

“A Study Of The Effectiveness Of Technology Integration In Teaching And Learning Among Middle School Students.”

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ABSTRACT

This study investigates the effectiveness of technology integration among middle school students in science subject. Technology integration aiming to enhance learning outcomes through interactive and engaging experiences. This present study examines how various tools and methods impact the concentration level, comprehension, and academic achievements of middle school students in science subject. The present study takes into consideration Academic achievements by referring to the Pre-test and post test scores of 30 students in science subject of Barabhumti High School, Tamdi-Surla Dharbandora Goa. A sample was selected by using purposive sampling techniques. The researcher prepared a lesson plan for the science topic. They were shown to the expert teachers and their valuable suggestions were taken into consideration and plans were rewritten and was delivered using conventional method and conducted pre-test. The post-test was conducted after delivering the lesson using integration technology like videos, animations, PowerPoint presentation, Moodle, google meet to foster students creativity and to develop interest. The data was analysis using t-stat. There is significant difference between the mean performances of pre-test and post-test for science subject among eight standard students and the Research Hypothesis H1 is accepted which shows the that the developed intervention programme was highly significance for enhancing science achievements among VIII standard students. Finding suggests that the technology integration in science subject can significantly improve student's outcome and providing the best teaching strategies for educator and policy maker in middle schools.

KEY WORD: Technology integration, Effectiveness, middle school students

INTRODUCTION

Now a days the technology play a major role in teaching learning . Educational technology helps the learners to learn from anywhere and anytime .classroom are taught with the traditional method which does not have more scope to foster their creativity and innovation. With the advancement of technology, it helps the teacher to incorporate technological tools and applications like like Google meet, zoom, video conferencing, educational videos, multimedia, guided learning, online resources, digital libraries and e-learning platforms to enhance quality of education. It will improve student focus, inculcate interest and standard parameters to achieve learning outcomes.

Most of the schools are using the offline mode of teaching, where in face-to-face learning is taking place among a student and a facilitator. A teacher plays a central role in face-to-face learning. In India the National Education Policy (NEP) 2020 has recognized the importance of technology integration and in building digital resources , repository of lesson plans question bank etc. The effectiveness of Technology integration requires comprehensive study of its impact on teaching and learning and the factors that influence its effectiveness. This study focuses on it.

Online mode of teaching helps in covid pandemic to impart quality education to the students through different tools like Google meet, zoom, video conferencing etc. the teacher was able to prepare his or her content using multimedia and present the lesson. During Covid pandemic without online tools imparting education was impossible. ICT has played a vital role in facilitating teaching learning process during Covid pandemic.

The researcher analyses the VIII standard science textbook with the help of expert and selected the topic for technology Integration and design the 5e lesson plan including technology. After the Units are taught in the class by researcher using conventional method pre-test is conducted. After technology integration method post- test was examined.

OBJECTIVES

1. To find out the extent of technology integration for teaching Science subject for grade VIII students.
2. To analyse VIII standard science textbook and locate units for the integration of technology.
3. To develop ICT based lesson plan based on Integration of technology.
4. To study impact of technology integration on the academic achievement of VIII standard students in science

STATEMENT OF THE PROBLEM

“A STUDY OF THE EFFECTIVENESS OF TECHNOLOGY INTEGRATION IN TEACHING AND LEARNING AMONG MIDDLE SCHOOL STUDENTS.”

HYPOTHESIS

Research Hypothesis (H1)

There is significant difference between the mean performance of pre and post-test for the science subject among VIII standard students.

Null Hypothesis (H0)

There is no significant difference between the mean performance of pre and post-test for science among VIII standard students.

METHODOLOGY OF THE STUDY

Research methodology is the process of systematically addressing a research topic by collecting data using a variety of methodologies, analyzing that data, and generating conclusions. A research or study's methodology is its blueprint (Murthy & Bhojanna. 2009).

RESEARCH DESIGN

A researcher selects the methods and procedures to be used in order to get the desired outcome. Having a solid research design is like putting a puzzle together. The steps of developing a study design include articulating the issues at hand, surveying relevant literature, formulating a working hypothesis, outlining data collection and analysis methods, and finally, drawing conclusions. Research designs are characterized by their validity, generalizability, and neutrality.

POPULATION OF THE STUDY

A population is an exhaustive collection of things that share the traits specified by the researcher's sample criteria. All eighth graders in Dharbandorataluka were included in the research.

SAMPLE OF THE STUDY

The Purposive sampling approach was used to pick the sample. Researchers using purposive sampling methods rely only on their own expertise when choosing samples. There is a good likelihood of getting very precise responses with little margin of error since their expertise is crucial in making the samples. From the eighth grade at Barabhumi High School in Tamdi-Surla, 30 pupils were chosen to participate in the research.

ANALYSIS AND INTERPRETATION

The collected data was analysed through both the descriptive and inferential techniques.

1. Graphs, Charts and Tabulation
2. Mean, Standard deviation
3. Coefficient of Correlation
4. 't'-test

OBJECTIVE WISE DATA ANALYSIS

Objective 1. To find out the extent of technology integration for teaching Science subject for grade VIII students.

