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AN EXPERIMENTAL STUDY ON COMPARISON OF CONVENTIONAL AND INTERACTIVE WHITEBOARD TEACHING AMONG AND WITHIN THE ABILITY GROUPS

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Abstract

Modern age is the age of science and technology. The world of today is very dynamic and we are the witnesses of series of technological innovations in our day to day life. The globalization of technology stays to transformation the manner we live and work. Teaching and learning stand more successful when technology is added to the classroom and to progress students' learning and to support them extent their aims. Interactive Whiteboard is an influential device in the classroom adding interactivity and association, allowing the integration of media content into the lecture and supporting collaborative learning. Hence researcher would like to study on Interactive Whiteboard teaching in learning Science in Krishna District, Andhra Pradesh, India. True-Experimental research design was used for this study. The population of the study was made up of 8th class CBSE Students. The sample population was made up of 160 students. This study intends to find out the effectiveness of Interactive Whiteboard teaching in learning Science among and within the ability groups. Objectives, Hypotheses, Tool, Sample, Method, Data Analysis, and Educational Implications are discussed as follows.

***Key Words**: Technology, Conventional, Learning, Interactive Whiteboard,*

INTRODUCTION

Global era is benefitted with a great deal of the scientific and technological advancements of the late 20th century. Novel invention of technology is influencing the future of advanced education and prompting teaching approaches. The essential purposes of teaching science into inspire the students' confidence and concentration towards science. It is conceivable only when students ensure somewhat themselves utilizes some unprepared teaching aids and creates save enhancements in them.

Interactive Whiteboard classrooms are technology improved classrooms that foster chances for teaching and learning through combining technology for example computers, specified software, assistive heeding tools, networking and audio or visual competences. Interactive classrooms use all interactive components like videos and power point presentations and these visually interesting methods of teaching become engaging to students who are already struggling with the old-fashioned method of teaching in a classroom.

REVIEW OF RELATED LITERATURE

Betcher and Lee (2010) studied scientifically on Interactive white board, ICT, interactive, technology in education to find out learning technology in education by survey method which found that the uses of interactive white board enhances motivation learn and raises the level of concentration improve behavior and enhances learning because it was fun and innovative.

Murcia (2007) studied that understanding of key enduring science concepts and the investigative and social aspects of working scientifically. The aim was to engage students and provide opportunities for construction of scientific understandings. The assumption was that to be effective primary science teachers the students needed to develop their scientific literacy. It would develop a general, broad and useful understanding of science that contributed to their competence and disposition to use science to meet the personal and social demands of their life at home, at work and in the community. The study revealed that science as a tool for inquiry or discovery and the use of science for learning, informing or contributing to problem solving and critically reflects on the use of science with reference to context.

Elharr (2010) found the relationship between the use of interactive board and student achievement. To find out, he employed survey and observed the execution of the Interactive board in grade V and VI in several areas of Australia Students who learned with the interactive white board scored better achievement and nationwide tests math and languages in 2003 the modification was minor and didn't repeat itself and a comparable test administered in 2004. An exhaustive analysis of the data indications are that the usage of the interactive white board contributed primary to the accomplishment of students who were weak in the part of writing.

Dr. Anita Menon (2015) critically studied the effectiveness of smart classroom teaching on the achievement of secondary school students on chemistry and studied the effectiveness of different classroom teachings i.e. Smart Classroom teaching and conventional mode of teaching on achievement of class IX students in chemistry with respect to gender and to study the academic achievement and the interactional effect of it on them. She experimented on 330 students and concluded that there was no effect on the academic achievement in chemistry of secondary school students, boys or girls even when taught through smart classroom teaching and conventional teaching.

Jayamani P (1991) presented a brief analysis on the effectiveness of the stimulation model in teaching physics to standard XI students through CAI that both the CAI strategies were superior to the traditional method of instruction and CAI with TSS was more effective than CAI without TSS for under achievers.

OBJECTIVES OF THE STUDY

1. To find and compare the Pretest mean scores of 1. Control group 2. Experimental group students among and within three ability group's namely Low, Average and High achievers.
2. To find and compare the Posttest mean scores of 1. Control group 2. Experimental group students among and within three ability groups namely Low, Average and High achievers.

HYPOTHESES OF THE STUDY

1. There would be no significant difference among and within the three ability groups of Control group students through Pretest.
2. There would be no significant difference among and within the three ability groups of Experimental group students through Pretest.
3. There would be no significant difference among and within the three ability groups of Control group students through Posttest.
4. There would be no significant difference among and within the three ability groups of Experimental group students through Posttest.

METHODOLOGY OF THE STUDY

True-Experimental design was adopted for this study.

SAMPLE FOR THE STUDY

A sample of 160 pupils from 8th class from CBSE School in Krishna District, Andhra Pradesh.

