aspects and the Technical stages) in Shot Put.

* Post testing:

Both the experimental and the control groups were post tested, at the end of the program, on the cognitive achievement of shot put competition from 23/11/2013 at 24/11/2013. By applying a cognitive test (cultural and historical - Legal Aspects and the Technical stages) for two experimental and control groups.

Statistical processors:

- Arithmetic medium -
- Standard deviation.
- Coefficient of Sprains splaying. -
- Cronbach's alpha coefficient.
- Coefficient of ease and difficulty.
- Coefficient of discrimination.-
- Simple correlation coefficient of Pearson.-
- Z test.

Results and discussion

A)Results:

Table (1):
Means and standard deviation (SD) for the Experimental group in pretest and posttest

Pre-testing			Post testing	
Cognitive test axes	M.	S.D	M.	Post testing
Historical	2.0500	0.51042	7.9500	0.82558
Cultural	3.7500	0.63867	8.4500	0.88704
Technical	8.6500	1.42441	17.4500	0.75915
legal	7.7000	1.12858	12.7500	0.96655
Total	22.1500	1.95408	46.6000	1.72901

Table (2)
Significance of differences between pretest and posttest for Experimental group in a cognitive test axes

Cognitive test axes		N	Average of ranks	Total of ranks	Z - value	Error probability
Historical	-	0	0	0	3.972-	0
	+	20	10.5	210		
	=	0				
	total	20				
Cultural	-	0	0	0	3.985-	0
	+	20	10.5	210		
	=	0				
	total	20				
Technical	-	0	0	0	3.940-	0
	+	20	10.5	210		
	=	0				
	total	20				
Legal	-	0	0	0	3.94	0
	+	20	10.5	210		
	=	0				
	total	20				
Total	-	0	0	0	3.929-	0
	+	20	10.5	210		
	=	0				
	total	20				

Value of tabulated z at 0.05 level is 1.96

(A) Table (2) reveals that there are statistically significant differences between pretest measurement and posttest measurement of the Experimental group by using interactive whiteboard on a cognitive achievement for the posttest measurement favor in shot put.

Table (3)
Means and standard deviation (SD) for the control group in pretest and posttest

Cognitive test axes	Pre - testing		Post - testing	
	M.	SD	M.	SD
Historical Axis	1.8500	0.87509	3.4000	0.59824
Cultural Axis	3.6500	0.74516	6.2000	0.69585
technical Axis	8.5000	1.43270	15.8500	1.46089
Legal Axis	7.4000	1.50088	10.2000	0.95145
Total	21.4	2.24546	35.6500	2.00722

Table (4)
Significance of differences between pretest and posttest of the Control group in a cognitive test axes

Cognitive test axes		N	Average of ranks	Total of marks	Z- value	Error probability
Historical Axis	-	1	3.5	3.5	3.808 -	0
	+	18	10.36	186.5		
	=	1				
	total	20				
Cultural Axis	-	0	0	0	3.973-	0
	+	20	10.5	210		
	=	0				
	total	20				
Technical Axis	-	0	0	0	3.938-	0
	+	20	10.5	210		
	=	0				
	total	20				
Legal Axis	-	0	0	0	3.839-	0
	+	19	10	190		
	=	1				
	total	20				
Total	-	0	0	0	3.934-	0
	+	20	10.5	210		
	=	-				
	total	20				

Value of tabulated Z at 0.05 levels is 1.96

(B) Table (4) reveals that there are statistically significant differences between pretest measurement and posttest measurement of the control group by using method (conventional) on a cognitive achievement for the posttest measurement favor in shot put.

Table (5)
Significance of differences between the experimental group and the control group in the posttest for Axes of test the cognitive

Cognitive test axes		N	Average of ranks	Total of ranks	Z- value	Error probability
Historical Axis	Exp	20	30.5	610	5.523-	
	Control	20	10.5	210		
	Total	40				
Cultural Axis	Exp	20	29.8	596	5.184-	0
	Control	20	11.2	224		
	Total	40				
Technical Axis	Exp	20	27.05	241	3.650-	0
	Control	20	13.95	279		
	Total	40				
Legal Axis	Exp	20	30.05	601	5.262-	0
	Control	20	10.95	219		
	Total	40				
Grand Total	Exp	20	30.5	610	5.435-	0
	Control	20	10.5	210		
	Total	40				

Value of tabulated Z at 0.05 level is 1.96

(C) Table 5 reveals that there are statistically significant differences between the experimental group and the control group in for the posttest measurement the experimental group in the cognitive achievement in shot put

B) Discussion of results:

1-Frist hypothesis

Table (2) reveals that "There are statistically significant differences between pretest measurement and posttest measurement of the Experimental group by using interactive whiteboard on a cognitive achievement for the posttest measurement favor in shot put. This may be attributable to the use of the interactive whiteboard which is considered one of the new instructional techniques that provides students with positive feedback enabling them to retain knowledge and / or information and organize their Retrieval of such information.

