

EFFECT OF EDUSAT PROGRAMMES ON STUDENT'S ACHIEVEMENT IN SCIENCE AND THEIR PERCEPTION TOWARDS THESE PROGRAMMES

ABSTRACT

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The present study investigated the effect of Edusat programmes on achievement in science and students perception towards the lesson transmitted through Edusat. The sample, drawn from ninth class students of government schools of Sonipat district, was divided into two equivalent groups namely treatment group and control group. The treatment group was taught through the Edusat programmes, and the control group was taught through the traditional classroom method without Edusat programmes. Achievement test was used to measure achievement in science, and opinionnaire was used to determine student's viewpoints about lessons transmitted through Edusat. After analysis with t-test, it was found that there was statistically significant difference in achievement, the treatment group showed higher gains. The results also indicated that students felt positively about the lessons transmitted through Edusat. Bringing the qualitative improvement in the programmes, making it interactive and providing teachers guidance notes could lead to higher gains from the medium.

Keywords: *Edusat programmes, experimental design, achievement in science.*

Each individual and each individual's personality is an important block in the building of nation. Quality education is not only the right of persons or students belonging to any particular group or area, but it is a need or desire of every one living in country so that they are skilled enough to not only earn their livelihood but can contribute to the development of the society as a whole. The main challenge that Indianowadays is facing is providing a resourceful quality education to its population. Our formal institutionalized system of education is gradually improving and changing to compete with globalization, however working in inadequate infrastructure, and increasing number of students and greater proportion of students in rural, hilly, remote and tribal areas are still prominent challenges of education. Instructional satellite television can be best possible way to increase the education statusto this section of society in India, as it ensures equitable access to good quality education. In India, EDUSAT is the first exclusive satellite for serving the educational sector. It is specially configured to meet the growing demand for an interactive satellite-based distance education system for the country through audio-visual medium, employing Direct-to-Home (DTH) quality broadcast. Edusat project was implemented countrywide and Haryana government has launched its biggest initiative in this field. The entire gamut of state education has been covered by broadcasting the education content through five channels. Curriculum-based education is being imparted via the satellite by Haryana School Education Department in government schools of Haryana. Mass media have been supported by UNESCO (1985) for the capacity to meet the challenge of the growth in

the number of persons to be educated as they are able to transmit the same message in millions of copies. Instructional satellite television has advantages over other media in transporting the entire audience to wild, hostile or inaccessible locations, enlarging the microscopic and reducing the immense, and combining text and images, encouraging learning and understanding through different channels (Blythe-lord, 1991). Cassirer (1962) cited a series of researches done on comparing television instruction to conventional teaching managed with the same instructors and teaching methods and stated that there was no significant difference between students' level of achievement. Joshi(1987) found secondary school TV programmes in science had not changed over the years. It was also revealed that the programmes were of poor quality, and no significant difference was found in scholastic achievement and the scientific attitudes of students exposed to Satellite Television programmes. Sewagegn (2013) investigated that the teacher-based instructed group was more successful than the group taught through Satellite Television Instruction (STVI). Besides, students from STVI group preferred to learn with teacher-based method of instruction. Other researchers argued that most experimental studies compare television instruction with classroom instruction (Schramm, 1977). For Schramm, the more carefully such comparisons are designed and controlled, the more likely they are to show significant difference in learning from the two sources. Chu and Schramm (1977) tabulated 421 television versus classroom (face-to-face) comparisons and found out that 308 of the studies showed no significant difference, 63 of the studies were in favour of televisions, and 53 of them favoured classroom (face-to-face) teaching. Phutela(1980) attempted to investigate the utilization and comprehensibility of School

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Television Programmes on the part of the students of different classes. The result of four out of five comprehension tests regarding utilization STV programmes showed real difference in the learning of the subject matter, indicating that these lessons were well understood. *Jaiswal*(1992) evaluated ETV science programmes for children in terms of their content, presentation, effectiveness and reactions and found that science programmes for children was quite suitable with respect to most of the dimensions. A large number of these programmes were presented well, and 80% of the programmes showed significant knowledge gains. The children were found to have positive reactions to the ETV science programmes. *Phalachandra* (2006) found that the students have benefited from the video programmes delivered through the Satellite. The benefit gained is in terms of gain in knowledge and understanding of the content, improvement in attendance and holding attention and interest in viewing programmes. By and large, the review of the literature strongly indicated that the learning using educational television programmes was very effective and useful to the student community. But, as shown by various studies, depending upon the quality of programmes there are possibilities that it might not have desired positive effect.

