Development in Teaching and Learning through EDUSAT

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Abstract

The present paper discusses about development in teaching and learning through EDUSAT and how technology can change the whole scenario for education in India. Apart from the lack of resources and teachers, the traditional teaching-learning methods are becoming old-fashioned in the digital era. Today's students always look out for a change. Innovation and invention grab their attentions instantly. That's why digital resources, e-content, videoconferencing etc., are becoming popular supplementary technologies for the conventional method of teaching and learning. Various urban educational institutions, which are, result yielding and grab the attention are adopting these supplementary technologies. They are well received by the students as they generate interest among them. EDUSAT is primarily meant for providing connectivity to school, college and higher levels of education and also to support non-formal education including developmental communication. Thus, in spite of limited trained and skilled teachers, the aspirations of the growing student population at all levels can be met through the concept of tele-education.

INTRODUCTION

The man has always desired for excellence. This desire has given birth to new inventions in all walks of life. Science and technology has always been instrumental in taking efficiency and improvement in the processes and products of human work. The world of education has also been influenced by the increase used of technology. It has provided valuable help in improving the teacher, smoothening the process of teaching-learning and enriching the goals of education.

Since independence, India has seen substantial increase in the number of educational institutions at primary, secondary and higher levels as well as the student enrolment. But the lack of adequate rural educational infrastructure and non-availability of good teachers in sufficient numbers adversely affect the efforts made in education. Nowadays satellites can establish the connectivity between urban educational institutions with adequate infrastructure imparting quality education and the large number of rural and semi-urban educational institutions that lack the necessary infrastructure. Thus, in spite of limited trained and skilled teachers, the aspirations of the growing student population at all levels can be met through the concept of tele-education.

STATEMENT OF THE PROBLEM
Development in teaching and learning through educational satellite(edusat).

METHOD
Keeping in view the nature of the study, the literature was collected from the secondary sources primarily from books, magazines, journals and Internet.

Background

The use of satellites for Education has a long and rich history in India started in early 1970's when the country had neither satellite building nor satellite launching capability. It was the unique feature of satellites to quickly and simultaneously reach all remote parts of the country that attracted the founder of the Space Program, Dr.Vikram Sarabhai to develop plans for use of satellites to support education and information dissemination for National Development. Satellite communications technology offers unique capability of being able to simultaneously reach out to very large numbers spread over large distances even in the most remote corners of the country. The Indian Space Program has always aimed to be second to none in the applications of space technology to deal with the problems of development in our society. ISRO has continuously pursued the utilization of space technology for education and development.

Over a period of last 30 years, ISRO has initiated several projects/programs to cater to the country's need for education, training, and general awareness among the rural poor. (Pallai Pratima 2013)

In 2004, Indian government launched the Educational Satellite (EDUSAT) engineered by the Indian Space Research Organization (ISRO). This is the first Indian communication satellite built exclusively to serve the educational sector. It is mainly intended to meet the demand for an interactive satellite based distance education system in the country. The satellite based interactive narrow casting network has two-way video and two-way audio facility. The network is capable of transferring the data from the teaching end to the receiving end i.e. to the remote classrooms. The data include lecture notes, courseware, presentation material and exercises. The network consists of three major elements: teaching end, remote classrooms and spacecraft. The teaching end consists of a studio and an uplink earth station. The studio, which originates live or recorded lectures, is linked to the uplink earth station. The lectures are transmitted to the satellite and beamed back to earth covering a large geographical area. In the interactive classroom, the students can interact with a subject expert at the teaching end through a voice link via satellite. The students' question and the subject expert's response for that question can be heard live in all classrooms. Edusat an online classroom communication tool that has been devised in order to make teachers' lives everywhere easier. It attempts to do so by providing an online platform for the sharing of assignments, news and files of every type (such as notes) with their classes (Deepa Manchanda 2014).

