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AIMS AND OBJECTIVES

The Journal of Open Schooling is committed to school education through open learning methodologies. The journal is internationally referred, contributed, abstracted and subscribed. The affairs of the COMOSA Journal of Open Schooling are being managed with the help of an Editorial Advisory Board, and an Editorial Board.

The aims and objectives of the Journal are:

- to provide a forum across the Commonwealth Countries for scholarly discussion on concerns and issues in Open Schooling/Open Learning.
- to disseminate research, theory and practices including inter-disciplinary studies.

The COMOSA Journal includes research papers, articles, review of research, review of Books on Open and Distance Education and highlights programmes and activities in Open Schooling in Commonwealth Countries.

The research papers may inter alia reflect need of the study, objectives, research methodology including sample and results of the study. The researches may be empirical, archival, historical etc.

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(continued in inside back cover)

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CONTENTS

EDITORIAL

Inclusive Education : Role of Media and Technology <i>Kiran Karnik</i>	1
Apathy to Distance Learning through Electronic Media in India-need for Curative Measures <i>Manoj Roy.V and Chinmoy Kumar Ghosh</i>	6
Computer - Attitude of Educational Professionals in India <i>Sushmita Mitra</i>	20
Enrolment, Success Rate and Expenditure in Open and Distance Learning-Experience of the first Open University in India <i>P.Krishna Rao</i>	34
Lead IT : A school Based Programme providing the "just in time" support required by teachers to improve their use of technology for distance education teaching <i>Annie Reid</i>	44
Some economic aspects of Open and Distance Education <i>Ramesh Chandra</i>	48
Augmenting the Universalization of Secondary Education Using Computer Assisted English Language Learning : the ODL Way <i>Pranita Gopal</i>	59

Chief Editor's Note

Commonwealth Open Schooling Association (COMOSA), is a non-profit, democratic, collaborative and futuristic organization based on mutual respect and committed to support the efforts of open schooling institutions. The basic objective of the association is to cooperate and collaborate in development, promotion and introduction of innovative, high quality, relevant, equitable, gender-sensitive and cost-effective programmes of school education for sustainable development in commonwealth countries through Open and Distance Learning Mode, and thereby targeting to achieve the Millennium Development Goals (MDG) of the United Nations.

The Association aims at achieving a number of outcomes. One of these is sharing of resources by compiling, publishing and distributing research and other materials. The Journal provides a forum to the member countries to mutually benefit by sharing views, activities, research and innovations, etc. I am happy to share the news that the COMOSA Journal of Open Schooling has been registered and assigned **Number ISSN 0976-0407**.

The present issue of the COMOSA Journal is the second issue (Jan-June 2011), has several articles/papers on varied themes which cover different aspects of Open and Distance Learning across the commonwealth countries.

A Lecture delivered on the occasion of the Foundation day of NIOS, is presented in the form of a paper titled **Inclusive Education: Role of Media and Technology**.

The article **Apathy to Distance Learning through Electronic media in India** elaborates how open and distance learning can be improved by the use of electronic media.

The paper on **Computer Attitude of Educational Professionals in India** presents the results of a sample study targeted at professionals of educational institutions on their computer attitude to use of ICT for education.

The history of Distance Education and experience of the first Open University in India have been discussed in the paper titled **Enrolments, Success rate and Expenditure in Open and Distance Learning- Experience of the first Open University in India**.

How e-Learning can support and improve teachers and co-ordinators to deliver quality education has been addressed in the paper titled **LeadIT: a school based program providing the Just in time support required by teachers to improve their use of technology for distance education teaching**.

The application of the principles of economics to the different aspects of education particularly the Open and Distance Education(ODE) has been precisely explained in the paper titled **Some Economic Aspects of Open and Distance Education**.

How computer assisted English language learning will be very useful for the students in ODL is minutely explained in the article titled **Augmenting the Universalization of Secondary Education Using Computer Assisted English Language Learning: the ODL Way**

The contributors of this issue of the Journal deserve special thanks for their valuable contribution on varied themes. I appreciate the hard work of the Editorial Board of COMOSA and Printing Unit of NIOS for bringing out this issue of the Journal. We look forward to receive articles for the forthcoming issues of COMOSA. We invite comments and suggestions for quality improvement of this Journal.

Best Wishes,



(Sitanshu S.Jena)
Chairman, NIOS &
Chairperson, COMOSA

Inclusive Education: Role of Media and Technology (Lecture delivered on the occasion of the Foundation Day of NIOS on 23rd November 2010)

Kiran Karnik

In a country with the maximum number of illiterates in the world, education is an area of obvious importance. At the time of independence in 1947, Indians inherited a good and well-organised system of university education, though it catered to a miniscule part of the population only. The legacy also included a massive proportion of illiteracy. Over the decades, the country has made much effort to tackle the problem of illiteracy. Steady progress has helped in raising the literacy level, which is estimated to have gone up from 43.6% in 1981 to 64.8% in 2001.

Other by the standards of some the most recent being a “Saakshar Bharat” Mission launched by the Prime Minister in September 2009 countries, this is not a particularly great achievement. Within India itself, some States have done outstandingly well: Kerala, for example, achieved practically full literacy about a decade ago; Tamil Nadu and some of the Northeastern States too have done well. Yet, in many States – and the country taken as a whole – the problem of illiteracy continues to be huge. While there are some programmes which seek to tackle this directly, the long-term approach is to ensure schooling for all. In keeping with this approach, there is now a law enshrining the right to free and compulsory education for all children. This law, the Right to Education (RTE), seeks to ensure that all children get 8 years of schooling (Standards 1 to 8). It aims at ensuring its rule-making powers, that certain standards of physical infrastructure are met; separately, there is also a growing effort to ensure quality in education, through appropriate requirements and training of teachers.