TOOL OF THE STUDY

Pretest was prepared from the previous knowledge of the three units from 8th class CBSE Science Text Book. That is Light from Physics, Metals and Non-Metals from Chemistry and Reproduction from Biology. The test was constructed on the norms and standards of the achievement test.

A questionnaire in Physics was prepared by taking different areas to assess the following components:

1. Knowledge
2. Understanding
3. Application
4. Skill

ANALYSIS AND INTERPRETATION OF DATA

These investigative approaches may prove very useful in the study of data of any research work and no resemblances, changes, tendencies and significant aspects would go ignored by the researcher. The researcher has analyzed the total mean scores from Physics, Chemistry and Biology.

Objective-1

To find and compare the Pretest mean scores of 1. Control group 2. Experimental group students among and within three ability group's namely Low, Average and High achievers.

Hypothesis-1A

There would be no significant difference among and within the three ability groups of Control group students through Pretest.

Hypothesis-1B

There would be no significant difference among and within the three ability groups of Experimental group students through Pretest.

These hypotheses were tested by comparing the Pretest mean scores of achievers in Control group and Experimental group students. The effects were tested by finding Mean,

S.D and F-value of the scores of Conventional teaching and Interactive Whiteboard teaching and the results were tabulated in table-1.

Table-1

Analysis of various Ability group students in Control and Experimental group students through Pretest

ANOVA Summary							
S.No	**Group**	**Variable**	**Category**	**N**	**Mean**	**SD**	**F-value**
1	**Control Group**	**Subjects**	**Low**	2	25.00	1.41	**100.71***
			Average	57	41.84	6.57	
			High	21	63.62	6.11	
		Source of Variation	**Sum of Squares (SS)**		**df**	**Mean Squares (MS)**	
		Between Groups	8282.956		2	4141.478	
		Within Groups	3166.531		77	41.124	
		Total	11449.49		79		
2	**Experimental Group**	**Subjects**	**Low**	2	25.50	0.71	**102.51***
			Average	56	41.88	6.45	
			High	22	63.45	6.34	
		Source of Variation	**Sum of Squares (SS)**		**df**	**Mean Squares (MS)**	
		Between Groups	8339.12		2	4169.56	
		Within Groups	3132.08		77	40.676	
		Total	11471.20		79		

*** Significant at 0.01 level**

From the above table 1, it was observed that the F-values calculated among Low, Average and High achievers of Control group and Experimental group were significant. Therefore significant differences were observed among Low, Average and High achievers

of Control group and Experimental group students in the comparison. It may be concluded that there were significant differences among Physics, Chemistry and Biology of Control group and Experimental group students in learning science concepts. Hence the sub hypotheses "There would be no significant differences among and within the three ability groups of Control group and Experimental group students through Pretest" were rejected. Thus, it was concluded that Control group students have significant effect among and within different ability groups in the performance of learning science before the experiment. In the same way it was concluded that Experimental group students have significant effect among and within different ability groups in the performance of learning science before the experiment.

Objective-2

To find and compare the Posttest mean scores of 1. Control group 2. Experimental group students among and within three ability groups namely Low, Average and High achievers.

Hypothesis-2A

There would be no significant difference among and within the three ability groups of Control group students through Posttest.

Hypothesis-2B

There would be no significant difference among and within the three ability groups of Experimental group students through Posttest.

These hypotheses were tested by analyzing the Posttest mean scores of achievers in Control group and Experimental group students. The effects were tested by finding Mean, S.D and F- value of the scores of Conventional teaching and Interactive Whiteboard teaching and the results were tabulated in table-2.

Table-2

Analysis of various Ability group students learning science in Control and Experimental groups through Posttest

			ANOVA Summary				
S.No	**Group**	**Variable**	**Category**	**N**	**Mean**	**SD**	**F-value**
		Subjects	**Low**	2	26.50	0.71	
			Average	55	42.40	5.79	

			High	23	63.43	6.83	
1	**Control Group**	**Source of Variation**	**Sum of Squares (SS)**		**df**	**Mean Squares (MS)**	**110.14***
		Between Groups	8128.448		2	4064.224	
		Within Groups	2841.352		77	36.901	
		Total	10969.800		79		
		Subjects	**Low**	0	0	0	
			Average	46	47.46	5.12	
			High	34	64.18	6.29	
2	**Experimental Group**	**Source of Variation**	**Sum of Squares (SS)**		**df**	**Mean Squares (MS)**	**84.56***
		Between Groups	5465.333		2	2732.667	
		Within Groups	2488.354		77	32.316	
		Total	7953.688		79		

*** Significant at 0.01 level**

From the above table 2, it was observed that the F-values calculated among Low, Average and High achievers of Control group and Experimental group students were significant. Therefore significant differences were observed among Low, Average and High achievers of Control group and Experimental group students in the comparison. It may be concluded that there were significant differences among Physics, Chemistry and Biology of Control group and Experimental group students in

learning science concepts. Hence the sub hypotheses "There would be no significant differences among and within the three ability groups of Control group and Experimental group students through Posttest" were rejected. Thus, it was concluded that Control group students have significant effect among and within different ability groups in the performance of learning science after the experiment. Similarly it was concluded that

Experimental group students have significant effect among and within different ability groups in the performance of learning science after the experiment.