Objectives of Education Satellite System
The main objectives of EDUSAT are:
- Providing Effective Teachers Training.
- Improving the Curriculum based Teaching
- Greater Community Participation and Monitoring
- Providing Access to Quality Resource Persons (Higher &Professional Education)
- Strengthening the Distance Education Efforts Initiated by Various Agencies

- Taking Education to Every Corner of the Country Providing Access to new technologies**.**

Uses of EDUSAT

Thus EDUSAT can be used for: Conventional Radio and Television broadcasting, Interactive Radio and Television (phone-in, video on demand.), Exchange of data, Video conferencing, Audio conferencing & Computer conferencing, and Web based education. It could provide access to Internet; enable creation of large centralized databases of learning and teaching materials. It would enable night - time loading of teaching materials as well as a variety of audio based services.

EDUSAT PROJECT IN KARNATAKA

In Karnataka State the Edusat is being used to supplement classroom teaching in all the elementary schools (850 Schools) of one district.HHThe schools are provided with receiving solar backed system to receive signals (programs) in all the 850 schools. On each day two programs of 30 minutes were broadcast for the benefit of students of Grade III to VIII. The contents covered almost all subject areas of all the grades. In the academic year 2005-06 almost 200 video programs were broadcast. The teachers were given training with respect to the use of television as medium of instruction and also to conduct Pre and post broadcast activities.HH As part of evaluation of Edusat Project in Karnataka a comprehensive research study has been initiated to find out the impact on the attendance, and academic achievement of students by following experimental and control design. The content achievement (one test of about 20 items for each grade) and visual achievement (one test of 10 items for each grade) tests have been administered on students of different grades to ascertain the learning gains. The feedback from teachers has been obtained.(PhalachandraBhandigadi,2006)

In Haryana

(Rahul Gupta and NidhiGarg 2013) EDUSAT was launched in Haryana with 3.8 meter antenna for uplink at Panchkula. The teachers take the class from the studio at Panchkula, which is transmitted to the EDUSAT satellite. This is then further transmitted by EDUSAT to entire state of Haryana. These lectures are received by 9000 Primary Schools, 1250 Secondary Schools and 92 Government-aided College through Satellite Interactive Terminals. Initially live lectures were provided which was further enhanced to records well. Apart from prescribed course several various other course like training for engineering entrance exam and soft skills development courses were also provided. Moreover a test was also conducted periodically to evaluate the progress of students. Tops propitiate interests among teachers, coordinators and students; prizes like "Best Questions Asked by Student" & "Best Teacher/ Coordinator" are given.

Impact in Haryana

1.Better performance of students in exams.

2.Timely coverage of syllabus.

3.More interests and involvement of students.

4. An increase in the attendance status of students.

5.Uniform standard of teaching to all the students both urban and rural.

6.High class and reputed teaching staff took the classes.

In Punjab

Punjab is also one state, which is most efficiently utilizing the satellite. A studio is built to facilitate the smooth working of the e-learning activity. A special grievance section is working to regularly note the evaluation process. A special program for the students giving engineering entrance examination is prepared which is helping the students who are unable to pay heavy fees to private organizations. Recently 2960 schools of Punjab were linked to EDUSAT to get the service of live interactive lectures. A special study material for all the lectures was prepared to have a better understanding of the lectures.

EDUSAT is an interactive medium. It uses videos, web based seminars, chats etc. By these, the students are able to convey their point of views and also let the instructor enhance their mode of teaching. Such virtual coaching has also taught various people to operate minor injuries and ailments in rural and remote areas. These places do not have proper amenities such as city development authority and dispensaries. They are also spread awareness about the need to build washrooms in the house. By these classrooms, not only literacy, but also living standards and societal norms are also improving. It appears to bring a digital revolution in lives of those, who are still untouched by the advances in technology. There are two ways, synchronous and asynchronous. Asynchronous is through CD-ROM, document and e-books, bulletin boards etc. these can be used at any intended time. The synchronous mode is under use when a teacher is guiding and the students have to be present in the temporary classroom to listen and reciprocate his views and answers. (Rahul Gupta and Nidhi Garg 2013)