Programmes like the Sarva Shiksha Abhiyan (SSA) have had a positive impact, with gross enrolment ratio at primary level (Classes 1 to 5) going up to 114.6 percent and at the upper primary level (Classes 6 to 8) to 77.5 percent in 2007-08, compared to 96.3 and 60.2 percent in 2001-02. However, the problem of high drop-out continues. The drop-out rate was 25.6 percent for primary (Classes 1 to 5) and 43 percent for the overall elementary level (Classes 1 to 8) in 2007-08. Therefore, out-of-school children are yet a matter of serious concern. Adult illiteracy, too, is obviously a continuing problem.

From these figures, it is clear that the conventional approach, even with focused programmes like SSA, have had only limited success in quantitative terms. In the dimension of quality, the problem is far greater, and expansion (in number and reach) has often been at the cost of quality. Quality improvement requires not only a larger number of teachers and greater resources, but also better

teachers and pedagogy – which implies more (and more frequent) teacher training, as also better teaching/learning aids.

Programmes for education and literacy have always tried to reach out to more remote parts and to disadvantaged groups and individuals. These efforts have received a boost, in recent years, through a special emphasis on inclusiveness. “Inclusive growth” has become the new catch phrase; though now a cliché, this does not detract from its vital importance. The key long-term determinant of inclusive growth is education for all, combined with equal opportunity. **Thus, “inclusive education” needs to be the vital focus and priority in national development.**

In education, we continue to have major gaps between different groups. Enrolment of boys is more than girls at all levels of school education and drop-outs rates for girls are also higher – indicative of a gender gap that needs to be bridged (though in recent years, it has narrowed considerably at the elementary stage). Similarly, we have regional gaps, between different States (the drop-out rates at elementary stage were 73.5% and 70.7% in Assam and Bihar in 2007-08, as compared to the national average of 43%), and an urban-rural gap. There is also a gap based on religion. Many of these overlap with the gap between children from households of different income levels. **Inclusiveness will require the closing of these gaps, the bridging of these divides.**

Technology and media have an important role in narrowing these differences and reaching out to those groups and individuals who tend to be left out or left behind in the process of education. India has a long history in the use of media for out-reach, beginning half a century ago, with the use of radio. In the 1960s, soon after it first made its appearance in the country, television too was used for school education: the only TV station then operational, in Delhi, broadcast programmes for school. Later, in 1975, the use of television was taken – literally and metaphorically – to new heights, through the use of a satellite as part of the Satellite Instructional Television Experiment (SITE).

With the advent of SITE, it was the first time that satellite broadcasting had been used anywhere in the world, for education. This unique project, called by Arthur Clarke, “the biggest communication experiment in history”, involved the use of a US state-of-the-art satellite to broadcast TV programmes directly – in a mode familiar today as direct to home, or DTH – to about 2400 villages in India. None of the villagers had ever seen television before, and many had not even seen moving pictures in any form (no movies, no videos). The project, a one year experiment in 1975 – 76, included educational programmes in science and mathematics for school children in the elementary classes, broadcast in their own language (covering six States, with four major languages). In addition, SITE also included an ambitious and large teacher training program, which reached about 250,000 teachers with the aim of upgrading pedagogic methods and content.

This project is an extraordinary example of using media and the (then) most advanced technology to reach out and promote inclusiveness. It not only took education to rural India, but to remote villages, including hundreds that did not even have electric power supply (the TV sets were run on automobile batteries). Further, the use of television provided the opportunity to use top-quality teachers and to utilize techniques (enlargements, slow motion, animation) that helped to upgrade the quality of the teaching-learning process, even as it ensured up-to-date content. Teacher training, done through SITE, was an additional means of improving quality. Thus, not only did it seek to bring about inclusivity by crossing the urban-rural and geographic boundaries, but also to create equity through quality education for all.

Later years have witnessed the continuing evolution of the use of technology for education. Television itself is now extensively used for school-level education. In addition, from the 1980s, TV has been used at the university level. The ***Countrywide Classroom*** overseen by the **Consortium for Educational Communication (CEC)**, broadcast “enrichment” programmes which seeks to take students “beyond the textbook and outside the classroom”. These aim at providing education in the broadest sense of the term, and are not necessarily linked directly to the curriculum or to a particular subject. CEC has also produced a video lecture series that covers major subjects of the undergraduate curriculum. The topics and lessons are aimed at helping students directly in their academic preparations.

ISRO, which not only pioneered SITE, but was instrumental in catalyzing ***Countrywide Classroom*** and IGNOU’s TV programmes, has initiated a two-way interactive TV channel. This EDUSAT channel is managed by IGNOU and, in many ways, simulates a classroom.

These efforts at providing quality, access and out-reach are a necessary part of the broader agenda of inclusive education. The foundations for such inclusiveness, however, need to be laid at the school level. **The legal and “rights” framework provided by the RTE Act can be brought to fruition only by reaching out to all children, including those who are not currently enrolled or have had to drop out, for whatever reason. It is in this that the National Institute of Open Schooling (NIOS) must be the vital driver.**

The capabilities of information and communication technologies (ICT) now available need to be fully tapped to bring about inclusive education in its totality. Already, as outlined above, the broadcast media have been extensively used. Today, with the widespread coverage available through terrestrial, satellite (including DTH) and cable, TV has become practically ubiquitous. The challenge here is twofold: first, how to ensure **access for all**, especially by those not in school; and, second, how to produce **content that is relevant, interesting and effective**. The latter includes pedagogic issues related to stand-alone versus teacher moderated/interpreted content, extent of supplementation by printed material, interactivity and feedback, etc.

