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Impact of instructional materials on achievements in science among secondary school students

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Abstract

The aim of the present study is to find out the impact of instructional materials on achievement in science among secondary school students. To serve this objective a sample of 72 students were selected by purposive sampling techniques. In the study, Achievement Test on Science (ATS) was used to collect relevant data. The intervention programme of 7 weeks by providing instructional materials to the experimental group students. The analysis was done after the intervention programme and found that the experimental group on which the instructional materials had used were more academically achieved than the control group students on which traditional method had been used. Recommendations were made on the basis of findings obtained.

Keywords: instructional materials, achievement, senior secondary school students

Introduction

Instructional materials are important things which make teaching and learning effective. Using instructional materials in the class motivates the students to learn better (Sharma, 2012) [5]. Instructional materials use multi-sense of the children which enhance the learning. Teaching aids provide complete examples for conceptual thinking and create interest among the students in teaching and learning. Further, it increases the vocabulary and makes learning permanent by providing direct experience to the students (Gupta, 2010) [4]. The process of teaching - learning depends upon the different type of equipment available in the classroom. There are many aids available these days like, audio, visual and audio-visual aids. They have very much importance in TLP (Teaching Learning Process). This study attempts to find out how well equipped the teachers are to impact knowledge to their students, taking cognizance of information made available from both the electronic and print media. A study carried by Bellow (1999) [3] revealed that instructional materials influence both the learners and educators during the teaching and learning process in any given environment.

Hence, the present study was carried out to find the effect of Instructional Materials on Achievement in science among Senior Secondary school students.

Methodology

Design

The teaching based instructional materials, a seven weeks designed intervention programme is provided for senior secondary schools. The instructional materials prepared on the Botany Chapter 'Motion' and provided to the students of experimental groups. Students were informed that the achievement in science would be used to measure the academic achievement in science of students. This achievement test questionnaire was administered as pre-test before the intervention programme. After completion of intervention programme on teaching through instructional materials, again the same questionnaire was used as post-test to both experimental and control groups.

Sample

The sample consisted of a total of 72 secondary school students from two different schools of Mayurbhanj district of Odisha. The experimental and control groups consisted of 37 and 35 students each.

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Tools

A science achievement test self-developed was administered to measure the science senior secondary school students. It contains 50 questions based on short answer, true/false and fill in the blanks on the topic 'Motion'.

Analysis and interpretation

Table 1: Significance of difference between the mean achievement in science scores of the experimental and control group students in pre-test

Groups	N	M	S.D.	t-ratio	Level of significance
Experimental	37	63.71	1.83	0.50	N.S.
Control	35	63.66	1.38		

Table-1 denoted that the mean scores of experimental and control group on science achievement test in pre-test are 63.71 and 63.66 with SDs 1.83 and 1.38. The t-ratio came out from above two groups is 0.50 which is not significant at any level of significance. That means both the groups did not differ significantly on the science achievement. It implies that there is no significant difference exist between both the groups of students on science achievement before the intervention programme i.e teaching through instructional materials.

The mean scores of the secondary school students belonging to experimental and control group on science achievement as depicted in the Table-1 is represented in the Bar Fig.1.