Researcher conducted pre-test after teaching in conventional methods the Units of Metals and non-metals and Force and Pressure. On the same units Researcher taught by using technology integration and conducted post-test. And the result after analysis is as given below

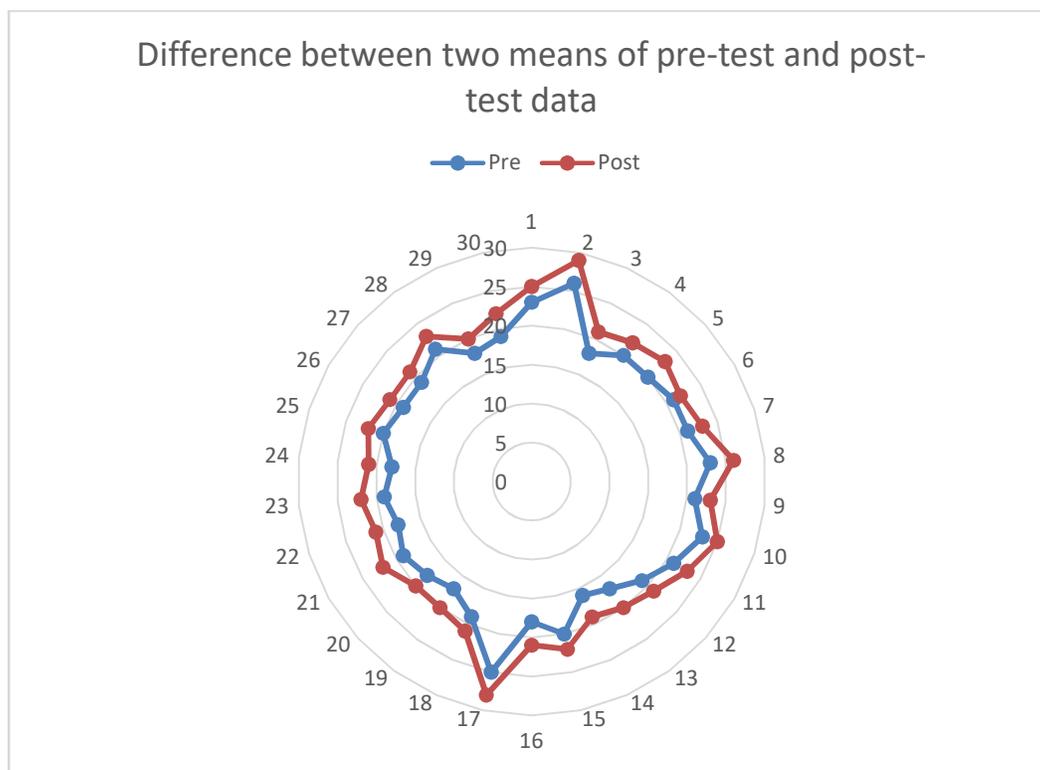
PRE-TEST	
Mean	19.86666667
Standard Error	0.425436445
Median	19
Mode	19
Standard Deviation	2.330211376
Sample Variance	5.429885057
Kurtosis	0.752012864
Skewness	0.925801078
Range	10
Minimum	16
Maximum	26
Sum	596
Count	30

POST-TEST	
Mean	22.3
Standard Error	0.4354
Median	23.5

Mode	22
Standard Deviation	2.31
Sample Variance	5.32069
Kurtosis	1.611842
Skewness	1.448592
Range	10
Minimum	19
Maximum	29
Sum	596
Count	30

Objective 2. Researcher analyse the VIII standard science textbook

To analyse VIII standard science textbook and locate units for the integration of technology. After analysing the science textbook two units were selected and with the discussion with the expert and their suggestions lesson plan were prepared using technology integration. During the teaching process it was noticed that the concentration level of the students increased and the student develop curiosity to learn the things.



From the above graph it signifies the mean of post test score is higher than the pre test score hence the develop technology integration programme is highly effective.

Objective 3. To develop ICT based lesson plan based on Integration of technology.

On the selected units the Researcher develop the traditional lesson plans and technology integrated lessons plans. The lesson plans were shown to the expert teachers and their valuable suggestion were taken into consideration and the lesson plans were re-written. Implementation of these lesson plan created a very good environment for the students to develop and foster their creativity.

Objective 4. To study impact of technology integration on the academic achievement of VIII standard students in science.

To achieve this objective researcher have tested the null Hypothesis and the result are as follows.

t-stat for Null Hypothesis

Partial	N	Df	Mn	Sd	'r'	L.O.S.	't'cal	T Table	Result
Pre-test	30	29	19.87	2.33	0.97	0.05	13.81	2.04	Rejected
Post-test	30	29	22.3	2.31					

ANALYSIS AND INTERPRETATION

Above table depicts that Mean of Pre-test is 19.87 and post-test is 22.3, whereas correlation is 0.97. Calculated 't' is 13.81 and table T is 2.04 which is less than calculated 't' i.e. $t > T$ Hence calculated t is significant at and Null hypothesis H_0 i.e. "There is no significant difference between the mean performances of pre-test and post-test for science among eighth standard students." Is rejected at 0.05 level of significance and Research Hypothesis H_1 The eight standard pupils' mean scores on the science subject's pre- and post-tests varied significantly." Is accepted which shows that the developed intervention program was highly significance for enhancing science achievements or skills among VIII standard students.

CONCLUSION

The developed intervention program was highly significance for enhancing science achievement or skills among VIII standard students. The research shows the learner develop interest, increased their concentration level and curiosity to learn. The students understood the topic better when the integration of technology is used like animation, power point presentation, videos etc.

RECOMMENDATION

1. This study can be used by the educatorin framing the curriculum and developing technology integration practices in middle schools.
2. The policy makers can conduct this study in different subjects at different grade levels.
3. The research may be also conducted for the elementary education in rural area.

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