Computers were introduced in schools in the 1980s, through the CLASS project. Even today, their use as learning tools is, in many ways, far from optimum. Similarly, the Internet and access to its endless treasure trove of material, has not been fully exploited. A great deal remains to be done in the area of using IT for education. The hitherto limited access to the PC and the Net also limits their use for inclusiveness. Yet, as broadband spreads – and the plan to take broadband connectivity to 250,000 panchayats becomes a reality, its immense possibilities need to be understood and exploited for education. This should not become yet another technology which gets hijacked by commercial and entertainment interests. Lower costs of computers – and of even cheaper Net access devices – and the availability of large bandwidth at low cost, makes it possible to think of **true broadband connectivity to every school**. This should open up a whole range of new uses and help to take high-quality education to children in the true “any time, anywhere” mode.

Apart from Net access devices and “clouds” – enabling software, applications and much of the hardware to be located at some central location, and used on a shared basis – the more exciting development is the evolution of the cell phone. The mobile phone of old has gone through a complete metamorphosis: not just in size, weight, battery life or appearance, but most importantly in capability. It has, in fact, become a Net access device, in addition to being a still camera, video camera, clock, radio, a device in for listening to music there, computer, etc – all rolled into one. What is of special significance is its extent and outreach within a span of three years, it should touch the 1 billion mark. As the device owned by more Indians than any other, it can provide an extraordinary means of out-reach. The challenge for technologists and educators is how to make use of this versatile device for education. Already, there are some experiments in using the mobile phone as a platform to deliver educational services. A whole host of new applications are being continuously created. As more exclusive use is made of its unique capabilities, **the mobile handset can be a powerful tool for promoting inclusive education**.

The use of these various technologies – very briefly outlined above – has so far been mainly in the area of “academic” education. However, a key area – and one that is, fortunately, receiving greater attention now – is vocational education or skills training. This has, so far, been much neglected, being treated as a poor cousin by educational administrators and the government, as also by students and their parents. It has been looked upon as a low-value substitute for conventional education, peripheral to “real” education, and only for those who cannot afford “regular” education. This is, indeed, unfortunate **because the country is facing a dire shortage of skilled workers in almost every area of vocational work**. Pronounced shortages exist for masons, carpenters, plumbers, electricians, automobile mechanics and a whole range of manufacturing-related skills. Drivers and paramedical staff are also vocations with big supply-demand imbalance. The result is not only shortages, but the filling of these positions by untrained persons, leading to low quality and shoddy work. These shortages are, therefore, resulting in safety issues,

besides curbing economic growth and impeding the addition of higher wage jobs.

It may be appropriate for **NIOS to take up such skill development on a massive scale using media and technology** to improve the quality of training, as also to shorten its duration. These courses could be – as they are, in some cases – separate and stand-alone ones, meant especially for out-of-school youngsters. However, ideally vocational courses should be an integral part of school education. **“Inclusive education” must mean not only education that includes all, but also a comprehensive education that includes skills.** Education and employability would then go hand in hand. Media/technology can play a vital role, as powerful tools in the training process, providing visual aids, simulation, exercises and testing, amongst other things. A massive and well-organised programme in this area, done in collaboration with industry, can be focused on the poorer districts in the country. By providing job-oriented skills-training and thus increasing employability, it can contribute concretely and quickly to promote inclusivity in a way that few other programmes can.

Overall, ICT provides an important means for the country to tackle its massive backlog in education, literacy and skills. New technological advances and increasing spread of technology, combined with growing broadband connectivity, throw up opportunities to meet the immense challenges and to make education truly inclusive. **It is time for technologists, pedagogues and educational administrators to work together and seize the moment.**

Apathy to Distance Learning Through Electronic Media in India-Need for Curative Measures

Manoj Roy.V and Chinmoy Kumar Ghosh

Abstract

Distance learning has come of age in India. However, teaching-learning transaction through print remains the mainstay here. A recent study conducted among a group of distance student-teachers of Bachelor of Education (B.Ed) programme of Indira Gandhi National Open University (IGNOU) highlights the pressing need for sensitizing the students to the myriad benefits of electronic media- assisted distance learning.

Deficient infrastructure, lack of awareness among distance learners and their apathy and insensitivity to technology- assisted learning processes are some of the core reasons behind the virtual blackout of electronic media in distance learning in India. The country possesses an exclusive education satellite, quite an impressive number of personal computers or compact disc devices and fast penetrating Internet connectivity among the learning community. Nevertheless, the extent of utilization is not up to the mark. Through this paper we have presented the outcome of our investigation for determining reasons behind such a scenario. We have also narrated how we could sensitise the distance learning and teaching community to the benefits of learning processes created by combining electronically delivered content with support services.

1.0 INTRODUCTION

India is one of the few developing countries which have made revolutionary strides in communication technology. There is a great deal of talk about technology used in distance education in India. Some educationists wonder at the fact that despite adopting electronic media assisted teaching by distance education providers, print still remains the mainstay for distance learners. Some of the discussions also lead to the analysis of the amount of communication technology overload in distance education in the country due to underuse of available technology.

Among all the mass media, radio has the largest reach today in India (Agrawal, 2000:Pg 22). Mobility, wide reach and low cost have popularized radio. Conducted by open universities, Gyanvani educational programme transmission through Frequency Modulation (FM) is gaining recognition. The 37 Gyanvani stations broadcast curriculum based programmes meant for schools, higher education institutions and social sectors in the country. Now that the listeners have greater access to FM radio programmes as most of

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the mobile handsets sold in the market currently have inbuilt FM receivers, Gyanvani programmes are popular.