A study was conducted assess the postgraduate student reactions to a course taught by videoconference as opposed to a traditionally delivered course. Two sections were taught, one to 28 students on campus in a conventional setting, and a second to 12 students in four different cities via videoconference. Each section followed the same syllabus, and used the same assignments and projects. Students completed evaluation forms covering five main areas: instructor preparation, presentation methods, class time utilization, and instructor- student communication and evaluation methods. Data showed that students receiving the course via videoconference were as satisfied with the teaching as those present with the instructor, and indeed they felt extremely positive about this delivery method. The results indicated that one key to success in distance learning is the instructor, who must be thoroughly trained in the technology, demonstrate polished presentation skills, create opportunities for interaction, develop appropriate materials and use media effectively. Consequently it may take significantly longer to prepare for sessions taught by videoconference. Recommendations are made for instructors (Bowe, Furst. 1997)

(Gage, J., et al., 2002), explained that use of videoconferencing to contribute to the enrichment of mathematics in schools, and to give students an idea of how practicing mathematicians use mathematics in their working lives. It also provides students with a real audience for presentations, and gives them an experience of collaborative working. Students complete a preliminary task, and during the first videoconference they take part in activities and discussions, listening to the ideas of other schools. In a second session they work on projects involving areas of mathematics, which are unfamiliar to them,

requiring full engagement in mathematical activity. It was found that teachers valued: Theopportunity for students to work independently; Collaboration between students as they work on problems beyond the normal curriculum; Presentations of work given by students to a real audience. In turn, the students valued: The variety brought to mathematics teaching; the chance no communicate with others by giving presentations; Being able to discuss problems in mathematics.

Presently the experts are using either the white board or power point slides for their presentation. It's similar to the conventional class room except that the students sitting in the remote place. More interactions with the usage of animations, graphs and more video clippings are important. The telecast timings of EDUSAT network must be adjusted with the user requirements to make it more effective. Video clippings covering industrial activities, live demonstrations can demonstrate the lectures to make it livelier. The educational interactive videoconferencing programs are effective and interactive among the students; but needs to be modified as per the suggestions give above to make it students friendly and also to create an impact on the teaching-learning methods. A proper intimation to students should be given through emails, and colleges. Graphical presentations should be added in the audiovisual presentations.

In Madhya Pradesh

This was the most advanced use of EDUSAT. Here EDUSAT was introduced by t he forest department in Jan 2008. This was done to provide training to the forest officials to increase efficiency of forest officers, employees, and dwellers through online training a nd discussion.52 Satellite Interactive Terminals (SITs) have beenset up for 27000 forest e mployees and forest communities.

CONCLUSIONS

EDUSAT is the first exclusive satellite for serving the educational sector. It is specially designed for audio- visual medium, employing digital cooperative classroom and multimedia system. EDUSAT is launched to meet the demand for a satellite based interactive education and increase to the face-to-face classrooms. EDUSAT project is implemented nationwide and used for imparting education to rural areas and plays a pivotal role in the field of e- learning. Since life span of EDUSAT satellite is almost 10 years, so there is more need to launch more satellites, which serve in the field of education.

The developing countries can attain supportable growth by improving their literacy statistics. Knowledge makes a person literate enough to read and write, as well as it also improves the overall quality of life.Here through this paper we have beenable to understand that how technology can change the whole scenario for education. These satellites are proved to beneficial for all the sections of the society and service a large variety of audience. Due to its over-whelming success, we should expect that there would be more countries, which will involve themselves, and there will be a day where a group of satellite can serve the whole of world for all its educational need.

EDUSAT is primarily meant for providing connectivity to school, college and higher levels of education and also to support non-formal education including developmental contact. Thus, in spite of limited trained and skilled teachers, the aspirations of the growing student population at all levels can be met through the concept of tele-education. EDUSAT project is applied nationwide and used for imparting

education to rural areas. EDUSAT plays a pivotal role in the field of e- learning. Since life span of EDUSAT satellite is almost 10 years, So there is more need to launch more satellites which serve the in the field of education.

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