A critical look at the present educational scenario in Haryana highlights the quantitative expansion, but the qualitative aspect is still lagging behind. The adoption of a new technology is not a challenge but adapting it to various educational, pedagogical and social realities is a major challenge. Such type of technology is being used in Haryana government schools for the first time. Therefore, a question comes to front whether adopting the new technology i.e. teaching through Edusat programmes in present context, really enhances the quality of teaching and effective in promoting the quality of learning process and outcomes. But at the same time students in the schools where programmes are transmitted might not have the same previous knowledge and understanding level. It might be quite possible that due to lack of resources and well trained and qualified teachers in some areas, students are not having a specified knowledge level which must be need to understand the contents presented in these programmes. In such a situation it is very difficult to ascertain that these programmes will increase student's interest and achievement. Therefore it was considered valuable to find out that the programmes prepared and delivered are really beneficial for all the students, despite of their difference in previous knowledge of students and their access to further

knowledge. Since, viewers of television generally have less control over the flow of information than with more static media; comprehension is importantly linked to their ability to stay engaged with the medium. Therefore it was considered important to find out whether students in Haryana government schools are able to keep pace with the information presented through transmitted educational lectures. Or these lectures are too difficult to comprehend and making the students to lose their interest in class instead of raising the achievement.

OBJECTIVES

1. To study the effect of Edusat programmes on achievement in science among government high school students of Haryana State.
2. To study the student's viewpoints towards science programmes transmitted through Edusat in improving their learning.

METHODOLOGY

Sample

The field of study was Sonipat district of Haryana State. The final sample of the study comprised of 200 students of IX class studying in government schools.

Design and procedure

The methods used to conduct this research included experimental technique. The pretest-posttest equivalent groups design was used. This study included a control group and an experimental group. In this true experimental design equivalence of the groups was provided by the matching of subjects, on two confounding variables (intelligence and socio-economic status), to experimental and control treatment. Investigator applied Achievement test in science as pre-test and post-test to both groups. Experimental group was taught selected topics by using Edusat programmes and control group was taught same topics with traditional method. Viewpoints toward science lessons were also taken from experimental group along with post-test of achievement in science.

Measures:

- Group test of general mental ability (Hindi) by S. Jalota and Socio economic status scale by S.P. Kulshreshta
- Achievement test was developed keeping in view the content taught through transmission of EduSat supported network and used to assess students' achievement in science. Final draft of the test contained 50 items and the reliability was 0.76 and validity 0.61

- An open-ended questionnaire comprising closed ended items, reflecting the viewpoints of students about various aspects of science lessons transmitted through Edusat, was constructed and used.

ANALYSIS

Quantitative data analysis, using t-test and simple

percentage techniques, had been employed. Students' scores on the science achievement test and their reaction towards science lesson given through Edusat were the source of data. The results found from obtained data were:

- Students' Achievement in Science before and after the teaching through Edusat programmes**

Table 1: The results of control and experiment groups' pre-test points of science achievement test

Group	No. of students	Mean	S. D.	t-value
Experimental	100	13.08	4.912	
Control	100	12.83	4.644	

As shown in Table-1, there was a minor difference between the control and experiment groups' science achievement pre-test points (obtained $t= 1.22$, insignificant at 0.01 level). According to this fact, it can be said that before the

application of Edusat programmes, the control and experiment group students' knowledge about science was, by and large, similar to each other.

Table 2: The results of Control Groups' pre-test and post-test points on science achievement test.