In the last 49 years, 'Television has grown in both scope and area' (Agrawal, 2000:25). Television had a steadfast expansion in India. Terrestrial transmission, cable and DTH networks take hundreds of television channels to each home. Among the educational television channels beamed, Gyandarshan (joint venture of Ministry of Human Resource Development, Ministry of Information and Broadcasting, Indira Gandhi National Open University and Prasar Bharati) has an unimposing coverage.

Indira Gandhi National Open University (IGNOU) is a mega university. It has a cumulative student strength of about 2.6 million (IGNOU Profile 2011:Pg 6) which comes to a massive percentage of the student population in the universities in India. IGNOU also occupies a unique position in the Indian educational scenario with most of its academic programmes offered in core disciplines of humanities, social sciences, arts and basic sciences making use of technology intensive delivery methods.

The primary objective of IGNOU's telecasts is to reinforce the lessons offered through printed self learning materials. Self learning print materials of IGNOU are supplemented by audio and video components in Compact Disc formats. These are not fully learner controlled. They are made available at the Study Centres. The learner is offered support through face-to-face counselling, audio/video programmes, interactive radio counselling, teleconferencing, etc. But an assessment on how effectively the learners are able to use the electronic media has unfortunately not been taken up by the education provider. This paper is the reflection on an attempt made to break the impasse and sensitize a group of distance learners to electronic media.

2.0 REVIEW OF RELATED STUDIES

A World Bank Report (1994) mentioned that though many positive results have been reported on a small scale, there has been no breakthrough in learning improvements because of application of Information Communication Technology (ICT) on a large, replicable scale. Despite the potential of educational technologies and the evidence of their effectiveness, and the instances of successful and sustained application in many countries, educational technologies have not been as widely adopted as earlier anticipated (Khan, 1996). Even in distance education that depends substantially on educational technology, there is more talk than action (Bates, 1995).

In India, the first study in the area of educational television was conducted by Neurath in 1966. A status study of school education service was carried out in Delhi by the All India Radio (AIR) in 1974. Findings of the reports suggested for greater thrust for improvement in the utilization of these programmes (Seth, 1983, Pg 30).

A study was conducted among the Distance Education Institutions (DEI) including Open Universities (OU) in India, to analyse the teaching-learning

methodology, covering the year 1989-90 (Singh, Mullick and Chaudhary, 1994, Pg 9). This revealed the following:

Radio Programmes: Radio programmes were organized by only 14 percent of the DEIs. In all the Open Universities (OU), radio programmes were supplements to the course materials. The broadcasts were beamed for 30 minutes on all weekdays by one OU and thrice a week by another. The number of the radio broadcasts per academic year varied from 25 to 288.

Television Programmes: DEIs did not telecast any programme. In all OUs, television programmes were a supplementary part of the course material. The telecasts were provided twice a week by one OU and three times a week by another OU for 20 to 30 minutes in the morning. Half of the OUs did not send telecast schedules to the students.

Audio Cassettes: Only three DEIs produced audio cassettes. In two state OUs, two to four audio cassettes were produced per course. In the Indira Gandhi National open university IGNOU, five audio cassettes were produced per eight-credit course.

Video cassettes: In two state OUs, one to three video cassettes were produced per course while in IGNOU four video cassettes were produced per eight-credit course.

The audio and video cassettes, in all cases, were made available at the study centres for students' use. Only about 35 percent of the students made use of the cassettes at the study centres.

In the first study conducted by the Communication Division of IGNOU (Basu, 1996: Pg 38-39), it was revealed that the main purpose of the students visiting the Study Centres was for attending counselling sessions. The audio and video equipment available at the Study Centres were not put in use. The audio sets and TV/VCR were 'seldom' or 'never' in working condition. In some cases, the students could not find relevant cassettes. A case study conducted among the distance learners of Dr B.R Ambedkar Open University (Gangappa and Chandraiah, 2004: Pg 94-95) identified that on an average, the majority of students were not availing themselves of the radio, audio and video cassettes made available at the Study Centres. Gaba (Gaba, 2000) has observed that one of the problems faced by learners of IGNOU is that audio, video and teleconferencing are not being conducted at some Study Centres.

An analysis of the responses of a study (Devi, 2007) conducted among distance learners of Dr B.R Ambedkar Open University (BRAOU) indicates that about 70 percent of respondents had never used audio-video materials, whereas only five percent had used it quite often. They perceive electronic media as supplements to print materials.

3.0 CURRENT STATUS

Our conscious reason for identifying a group of distance learners from IGNOU for the present study and electronic media sensitization has been stated earlier.

The other reason is that IGNOU is the major distance education provider in India with the largest network and infrastructure for harnessing electronic media technology for the benefit of its learners. Before we go any further, let us remind ourselves that till the year 2011 IGNOU has produced 3575 (videos) and 1549 (audios). Besides this radio Netherlands has contributed 30 audios for Gyanvani (www.ignou.ac.in).

Gyandarshan (GD): GD-1, GD-2, GD-3 and GD-4 are the four exclusive educational television channels telecasting programmes via satellite. They are beamed for 24 hours. The programme content for the channels is produced by IGNOU and other partner institutions for promoting distance learning in the country.

A one way video,two way audio teleconferencing began in IGNOU in 1993. Now, it connects almost all the Regional Centres of IGNOU and some OUs through GD-2. Teleconferencing is conducted for select programmes. For participating in a teleconferencing session the learner has to reach the Regional Centre or at select Study Centres where the facility of receiving the signals is available.