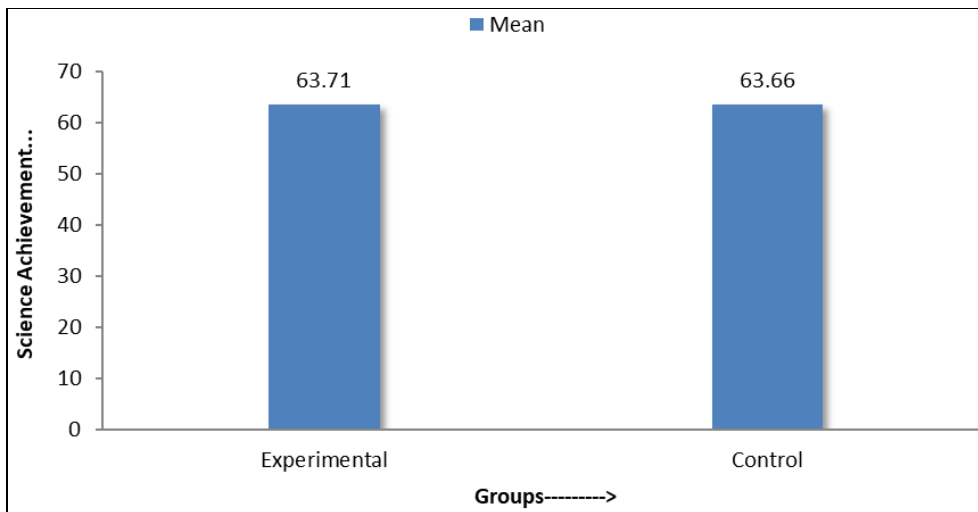


Fig 1: Comparative bargraph showing mean score on science achievements of pre-test of Experimental and Control group students

Table 2: Significance of difference between mean scores of science achievement of the experimental and control group of students in post-test

Groups	N	M	S.D.	t-ratio	Level of significance
Experimental	42	63.86	0.73	2.16	.05
Control	40	60.43	0.50		

above two groups is 2.16 which is significant at .05 level of significance. That means there is significant difference between experimental and control group students on science achievement. The mean science achievement score of Experimental group is higher than the students of control group. It shows that the students of experimental group have good science achievement as compared to the students of control group.

Table-2 denoted that the mean scores of experimental and control group on science achievement in pre-test are 63.86 and 60.43 with SDs 0.73 and 0.50 The t-ratio came out from

The mean scores of secondary school students of experimental and control group on science achievement as depicted in the Table-2 is represented by the bar Fig.-2.

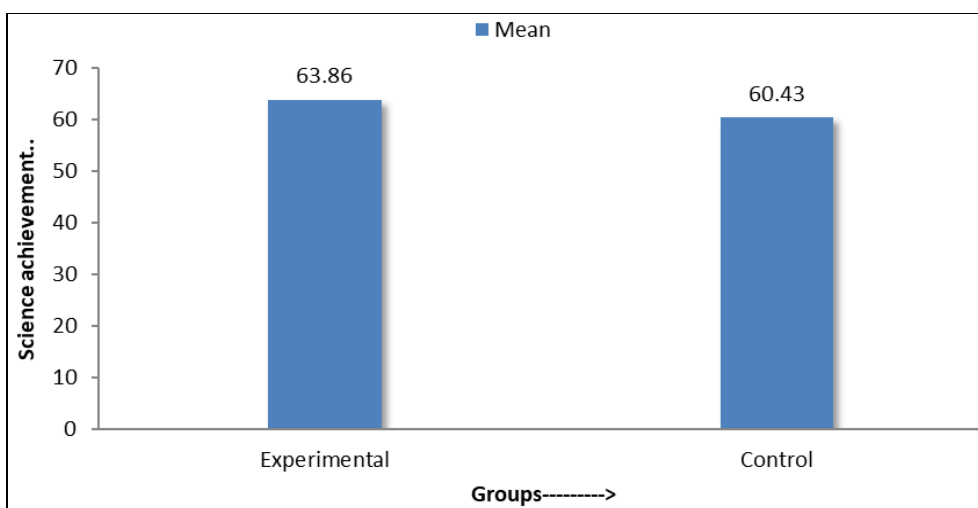


Fig 2: Comparative bargraph showing mean science achievement score of post-test of Experimental and Control group students

Conclusion

The purpose of this study was to determine the effect of teaching through instructional materials on the development of science achievement among secondary school students. Result of the study shows that after receiving intervention programme like teaching through instructional materials, students achieved more in science. Specifically, result of pre-post means comparison were statistically significant on science achievement. So it is suggested to the school teachers, school authority, administration that they should adopt a good teaching strategies with appropriate teaching aids in the classroom for better comprehend of the concept by the students. The curriculum should also be framed in such a way that to enhance science achievement.

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