

A Comparative Study of Academic Achievement of Traditional Classroom and Smart Classroom Technology in Relation to Intelligence

Navita Malik and V.K. Shanwal

Gautam Buddha University, Greater Noida

ABSTRACT

This paper focuses on comparing the effectiveness of smart classroom over traditional classroom in terms of academic achievement and its relation to intelligence. 40 students of class VIII of age 13-15 years were selected, for the study and two groups were formed of 20 students each in experimental and control group. Experimental group was taught through Smart Board technology Classroom and control group through traditional classroom.

The Jalota's Group test of General Mental Ability was employed. The analysis of data was done by finding out the correlation coefficient between the intelligence and academic achievement and the "t-values" were calculated to be significant difference. The main findings of the study are that there is positive correlation between intelligence and academic achievement. When students studied through smart classroom technology it was found that academic achievement was better in relation to intelligence.

Keywords: Academic Achievement, Intelligence, Smart Classroom technology and traditional classroom.

The first teaching tool blackboard found its way into classroom from 18th century and has dominated for decades, then take place the magic lantern Epidiascope, radio, tape recorder, television, film strip projector, slide cum film strip, projector, computer and so on. Approaches and strategies of teaching have always taken an important place in education process. Teaching aid enhances student's learning and helps

the teacher. ICT has walked in every aspects of our life, including classrooms. ICT gives a dynamic interaction between student and teacher. National Policy of Education 1986, Computerization is promoted. Children are getting exposure to Smart Phones, Smart T.V and variety of technologies as part of their life routine therefore our school system must incorporate technology at their classrooms.

According to Gillman (year), "Educational Technology has the power to enhance the instructional program to improve student academic performance and to provide effective and efficient classroom, school and administrative Systems."

While incorporating a Smart Classroom Technology both visual, audio-visual aids are used timely, which fosters long term learning.

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Address for correspondence

Navita Malik, Gautam Buddha University, Greater Noida, India.

E-mail: navitaarun@gmail.com

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Piaget discovered that children first develop ideas concretely and later progress to abstraction, so to achieve abstraction of idea, it's high time, we provide such learning environment, where they visualize the concept grasp them and understand them.

Singh, Y.P. (2007) conducted a comparative study of learning English spelling through computer and traditional method and revealed that CAI method was found superior than traditional method to teach English. Similar findings were reported by Singh, Y.V. (2007) when investigated the effectiveness of computer assisted instruction Vs traditional method in teaching science at upper primary level.

Jeffrey (2009) conducted a study to examine the impact of SMART Board technology on the Mathematics performance of fourth grade gifted students in North Carolina. Investigator considered Total Six Schools, three schools out of six used Smart Board and others three schools used traditional method. The tool for evaluation of their subject mathematics was considered their end term exams and compared results to third and fourth grade but results did not indicate significant growth among gifted students.

According to Goldberg (2009), the Missouri Research and Education Network and the Missouri Department of Elementary and Secondary Education included SMART interactive whiteboards in school programmes and the Annual report that analyzed the impact of the program on student learning found the academic achievement of students to be much higher than before. Though a number of researches related to Smart Board Technology or Interactive White Board, its attitude of teachers towards it and effect of Smart Board Technology on academic achievement of students.

But in context of India and comparing academic achievement of both traditional and smart Classroom and finding its relation to intelligence in developing countries of ours, is so far untouched.

1.1 Academic Achievement

According to Goods (1973) "academic achievement as a knowledge attained or skill developed in school subject usually designated by test score or by mark assigned by teachers or by both".

According to Hawes (1982) "achievement is successful accomplishment or performance in particular subject areas or

courses usually be reasons of skilled hard work and interest typically summarized in various types of grades, marks score on descriptive commentary."

1.2 Intelligence

According to Stern (1942) "Intelligence is a general capacity of an individual consciously to adjust his thinking to new requirements. It is the general mental ability to new problems and conditions of life."

According to Jean Piaget (1952) "Intelligence is the ability to adapt to one's surrounding."