Gyanvani : Gyanvani is a network of FM radio stations. It operates as a cooperative among stakeholders like state open universities and other distance education providers besides IGNOU. Subject specific programmes meant for enrolled learners, interviews, discussions, etc. are broadcast. Gyanvani also provides for Interactive Radio Counselling (IRC), which facilitates a weekly live one hour phone-in-counselling. Programmes are scheduled and conducted by IGNOU and are meant primarily for IGNOU students but efforts are made to enrich the general listeners as well.

Audio programmes on Gyanvani FM radio stations are comparatively easily accessible to learners. The channel may be termed 'quite broad' with a mix of English, Hindi and local regional language. Interactive Radio Counselling (IRC) which began in 1998 through Gyanvani, was the effort in the direction of minimizing distance between the teacher and learner.

4.0 RESEARCH METHODS

Participants

For this study, we selected two hundred distance learners of the Bachelor of Education (B.Ed) Programme of IGNOU in their first and second year of studies. They were all attached to the IGNOU's Programme Study Centre (2837P) at the Department of Education, St Xavier's College, Kolkata. We have consciously chosen them as they are teachers and thus our colleagues rather than mere students. We feel that the issue of sensitivity concerning the electronic media in teaching-learning transactions, if properly initiated by them will percolate down to their students creating a cascading result.

Since the teaching profession is preferred mostly by women, seventy percent of the responses received were from female student- teachers and twenty

percent from male student teachers. All of them were in-service teachers. More than 75 percent of the learners were from the metropolitan area of Kolkata. The study was followed up by exercises on sensitization on electronic media.

Material

A general questionnaire was administered to the student-teachers. The self-response survey had 46 questions in eleven sections. Some of the survey questions were designed as open-ended so as to elicit description of personal feelings and their distance learning experiences.

Thematic Analysis and Results

The responses to the questionnaire have provided us with valuable information on how this group of student- teachers perceived electronic-media- assisted distance learning.

Age correlates with higher-level appreciation for the electronic media. Most of the respondents in the age group of 20-30 and 30-40 were more akin to and comfortable with the electronic media. Thirty percent have more than one e-mail addresses. 40 percent of the respondents do not have an e-mail address at all. Some of the remarks worth noting down are:

'I want timely response to my e-mails'. 'Electronic resources should be made available on demand at the Study centre'. "It is better if we are allowed to handle the electronic media components'. Suggestion put forward by many respondents is to 'supply CDs along with books'. They want 'CDs and DVDs to accompany the printed study materials'. The view for distance learning, electronic media is somewhat important to me'. This view is shared by many respondents.

For a few respondents, electronic media and technology are mere gimmicks. Ninety percent of the respondents find teleconferencing facility provided by the University as not important to their studies. This echoes the opinion of Khan that many distance education programmes and institutions have failed in their mission because they adopted a technology driven rather than learner-driven approach (Khan, 1996). They have failed in delivering the available electronic media components of the programme to the end user. We felt this in some responses. To the question, how would you rate the electronic media components produced by your University, maximum number of cases the response was 'have not used'. The sensitisation exercises that were followed up with were the offshoot of the responses, which we received, to the general questionnaire.

5.0 METHODS ADOPTED FOR SENSITIZATION

One of the criteria for learners to accept a particular media as appropriate for their studies is its congruence with their study methods. There is no guarantee that a new method will be more efficient and will in any case take some time to adapt to (Simpson, 2000: Pg 99). The students should feel that there is a

clear personal pay-off in terms of approaching something they have not so far tried. While undertaking the media sensitization exercises among the identified group, we had kept all this in mind.

i) Exercises with Distance Learners

Four media sessions were organized targeting the first year learners of B.Ed Programme of IGNOU. The Programme Study Centre being located at the central part of the metropolitan city of Kolkata, attendance at the sessions was above 70%. All the sessions were initiated with an introductory lecture on the benefits of media assisted distance learning.

ii) Media notes meant for Distance Learners

Media notes were distributed prior to the beginning of the audio and video sessions. The media notes gave the background of the audio-video sessions, which initiated the learners into the exercise. Printed questionnaires based on the audio-video programmes were also distributed to receive responses towards the end of the media session. This definitely kept the participants glued to the programmes. The student-teachers have different disciplines of study with varied subject specializations and thereby formed an ideal heterogeneous target group for our sensitization workouts. The audio and video were strategically selected to cater to their diverse needs and also to obtain best responses. The audio-video programmes were selected considering also their superior quality content and lucid presentation style. We wanted it so to captivate a mostly first time distance learners exposed to electronic media- assisted learning.

A) Audio Programmes: The two audio programmes presented were 'Indian Ethos for Management' (36 minutes) and 'Evaluation of Non-scholastic Aspects' (24minutes).

Day 1 – “Indian Ethos for Management”: This audio programme is in the form of a talk and the talker is an eminent management guru. It appears that the programme is conceived exclusively for students of Management Programme. Indeed it is so, but it appeals well to a general audience. This is because of the fact that for theories in management our students have a tendency to look towards the West, whereas this programme provides inputs which can make every Indian feel proud of his cultural heritage and ethos and their role as the guiding principles of a management organisation. Over and above this, it has to be noted that the art of writing the script of an audio talk on a topic is vastly different from writing an essay on the same. This audio was handpicked to make the learners realise the difference.