Group	No. of students	Mean	S. D.	t-value
Pre-test	100	12.83	4.644	
Post-test	100	21.6	6.957	

**Significant at 0.01 level

The results in Table 2 show that the mean post-test score obtained by the experimental group (21.6) is higher than the pre-test scores (12.83). Further, when the significance difference between the mean pre-test scores and the post-test scores of control group's students was tested, t-value

thus computed was 18.22 which is more than the Table value at 0.01 level, indicating a significant difference between the mean pre-test scores and the post-test scores of control group students related to their achievement.

Table 3: The results of Experimental Group pre-test and post-test points on science achievement test.

Group	No. of students	Mean	S. D.	t-value
Pre-test	100	13.08	4.91	
Post-test	100	26.84	9.539	

**Significant at 0.01 level

The results in Table 3 show that the mean post-test score obtained by the experimental group is higher than the pre-test scores. Further, when the significance difference between the mean pre-test scores and the post-test scores of experimental group's students was tested, t-value thus computed was 21.56, which is more than the Table value at 0.01 level, indicating a significant difference between the

mean pre-test scores and the post-test scores of experimental group students related to their achievement in science.

The students, who were taught through Edusat programmes and traditional classroom methods, were investigated if their post-test science achievement test points were different.

Table 4: The results of control and experiment groups' post-test points of science achievement test

Group	No. of students	Mean	S. D.	t-value
Experimental	100	26.84	9.59	
Control	100	21.6	6.957	

**Significant at 0.01 level

As depicted in Table-4, control and experimental group students' science achievement test points were statistically different (obtained $t=6.60$, significant at 0.01 level). In the experimental group students' average achievements (X

$=26.84$) are higher than that of the control group's students ($X = 21.6$). This fact showed that teaching through Edusat programmes and traditional classroom lecture had a clear different effect on the students' science achievements. This

difference can be attributed to the teaching through Edusat. Hence it can be concluded that experimental group's students taught through Edusat programmes increase their achievement level and show a higher performance more

than the control group students.

Students' views towards Science Lessons Transmitted through Edusat in Improving Learning

Table 5: Students' viewpoints towards science lessons transmitted through Edusat.

Items	Yes	No
Do you understand the science lesson when taught through Edusat programmes better than teacher's instruction?	74	26
Is examples and explanation given by Edusat programme teacher better than your subject teacher?	59	41
When you are taught through Edusat programme, do you understand the language of teacher delivering the lesson?	62	38
Do you have sufficient time to clear your queries during Edusat programmes?	13	87
Is the time given by the Edusat programmes teacher enough for you to complete the given exercises during the broadcast?	41	59
Is the pace of Edusat programmes convenient for you to follow the lesson?	52	48
Do you enjoy class more when taught through Edusat programmes?	73	27
Can you relate the lesson taught through Edusat programmes to what you already knew?	52	48
Do you believe that learning science through Edusat programmes enhances your achievement	63	37
What is your attitude towards learning science through Edusat programmes?	69 (+)	31 (-)

As shown in the table-5, overall 69% of the students had positive attitude towards learning science through Edusat programmes, 31% students had negative attitude. 52% of students found the pace of Edusat programmes convenient to follow and could relate the lesson taught through Edusat programmes to what they already knew. Majority of the students were of opinion that Edusat programmes were helpful in better understanding of the concepts, enhancing their achievement and make learning interesting and joyful. Whereas most i.e. 87% of the students found it difficult to clear their queries during telecast of Edusat programmes. Similarly, majority i.e. 59% of students were of view that the time given by the Edusat programmes teacher not enough to complete the given exercises during the broadcast. The analysis of the opinionnaire very clearly established the effectiveness of the Edusat programmes for teaching of science.

CONCLUSION

The findings indicate that the Edusat programmes were helpful in strengthening the achievement of students in science and these programmes were positively accepted by majority of the students. Although results of the study are encouraging but still there exists a large scope of improvement. This can be more beneficial if lessons

transmitted are interactive, so that students and teachers can clear their doubts during the telecast. Even though the programme contents were fairly suitable and time-slot appropriate, priority attention is to be paid on regular maintenance of sets, improvement in the power supply, involvement of teachers and students in the production, better incentives for custodians and above all qualitative improvement in the programme production. Appropriate language of the programmes and teachers guidance notes are two other important things that help students to gain more from the medium.

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