

# **Widening Access to Quality Learning Through Information and Communication Technologies (ICTs) in Distance Education: Problems and Possibilities-A Case Study**

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## **INTRODUCTION**

The advent and advancements in Information and Communication Technologies (ICTs) have remarkably changed the teaching-learning system. The technological innovation in teaching and learning is now enabling institutions to improve the quality of education / learning.

The distance education delivery mode broadly involves teaching and learning at a distance with the help of educational technologies. Dr.B.R. Ambedkar Open University (Dr.BRAOU) has been following multi-mode teaching-learning system using print and audio-visual technologies. The term 'technology based education/learning' refers to systems of teaching and learning in which a technology other than the print has a major role (COL,2000). This study focuses on ICTs instructional delivery system other than self-instructional course materials.

In an effort to explore the problems and possibilities in using ICTs to widening access to education/learning, an attempt is made in this paper to analyze a range of various types of ICTs that Dr.BRAOU is using.

## **RESEARCH QUESTIONS**

The research questions for this study are:

1. (i) Are the educational technologies used to teach the courses good and effective?  
(ii) If they are not, what were the reasons?
2. (i) Are the educational technologies used to teach courses appropriate to deliver education / learning?  
(ii) If they are not, what are the appropriate technologies for delivery of teaching-learning?
3. (i) Are the educational technologies used to teach courses accessible to all learners?  
(ii) If not, what steps the University has taken to increase access to all learners who would have been disenfranchised without it?

## **OBJECTIVES**

The main objectives of the study are:

- to examine the ICTs facilities provided to the learners by the University;
- to analyse the responses of learners to ICTs instructional delivery system;
- to evaluate the issues and concerns of learners associated with the use of ICTs; and
- to make some useful suggestions based on the analysis of the study to improve the system.

This paper therefore is expected to inform educational planners the strengths and problems associated with the use of ICT technologies in teaching-learning system and possibilities that exist with ICTs.

## **METHODOLOGY**

The study employed both quantitative and qualitative research techniques. The primary information about utilization of ICTs and the problems associated with the use of ICTs in teaching-learning system was collected through survey method using the questionnaire. Random sampling method was used in selecting the students from 4 study centres located in Hyderabad. The questionnaire was served to year 2 and year 3 students of B.A. B.Com, and B.Sc as these students were already exposed to distance education system in their year 1 programme of study. 100 questionnaires were issued to students selected randomly from 4 study centres and collected them personally after they filled up the questionnaires. The analysis was made based on 100 filled in questionnaires. Further, the researcher has interviewed/discussed with 9 counsellors selected from 4 study centres and with the concerned authorities at the University Head Office in Hyderabad in order to have a broader perspective in drawing inferences. However, this study is subject to certain limitations. They are: i) the sample size is small; ii) the study is restricted to urban area only.

## **CONTEXTUAL BACKGROUND**

The Dr.B.R.Ambedkar Open University (formerly known as the Andhra Pradesh Open University) is the first Open University in India, established by an Act of A.P. State Legislature on August 26, 1982 with its headquarters at Hyderabad (the State Capital) to provide access to higher education to meet the needs and demands of large number of growing population. The University currently offers a total of 29 diploma, degree, certificate and research programmes in Arts, Commerce, Science and Social Sciences. It has 90 academic staff and around 400 administrative and technical staff assisted by nearly 5000 part-time lecturers/counselors.

The University started with an initial student enrolment of 6231 in 1983 and with a wide network of 23 study centres located in various District Headquarters of Andhra Pradesh. The increasing access to open education has widened over the years, registering the students' enrolment of over 80,000 in the academic year 2006-07 with a network of 200 study centres spread over the entire State of Andhra Pradesh, India.

## **LEARNERS PROFILE**

Learners profile covers variables of age, sex, marital status, employment and academic qualification. Out 100, 58 (58%) students are in the age group of 18-25, 14% were in 26-30, 8% were in 31-35. The rest 20% were in above 36 years of age. This is indicative of the large number of adults take the advantage of the distance education programmes. The female learners are 35%. The study also revealed that most of the learners (71%) were un-married. The employed students constitute 49% and the rest (51%) is un-employed. Further the educational qualifications of learners before they join the University show that 34% of learners are with Intermediate, 36% with School of Secondary Certificate and the rest 30% were through eligibility test.