Day 2 –“Evaluation of Non-scholastic Aspects”: This audio has been solely developed for the student-teachers of the B.Ed programme, strictly based on the prescribed curriculum. This may appear to be targeted exclusively towards the students of Education. Indeed, this audio programme, in the form of a group discussion, where a student-teacher, her mentor and the father of a school student were involved in a conversation. Through this audio, one gets

trained about writing a script of an audio programme, which uses the conversational style. We had picked this audio with a second objective as we found that around sixty percent of the student- teachers were themselves parents. We expected the programme would benefit the student-teachers in a two-fold way, by enabling them to study the evaluation methods of non-scholastic aspects for the benefit of their students as teachers and for the benefit of their wards as their parents.

B) Video Programmes: The two video programmes presented were 'Translating Tagore' (27 minutes) and 'The Solitary Reaper' (28 minutes).

Day 3 – "*Translating Tagore*" has a general content. It is a video programme in the interview mode developed for the Application Oriented Programme in Translation. It is targeted towards all those who aspire to take up translation as a profession or any one who would like to develop their skills in translation. This video programme perhaps is a great departure from the discipline of every student-teacher we interacted with. But this is the programme that evoked the best response from the student-teachers. The reason being, it dealt with the translation of poems from Bengali to English of none other than Rabindranath Tagore, the first Nobel Laureate from Asia. The translator and poet, William Radice, has been interviewed in the programme. Radice has a unique distinction of being the first British person to have a doctorate in Bengali from a British University. The interviewee narrated his personal experiences of translation and explained the intricacies and complexities involved in it. Indeed, technicalities of translation do not differ between languages; hence the programme was appealing to multilingual student-teacher group. In a subtle way the programme provided training in logical approach towards problem solving.

Day 4 – "*The Solitary Reaper*" is the video programme that falls in a different category. It is a Teaching Demonstration Lesson. While nothing can replace the real classroom experience, there are some advantages of simulation. The simulation with this video was performed for acquiring teaching-practice experience. Such simulation sessions can sensitize students (Ryan, Scott, Freeman and Patel, 2000: Pg 94), therefore, the rationale for our selecting one teaching demonstration session through video. An ideal classroom session within the video showed a teacher in action. She elucidates the poem "The Solitary Reaper" by William Wordsworth. She allows her pupils to explore the poem themselves to find different meanings to each line. She successfully involves every child in the learning process. The entire classroom is transported in a world of meadows and it was evident from the responses of the pupils that they could visualize in front of them the solitary reaper. The teacher facilitated the learning process by the method of questioning. She applied, several pedagogical tools. She could make the children identify that the poem is written in iambic tetrameter, with a rhyme scheme of a-b-a-b-c-c-d-d; though in the first and last stanzas the "A" rhyme is off. Once the demonstration session was over, there was the demand from some of the student-teachers for obtaining a personal copy of the video CD for individual use.

iii) The Final Session and a Novel Method of Demonstration

Between the audio and the video, the latter is definitely more attractive as it creates visual impact. We wanted the sessions be concluded with another round of intensive media application. Teaching of any experiment in sciences becomes very effective through a video, which can have shots, with all possible technicalities, of the experiment being performed in a controlled condition in a well-equipped laboratory. An eminent scientist can make the presentation. Again for a student of history video clippings of the remains of any ancient civilization would be extremely useful.

We are conscious of the fact that student- teachers, back in their school - perhaps a village school - would not easily find modern tools of technology and equipment to use in their classroom. A computer connected projection system or sometimes even a simple Overhead Projector (OHP) will not be readily available in all schools. Sometimes, the classrooms might not be provided with an electric power socket to plug-in the equipment. In order to sensitize the student-teachers, we designed an OHP session, presuming that the device is easily available and at least some of the student-teachers have had experienced using it. A different reason for scheduling an OHP session was that OHP is not an obsolete equipment for a developing country like India. Kumar has dwelt upon this fact and has drawn several advantages and easy adaptability of OHP to the Indian situations (Kumar: 2000, Pg 150)

The session was intended for a Sunday. The institution had the equipment but it could not make arrangements for its use , as it was a Sunday. There was no option to get an OHP hired from elsewhere, as administrative approval for bringing in “hired equipment” to the college has not been sought earlier.

The slides were ready and the student-teachers had been intimated in advance. There was no turning back. To overcome this precarious situation there was only one way. We embarked upon preparing photocopies of the diagrams prepared on the transparent sheets. While taking the lessons, when reference towards any diagram was required, the corresponding photocopies were distributed among the participants. Thus we could overcome the problem arising out of the non-availability of the OHP.

Since, the group was heterogeneous from the discipline point of view, we did not pick up any specific discipline based topic for discussions. We tried the Quiz Format. That is, the visuals were shown and they were asked to respond to questions based on the visuals. The objective was not to test their general knowledge but to sensitize them to the impact that can be created by the visuals, and that rare photographs (may be only in black and white) can be shown to the students using an OHP. Incidentally the student- teachers were shown many striking and rare photographs, some of them were as under:

- Prof Albert Einstein at the age of 14
- Footballer Pele in the Brazilian Army
- Tagore playing the role of a villain in a drama “Visarjan”, written by him
- The famous physicist, Prof S.N.Bose playing violin

There were also photographs of several sites, artworks, etc. which evoked tremendous interest. In fact, student- teachers many were from schools, which did not have an OHP. But those from the schools possessing OHP promised that they would be using the device, as far as practicable, in their classes.

iv) Observation

The four media sessions and the concluding round of intensive media application through the visual quiz programme have evidently encouraged the student learners. There was initial skepticism to our attempts, which was clear from their classroom attitude. Towards the end, they realised to a great extent the benefits of media assisted distance learning. The responses received to the media based questionnaire were wholesome. The media sessions certainly created a stir among the learners. For many learners, these sessions were their first expositions to electronic media assisted learning. Toward the end they rated the sessions as very good and excellent. A few of the learners expressed their desire to own a copy each of the CDs of the four audio/video programmes. They sought the CDs for replaying for better assimilation of the content. The sessions had stimulated the student-teachers' imagination.