FINDINGS OF THE STUDY

1. Interactive Whiteboard teaching is effective in learning science.
2. The effect of regular method of teaching in learning science is also significant and effective in its own way.
3. The Control group students have significant effect among and within different ability groups in the performance of learning science after the experiment.
4. 12. Experimental group students have significant effect among and within different ability groups in the performance of learning science after the experiment.
5. Conventional teaching has no significant effect in learning science.
6. Interactive Classroom teaching has significant effect in learning science.

SUGGESTIONS TO FURTHER STUDIES

1. The effectiveness of Interactive Whiteboard teaching may also be extended to experiment on different classes in learning science and other non – science.
2. The same study may be carried out to test the effectiveness of different subjects related to languages, literature and the like.
3. A longitudinal study may also be conducted to see the effectiveness of the Interactive Whiteboard teaching and Conventional teaching.

CONCLUSION

This piece of research helped the researcher to know more about the procedure of experimental research and also some awareness about Interactive Whiteboard classroom teaching. Above all these researches helped the researcher to gain a sense of achievement and self-satisfaction and this report may be helpful to the teachers, students and research scholars in their teaching learning situations. This may also be helpful to the policy makers and educationists to solve the problems of education. One of the best significant features of today's world is the developing momentum of scientific, technological, social developments etc. The revolution and unpredictability, human societies and organizations are inevitable to create dynamic and productive developments because of access to latest trends in the future. According to Toffler, "only using innovative of change is for its direction, which can be spared the shock of the injury and to achieve a better future and more human".

REFERENCES

Armstrong, V. & Barnes, S. & Sutherland, R. & S. Curran & Mills, S. & Thompson (2005), 'Collaborative research methodology for investigating teaching and learning: the use of interactive whiteboard technology' Review, Vol. 57, No. 4, November 2005.

BECTA (2006). Teaching interactively with electronic whiteboards in the primary phase. Retrieved October 18, 2009 from http://publications.becta.org.uk/download.cfm?resID=25918.

Betcher, C., & Lee, M. (2009). The interactive whiteboard revolution – Teaching with IWBs. https://epdf.tips/the-interactive-whiteboard-revolution-teaching-with-iwbs.html

BorGregorcic, Eugenia Etkina&GorazdPlaninsic (2017). A New Way of Using the Interactive Whiteboard in a High School Physics Classroom; https://www.researchgate.net/publication/313315495_A_New_Way_of_Using_the_Interactive_Whiteboard_in_a_High_School_Physics_Classroom_A_Case_Study.

Campregher S (2010). Effects of the Interactive Whiteboard (IWB) in the Classroom, Experimental Research in Primary School, Free University of Bolzano (Italy), Retrieved June 2011, from http://www.pixelonline.net/edu_future/common/download/Paper_pdf/ENT34-Campregher.pdf

Clarissa K. Cole (2012). A Literature Review Exploring the Effectiveness of the Use of Interactive Whiteboards on Teaching Basic Science Concepts to Special Education Students; https://repository.uwyo.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1034&context=plan_b

Dr. Anita Menon (2015). Effectiveness of Smart Classroom Teaching on the Achievement in Chemistry of Secondary School Students; http://iasir.net/AIJRHASSpapers/AIJRHASS15-132.pdf

Dr.Kamalnayan B Parmar (2015). Incorporating the Smart Board for Smart Teaching; http://iejte.org/wp-content/uploads/2018/05/Vol-3-Issue-1-January-2015.pdf

Eng-Tek ong (2009). The effectiveness of smart schooling on student's attitudes towards science; http://www.ejmste.com/The-Effectiveness-of-Smart-Schooling-on-Students-Attitudes-Towards-Science,75255,0,2.html

Glover, D., & Miller, D. (2007). Leading changed classroom culture -- the impact of interactive whiteboards. Management in Education (Sage Publications Inc.), 21(3),21-24.

Jeyamani, P. (1991). The effectiveness of the simulation model of teaching through Computer Assisted Instruction (CAI).Fifth Survey of Research in Education. M. B Buch,. (Ed). New Delhi: NCERT. P 1375.

Martin, S. (2007). Interactive whiteboards and talking books: A new approach to teaching children to write? Literacy, 41(1), 26-34.

Morgan, H. (2010). "Teaching With the Interactive Whiteboard: An Engaging Way To Provide Instruction", Focus on Elementary, pp. 2-3

Sessoms, D.(2009). "Interactive Teaching and Learning", retrieved from http://www.edtech568.com//.htm on 17.03.2011

SMITH, A. (1999). Interactive whiteboard evaluation. MirandaNet. http://www.mirandanet.ac.uk/pubs/smartboards.htm (Accessed 22 January 2003).