## **MULTI-MODE INSTRUCTIONAL SYSTEM**

Dr.B.R.Ambedkar Open University adopted the following multi-mode educational instruction to widen access to its learners.

- Supply of printed course modules to the learners.
- Arrangement of Contact-cum-Counselling Sessions at the study centres on Sundays
- Broadcast of Radio lessons on All India Radio.
- Provision of Audio/Video programmes for their replay at study centres.
- Video lessons through Doordarshan and Mana TV channels.
- Live Tele-conferencing programmes through Doordarshan Channel on every Sunday.

## RESPONSES OF LEARNERS TO ICT BASED TEACHING-LEARNING SYSTEM

### Radio Lessons

Radio has been extensively used for educational purposes all over the world. Dr.B.R.Ambedkar Open University initially started broadcasting of Radio lessons through All India Radio in 1983. In each slot of half an hour duration, two lessons each of fifteen minutes duration is broadcast. Radio broadcasting is used for 3 hours a week from 7.15 am to 7.45 am on Monday, Wednesday and Friday and from 10.30 pm to 11.00 pm on Monday, Tuesday and Friday. The total number of radio lessons produced from 1983-84 to 2006-07 is 2062. Some times some recorded lessons will be repeated instead of producing new lessons depending upon the importance of the topic. Some of the important recorded lessons are sent to Study Centres for playback and students are also given copies on to their cassettes/CDs. The responses of learners were analysed and presented in Tables-1 and 2.

The analysis of the data given in Table-1 reveals that only 37% of sampled learners listened radio lessons and 63% could not. The reasons cited by them were:

- (i) the interest on radio lessons was lost due to introduction of Television lessons from 1999;
- (ii) 63% of sampled learners mentioned that they did not own radio equipment to listen;
- (iii) 48% of sampled students stated that there was no information on schedule of radio lessons.

Regarding the quality of radio lessons, all the students who own the radio equipment stated that the lessons were useful (Table-2).

### Interactive Radio Lessons

Live counseling is provided on radio by invited experts. Students can ask questions right from their homes over telephone. These sessions were used to conduct for an hour on 3<sup>rd</sup> or 4<sup>th</sup> Sunday of every month. In fact this programme was very useful and there was a good response from the students. But recently due to policy problems this programme was discontinued. In order to reach out all learners, this programme should be re-started and a toll free number(s) should be provided for this purpose which will be useful for all learners as this radio broadcast reaches all corners of the State.

**Table-1**  
**Listening/Watching Radio,Audio, Video, Television and**  
**Tele-conferencing Lessons by Learners**

Technologies	Very Frequently	Frequently	Do not Listen	Total	Own the Equip.	Do not Own Equip.	Total	* No Facilities/ No Information
								%
Radio	12	25	63	100	37	63	100	48
Audio	10	14	76	100	36	64	100	76 *
Video	04	06	90	100	32	68	100	90 *
Television	16	36	48	100	91	09	100	48
Teleconferencing	06	33	61	100	91	09	100	48

Source: Field Survey

**Table-2**  
**Rating for Technologies as a Learning Support**

Technologies	Excel- Lent	Very Good	Good	Poor	Total	Do not Listen/ Watch	Total	Preferred Tech.
								%
Radio	03	09	25	--	37	63	100	37
Audio	02	09	11	02	24	76	100	10
Video	02	03	04	01	10	90	100	16
Television	05	13	32	02	52	48	100	56
Teleconferencing	06	14	19	--	39	61	100	45

Source: Field Survey

### **Audio Lessons**

The University produces audio cassettes and makes them available at Study Centres for use. The duration of audio programme is about 30 minutes which is too long. So far the University has produced 244 audio lessons from 1983-84 to 2006-07. Table-1 reveals that only 24% of sampled students were able to listen to audio lessons and 76% were not able to listen. The main reasons for not listening audio lessons were: (i) 64% sampled learners mentioned that they did not own the audio equipment to listen; (ii) 76% sampled students stated that there were no facilities at the study centre; (iii) some mentioned that the audio equipment provided to study centres was not functioning; (iv) some lessons were not audible. In terms of number of audio lessons produced by the University the figure is also not encouraging. This may be due to the advent of new technologies.