6.0 REVELATIONS FROM THE STUDY

Gyandarshan, comprising four television channels is mostly out of the reach of distance learners due to its inaccessibility through terrestrial transmission. Gyandarshan is available only through DTH or cable platform. By and large none of the four Gyandarshan television channels are easily accessible to learners in rural areas. At all, when provided by local cable operators, they tend to beam only one of the four Gyandarshan channels. This virtually makes Gyandarshan not available for individualized viewing.

The distance to the far away Regional Centre or Study Centre for attending a teleconferencing session organized through Gyandarshan, dissuades the learner from attending such sessions. 'The learners have to make boarding and lodging arrangements' (Chaudhary, 1999). Teleconferencing currently facilitates IGNOU in its administrative activities requiring interaction with Regional Centres, Student Induction Programmes, Convocation, etc. more than for real time pedagogic interactions with distance learners.

Gyanvani, the educational FM radio station is advancing, though slowly, in its reach. The responses from the data collected point to the weak audio signal of Gyanvani which is often overlapped by other privately run FM channels. Students from among the rural areas do not hear Gyanvani as its reach is confined to 60-80 kilometers around the city where the station is located. Even though Gyanvani provides occasions for distance learners to receive live real time feedbacks, on an average, the number of questions raised in a session on academic issues are very few. This has been ascertained by us listening to two Gyanvani FM radio stations for a period of consecutive three months beginning from January 2011.

In both cases (Gyandarshan and Gyanvani), some respondents pointed at the unimpressive manner in which certain programmes are aired. It seemed there is lack of professional touch in some programme presentation.

Apathy – A Restraining Factor

Despite continuing progress in the use of technology in distance education in India, a comprehensive review of the situation shows a grim picture. There is a variety of learning material on offer. Access to the materials has been made comparatively easier. Nevertheless, barriers remain. While interacting closely with the group of distance learners for this study, we realized that one of the restraining factors is the learners' apathy towards electronic media assisted learning. The non-availability of the OHP is an experience to be remembered in this connection. It is a clear indication of the apathy. Some of the student-teachers asked as to whether questions based on the audio-video programmes would be asked at the examination. Our inability to respond to such questions up to their satisfaction lead to further apathy. Even the main reason behind the equipment not remaining in proper working condition may be the apathy. At every Study Centre, a part-time staff is engaged to look after the equipment. The audio player or the television set which such a member of staff maintains at his home is always in working condition but generally not the ones kept at the Study Centre. This happens because the equipment at the Study centres not uses and because of the apathy the staff members concerned maintains a double standard about maintenance.

We feel that a nationwide study requires to be conducted among the distance learners to ascertain the extent of use of the available electronic- media. This should be followed up with appropriate electronic media sensitizing programmes so that the distance learners extract the very best out of all the pedagogic tools of learning prepared in electronic form for them.

7.0 LIMITATIONS

This study has had some limitations. The first day of the sensitization programme was on a rainy day. Only about 50 percent of the student-teachers could take part in the proceedings. that day. It had rained very heavily the previous night too. The inclement weather could have coupled with certain hard pre-conceptions among the distance learners towards electronic media. Some of them might have thought it not worth attending, again may be due to the apathy.

8.0 CONCLUSION

Even though audio and visual media has provided easy assimilation of the content, it is yet to provide true flexibility in terms of accessing them for individualised learning.

In the introduction, we have given a brief picture of the presence of electronic media in Indian distance education. While reviewing the past work, we realised that not many researches have been conducted in India to make a

comprehensive assessment on utilisation of electronic media by distance learners. Most of the available reports are based on limited feedbacks received from learners or participants engaged in short duration distance education programmes and training sessions or workshops.

We further noted that no concrete sensitization exercises have been undertaken by distance education providers among learners to enlighten them on the dynamic potential of electronic media in strengthening the learning process. In the third section, we explained the modus operandi of the sensitization activity, which we had undertaken among the identified group of distance learners.

The one consistent factor revealed by our study is that there remains apathy among distance learners to electronic- media- assisted learning. Lack of understanding of ground reality by distance education providers has failed to comprehend the problems faced by distance learners who approach electronic media for supplementing their study needs. For many learners, 'electronic-media -assisted learning', 'how', 'what' and 'when' still remains an enigma. We may follow these students for another year to note the attitudinal change in them brought about by our sensitization exercises.

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Appendices-The Media Notes (with questions to be answered by the learners after viewing/listening to the programmes) Circulated

Day-1 Audio (Indian Ethos for Management)

Unlike any other medium, the audio sessions have supplementary advantage of being able to routine work in the drawing room or taking your parents or children even while being engaging in the learning process. This audio session is about Indian ethos for management. Here we compare the Indian ethos with that of modern or western ethos. Now, let us listen to the audio talk and answer the following: The speaker is Prof. S.K.Chakraborty of the Indian Institute of Management, Kolkata.