This is consistent with Zaghloul et.al (2001) who pointed out that using technology in education results in students' long retention of information; thereby maximizing their achievement and learning (P.19) Educational literature(2011) suggests that the use of interactive whiteboard technology in the educational process Leads to the sense of happy through learning and participation increased of students and the development of motivation to learn (p.15)
Ishtaiwa & Alian (2010) Refere to That the importance of interactive whiteboard lies in its ability To Employment different senses students of during the learning process this is consistent with the principles of modern teaching (p.11)

These results have agreed with the results of a study Talal Al Asmari (2011) to the presence of positive results in the cognitive achievement to the students who have learned by interactive whiteboard.

2-Secondhypothesis

Table (4) reveals that "There are statistically significant differences between pretest measurement and posttest measurement of the control group by using method (conventional) on a cognitive achievement for the posttest measurement favor in shot put. This may be due to the regular (conventional) method that relies on verbal explanation and performing the practical model of the competition; Thereby enhancing the teacher's vital role in exposing the competition.

According to the researcher the use of the tradition method (verbal Explanation) by using the traditional blackboard, which depends on the style of indoctrination Provide more information about the history of the competition as well as the technical stages In addition to the students do not have any background about the Shot Put Competition. The information provided to them will lead to increase their knowledge.

In this context Barhoom (2013) pointed out that the regular (conventional) method is not costly it can also be used in overcrowded classrooms and can be easily used in the various educational stages. (P.35)

3-Third hypothesis

Table (5) reveals that "There are statistically significant differences between the experimental group and the control group in the posttest measurement the experimental group in the cognitive achievement in shot put".

This may be due to the fact that using the new trends, styles and techniques should rely on technology in teaching students whatever their levels and stages are and not as a separate disciple are subject. Learners, nowadays, need easy, clear and vivid information based on technological devices that appeal to learners at all ages and stages. In this context Al - Quds Open University (2008) pointed out that the Adopting of such education technology will lead to enhance quality and efficiency of education (P.25).

As Farag (2005) pointed out that the regular (conventional) methods and techniques do not provide such facilities and benefits. In the regular (conventional) classroom, teachers, overwhelmed with many classes to teach and many lessons to cover, do not pay much attention to individual differences or learning (p.121).

On the contrary, as Mahmoud (2012) pointed out, the interactive whiteboard results in diversity not only in instructional strategies and activities but also in assessment methods and techniques (p.178).

Ibrahim, R (2011) indicates that the use of interactive whiteboard Leads to an increased level of cognitive achievement for students. Karni ,S(2007) indicates The use of interactive whiteboard in the classroom have many advantages like replace the traditional ways like Blackboard regular with Ways more attractive and Suspense such as whiteboard Interactive, which provides opportunities for viewing collective for content And give feedback and Allowing students to interact physically with the device through the use of the fingers of the hand and pens

This helps in providing an active and engaging environment conducive to students' learning and devoid of

monotony and boredom accompanying regular (conventional) methods of teaching

These results have agreed with the results of a study Abdo (2006) that there are statistically significant differences in the post test in cognitive side for the group who used the interactive whiteboard this group also showed Superiority in Effective Presentation Skills

These results have agreed with the results of a study Abdel Halim (2002) that the educational program using the interactive whiteboard helped in the development of attitudes the students toward the use of interactive whiteboard.

Conclusions:

1. There is statistically significant differences between pretest measurement and posttest measurement of the control group by using method(conventional) on a cognitive achievement Through the presentation of information (cultural and historical - Legal Aspects and the Technical stages)for the posttest measurement favor in shot put.

2. There is statistically significant differences between pretest measurement and posttest measurement of the Experimental group by using interactive whiteboard on a cognitive achievement through the presentation of information (cultural and historical - Legal Aspects and the Technical stages) for the posttest measurement favor in shot put.
3. There are statistically significant differences between the experimental group and the control group in for the posttest measurement the experimental group in the cognitive achievement through the presentation of information (cultural and historical - Legal Aspects and the Technical stages) in shot put.

Recommendations:

Based on the study findings, it is recommended that:

1. Universities should be equipped with interactive whiteboards so as to enhance students' skills
2. Making use of the interactive whiteboards in teaching the various courses in the educational institutions.
3. Conducting further research on the use of interactive whiteboards in teaching the various courses in the field of physical education.
4. The use of technology as the basis of education, not a broker
5. The use of cognitive achievement test in the Shot Put Competition using interactive whiteboard for students as a criterion of the framework of theoretical in the shot put.

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