This technology will be highly useful especially for distance learners who are living in rural areas because of two reasons: (i) this technology is cost-effective (affordable) and easy to operate; (ii) the telecasting of TV lessons was not clear in rural areas. Keeping the audio technology strengths in view, the audio programmes can be well planned and extensively used.

### **Video Lessons**

The University provides video cassettes/CDs as a supplement to the printed course materials. The total number of video lessons so far produced is 881 from 1983-84 to 2006-07. The analysis of Table-1 shows that only 10% sampled students watched video lessons and the 90% could not. The reasons for not listening video lessons were: (i) 68% of sampled learners stated that they did not own video cassette/CD player at home and the facilities provided at study centres were not at all sufficient; (ii) some stated that though the facilities were sufficient at Regional Coordination Centres, the video equipment was not functioning; (iii) a few stated that the updated lessons were not available in many courses.

### **Television Lessons**

In UK, the UK Open University uses the television for 35 hours a week. In China's Central Radio and TV University, it is used for about 32 hours, and the Open University in Thailand and the Athabasca University, Canada, use it for about 12 hours a week. In Japan, Television is used on a large scale (Ram Reddy, 1990).

Dr.BRAOU started telecasting TV lessons through Dooradarshan (Television Channel of the Government of India) in November 1999. The lessons are telecast five days a week from Monday to Friday from 5.30 am to 6.00 am. The Dooradarshan transmission is received at District

Headquarters Study Centres where downlink facilities are provided. The telecast of these programmes is also received by learners at home.

The University, to enhance the learning process, extended the access of TV lessons to learners by telecasting TV lessons through Mana TV Channels (narrow cast – where the downlink facilities are provided) from 26-08-2002. The University has installed downlink facilities at 23 Regional Coordination Centres (RCCs). The Mana TV lessons were telecast from Monday to Friday from 9.30 am to 10.30 am with a repeat facility from 4.00 pm to 5.00 pm. Since facility is not available in all study centres, the downlink facility should be provided in all study centres in order to widen the TV access to all learners. So far the University produced 881 TV lessons in all programmes.

Data presented in Table-1 reveals that 52% of sampled students were watching TV lessons (36% frequently watching and 16% very frequently watching). Further they (52% mentioned that the TV lessons are good and useful as a learning support (Table-2).

However, 48% of sampled students stated that they were not watching TV lessons. The reasons cited were: (i) lack of information about the scheduled of TV lessons; (ii) inconvenient timings.

The situation in rural areas would be different. Many students in rural areas do not own the TV equipment as they are not affordable to buy it. Students who do not own the TV equipment could face the difficulties in pursuing their study. If the University provides “Tele Learning Centres” at all study centres, it would be a facility for all learners to pursue their programme of study. As of now there are 23 RCCs where the TV facility is available with DVD facility. In order to increase the access and quality education, this facility needs to be extended to all study centres.

### **Teleconferencing Lessons**

One of the fastest growing technologies is teleconferencing. Realizing the importance of teleconferencing, Dr.BRAOU launched tele-conferencing programmes through Dooradarshan Chhannel-8 in December 1999. This programme is available on every Sunday from 2.00 pm to 3.00 pm. In each slot of one hour duration the subject experts will provide subject inputs to the learners subsequently the session will be thrown open for interaction ‘on line’. The learners will interact through a telephone with the subject experts. Thus, the tele-conferencing based lectures are accessible to the students at 23 Regional Coordination Centres (RCCs) located in district headquarters of Andhra Pradesh. This programme is available not only in 23 RCCs but also in houses of those who have a cable connection. So far the University has organized 401 teleconferencing programmes from December 1999 to August 2007. In order to increase the access to all students, it would be desirable to extend this facility to all study centres.

Table-1 reveals that 39% of sampled students (6% very frequently watching and 33% watching frequently) were watching teleconferencing programmes. They stated that the programmes are very good and useful as the programmes were at high levels of interaction between specialized subject experts and students (Table-2). However 61% of sampled students mentioned that they were not watching the programme. The reasons cited by them were: (i) timings were not convenient for them because the teleconferencing programmes clash with face-to-face sessions. During the teleconferencing programme they attend face-to-face classes on Sundays from 9.00 am to 5.00 pm; (ii) tele-conferencing facilities were not available at all study centres except 23 RCCs at district headquarters. Even at some RCCs, the teleconferencing equipment was not working; (iii) the schedule of teleconferencing programmes was not known to many students.