2. Hypothesis

- There is no significant difference between academic achievement of students studying in Smart Classroom and Traditional classroom
- There is no significant difference between Intelligence of students studying in Smart Classroom and Traditional Classroom.

3. Objectives of the study

The main objective of this paper is to compare academic achievement in relation to intelligence of students of Smart Classroom technology to traditional classroom.

- To Compare the academic achievement of students studying in smart classroom and Traditional Classroom.
- To find out the relationship between intelligence and academic achievement of two different classroom.

4. Sample

The sample consisted of 40 students, which include girls from Savitri Bai kanya Inter College Greater Noida. Students were distributed randomly into two groups one was control group taught traditional method of classroom and

Another experimental group taught through Smart Classroom Technology .

4.1 Procedure of Data Collection

A Pre test was conducted in both groups when no instructions were provided to any of the group neither the experimental nor control group.

After conduction of Pretest was followed by instructions given to experimental group by following a Smart Classroom Technology and control group through traditional classroom technology.

After the completion of the content in both groups, students were administrated post –test. The same test was used as pre test and post test with same marks distribution, number of items, duration and total marks were same.

4.2 Collection of Data

Investigator personally went to the school for administration of the test. The investigator administered the Jalota’s Group test of General Mental ability was employed and for academic achievement test was constructed by the investigator to assess the academic achievement in Science of standard VIII students.

5. Analysis and Interpretation

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5.1 Analysis of Coefficient of correlation between intelligence and academic achievement on traditional classroom technology and smart classroom technology

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Table1: Coefficient of correlation between intelligence and academic achievement on traditional classroom technology

Variable	Academic Achievement
Intelligence	0.42

Table 1 shows a significant positive correlation between intelligence and academic achievement. The correlation coefficient of 0.42 is significant at 0.01 levels.

Table 2. Showing coefficient of correlation between intelligence and academic achievement for Smart classroom Technology

Variable	Academic Achievement
Intelligence	0.59

Table 2 shows a significant positive correlation between intelligence and academic achievement. The correlation coefficient of 0.59 is significant at 0.01 levels. There is positive correlation between intelligence and academic achievement as seen from Table 1 and Table 2.

5.2 Analysis and Interpretation deals with study of teaching of science through instructions imparted to students through Smart Classroom Technology and Traditional Classroom.

Table 3. Statistical Analysis of Means of Pre test Scores of Academic Achievement in Science among Class VIII Students in Experimental and Control Groups

Groups	Mean	variance	t-value
Experimental Group	4.9	7.49	1.05
Control Group	3.9	10.39	

From the table 3, it is evident that on an average, the performance of Experimental and control group on pre-test was almost the same and the difference between mean scores of students on pre-test was not significant, the value is smaller than the tabulated value at 0.01 and 0.05 level of significance and therefore observed difference in mean scores of pre-test is not significant.

Table 4. Statistical Analysis of Means of Posttest Scores of Academic Achievement in Science among Class VIII Students in Experimental and Control Groups

Groups	Mean	variance	t-value
Experimental Group	17.4	12.04	2.10
Control Group	14.6	22.12	

From the table 4, it is evident that the t-value, mean value of Post-test scores of Experimental and control group is calculated to be 2.10 which is greater than tabulated value at 0.05 level of significance i.e. 2.02 and can be significant at 0.05 levels. The t-ratio value depicts the observed difference in mean scores of post-test for control and experimental group is significant.

Conclusion

After statistical analysis of the data, this study arrived at the following conclusions:

1. There is significant and positive correlation found between intelligence and academic achievement of secondary level students.
2. There is no significant difference between the academic achievements of secondary level students when no instructions to both groups are provided.
3. There is insignificant difference found between

both experimental and control group following smart classroom technology and traditional group respectively and concludes that smart technology classroom is an effective way of instruction method.

This study may provide help to the school personnel, teachers, counselors and guidance workers to develop suitable methods of teaching and instruction among the secondary level. So suitable use of smart class room technology in providing instructions helps in improving academic achievement which in turn enhancement of intelligence of student.

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