Since the teleconferencing programmes enhance the quality of education/learning, the University may have to give importance to this technology and increase the number of teleconferencing programmes. Further, many students were not satisfied with the existing programme timings (2.00 pm to 3.00 pm). It will be useful to telecast the programmes between 6.00 pm and 7.00 pm, which many students preferred.

## **PREFERENCE OF TECHNOLOGY**

As far as preference of technology is concerned, majority of learners gave first preference to TV. Some learners opted more than one technology. It means they want to use combination of technologies. As such 56% of sampled students preferred TV technology (appropriate technology) as a learning support among all technologies that Dr.BRAOU using. This is followed by teleconferencing (45%) and Radio technology (37%).

Since the study was undertaken in urban place many learners (56%) preferred TV technology rather than radio technology. If it is undertaken in rural area, the learners' preference might have been other way round since the rural learners are accessible to radio technology rather than TV. This is an independent study to be undertaken to ascertain the media preferences of learners in rural area.

## **THE UNIVERSITY INITIATION FOR WIDENING ACCESS TO QUALITY LEARNING THROUGH TV TECHNOLOGY**

The University has set up its own studio for recording Audio / Video lessons. The Studio is equipped with Betacam equipment which are compatible for transmission of programmes through public service broadcast net works. A four Camara set up is installed in the Studio. The Audio-Visual Production and Research Centre (AVPRC) proposes to acquire Digital Video Equipment DVC PRO series in the next financial year.

In the Year 2000, the Government of A.P. entered into an agreement with ISRO (Indian Space Research Organisation) for utilization of Ku-band transponder for education/development programmes for broadcast purposes. Dr.BRAOU has been an active partner since then using channel time. For establishing necessary infrastructure / earth station of Ku-band the University provided land on its Campus. The University thus engaged in broadcast of pre-recorded and live programmes through the network.

## **SUGGESTIONS**

To improve the system in technology based teaching-learning environment, the following suggestions are made.

### **Audio/Video Technology**

The Audio / Video playback facility is limited to 23 RCCs only. Since late 1990s, provision of this facility at Study Centres has been slowed down. Further, the equipment provided at the Study Centres is outdated and there is a need to replace them with new equipment. The old equipment was meant for using Audio/Video Cassettes; this should be replaced with latest equipment to use CDs.

### **Computer Technology**

Currently, the Dr.B.R.Ambedkar Open University is not using the Computer Technology for teaching and learning. But this ultimately ranks as available technology for teaching and learning. Most importantly the computer can be used to access the world-wide web, where both teachers and learners can discover and infinite range of materials and pedagogical aids. In order to widen access, the University has to make arrangements Computer Lab Centres with a net-work of all Study Centres. So that it will be convenient for poor students especially in rural areas to use the centres for their programme of study as many students are neither accessible to computers nor affordable to buy computers.

## **On-line Learning**

As technologies change, the policy towards use of technologies needs to be changed and new technologies like e-learning / on-line learning should be adopted. Whenever, we adopt new technologies, the role of the tutor and the learner are likely to change, and hence the required training needs to be arranged to make the system more effective.

## **Research Officer**

In order to provide better services to students in terms of accessibility of technologies, the University has to appoint a Research Officer in the Audio-Visual Production and Research Centre (AVPRC). The main functions of Research Officer are: (i) preparation of time schedule for Radio, TV, Teleconferencing lessons and arrange to dispatch the schedule to all study centres/learners; (ii) to identify the lessons suitable for TV, Teleconferencing, Radio and Audio programmes in consultation with the Faculty; (iii) to conduct research to obtain feedback from students on technology based lessons; (iv) to coordinate between the Director-AVPRC and the Faculty to improve the quality in technology based teaching-learning system.

## **CONCLUSION**

This paper explored the problems and possibilities that should be taken into account in implementing the educational technologies at the University for widening access to quality education/learning. The analysis of the responses of learners to ICTs, revealed that the impact of ICTs is exciting as well as a cause for concern. Therefore, the University, in striving to 'excel' in its widening access to education through ICTs, should take the new challenges raised by new technologies and will have to revive and evolve.

## **References**

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