Questions

1. What is the most important ingredient of Indian ethos ?
2. The goals of human life are classified into four categories. What are they?
3. According to Indian ethos, the subjective is the cause and the objective is the consequence of the effect. It is the inner subjective of the individual, which projects itself in the outside as his objective working environment. Therefore, what needs to be groomed or well ordered or disciplined is the inner subjective of the individual. Is the statement true according to the speaker?
4. Sharp intellect is not very essential for effectiveness in management according to Indian ethos. What are the ingredients required then?
5. 'Remarkably, candidly, take care not to make intellect your god. Intellect has a sharp eye for methods and tools but it is blind to ends and values...' Who said so?
6. What is the gist of the concluding remarks made by Prof Chakraborty?
7. How do you rate this audio self learning material?
..... (Very Poor/Poor/Fair/Good/Very Good)

**Day -2 Audio (ES-333 Educational Evaluation -Compulsory Course) :
Block 1 & 2 (Evaluation of Non-scholastic aspects)**

This programme is meant to make student teachers aware of the importance of incorporating non-scholastic aspects in assessment and evaluation and the various techniques adopted to evaluate non-scholastic areas.

Questions

1. The Report Card of Mamta's brother, Harish mentions that areas be developed more because Harish is deficient in that. (scholastic/non-scholastic)
2. Scholastic areas relate to achievement in terms of subject matter and curriculum. (True/False)
3. Non-scholastic aspects fall beyond achievement in content related areas. (True/False)
4. Methods adopted to evaluate scholastic and non-scholastic aspects are always the same. (True/False)
5. Rating Scale is one of the handy methods for evaluation of (Scholastic/Non-scholastic) areas.
6. Mrs Mehta asserts that promotion of children to higher classes must be based on both scholastic and non-scholastic achievement. Do you subscribe to this? (Yes/No)
7. How do you rate this audio self -learning material? (Very Poor/Poor/Fair/Good/Very Good)

Day-3 Video (Translating Tagore)

This Video CD is a learning material prepared by IGNOU for the Application Oriented Course on Translation. Translation is a serious profession in the present world. It is getting importance mainly due to the development of communication technology and globalization. Translation of a literary work into another language is not an easy task. One requires profound dedication and deep understanding of more than one language. Here, Prof Asha Kanwar is in conversation with Dr William Radice, a well-known poet, the first British person to have a doctorate in Bengali from a British University.

Questions

1. From which Bengali book did Dr Radice first make a translation into English? (Toon Tunir Boi / Thakumar Jhuli / Rabindranather Choto Galpo)
2. How does Radice describe a literary translation? It is slow and task.
3. What literary award was given to Dr Radice by Bengal?
4. Mention one of the reasons why Dr Radice's translations of Bengali are well accepted among non-Bengali speakers?

5. With what does Dr Radice compare the first draft of a translation?
6. Give an example of a word in Bengali, which Dr Radice found as untranslatable?
7. In which of the translated poems of Tagore did he use half rhyme?
8. While translating, what do we need to do with the number of words so as to maintain the rhythm of a translated passage?
9. The language of the translated piece should be simple and
10. What was Dr Radice's reply to the question raised by the interviewer whether translation can be taught?
11. Would you at all ever try to translate a piece of literature after watching this interview?
12. How do you rate this video self learning material?
..... (Very Poor/Poor/Fair/Good/Very Good)

Day-4 Video (Teaching of English-The Solitary Reaper by William Wordsworth)

The demonstration class begins with the teacher reading a passage on what poetry is all about. She says that a poem can be many things, said in many ways. It can concern everything from animal crackers and circuses to cruel injustice, to horrible deaths. It can be a laugh, cry, a song that occurs. It can reflect the stench of hatred or the freshness of love. It can be an adventure, a centennial, an observation or a combination. It can be as various as all the things real and unreal that all people in this world can feel, imagine and express.

Questions

1. Why do you think the teacher in the classroom has displayed the picture before reading the poem?
2. The teacher is reading the poem aloud and finds the atmosphere familiar, simple, and the learners are able to recognize the images. She says an image means.and imagery means
3. Which word suggests that the song sung is sad?
4. The Highland lass belongs to Ireland/Scotland/England.
5. Mention one of the images we find in the second stanza.
6. Why do you think that the poet is standing motionless and still?
7. Write down one of the questions put by the teacher to her students with an objective to make her class interactive.
8. The teacher's handwriting is good. What else can you appreciate in her?
9. How do you rate this video CD as a student teacher's learning material? Is it very good/good/fair/poor/very poor ?

Computer - Attitude of Educational Professionals in India

Sushmita Mitra

ABSTRACT

This paper presents the results of a sample study targeted at professionals of Educational Institutions in India regarding their computer attitude to use of Information and Communication Technology (ICT) for education. There is no doubt that human factors like attitude are important for implementing and improving technical provision of ICT for different uses in an institution. Attitude is an important aspect often used to understand and predict people's reaction to an object or change and how their behaviour can be influenced. The results illustrate that computer attitude of the group of professionals working in educational institutions is positive. Computer access and work experience of this group showed differences but age, gender and other personal characteristics did not have any relation with computer attitude.

INTRODUCTION

Today all countries have an integral vision of educational use of ICT. Countries are making attempts to organize the education system to strengthen the use and development of new technologies at all levels, taking care of the importance of educating people for its inclusion in the so-called *knowledge society*. However, in many cases the progress has been slow or not effectively implemented by institutions to feel the impact of use of ICT. As cited by Imran (2009), according to Scott (2001) institutions are made up of formal constraints (e.g., rules, laws, constitutions) and informal constraints (e.g., norms of behaviour, conventions and self-imposed codes of conduct), which are also called institutional pressures. Normative pressures come from the similar attitudes and approaches of professional groups, ongoing practices and socializations. Institutions usually vary in their members' attitudes toward new technology, which can range from supportive to resistant and from proactive to reactive. As such, an institution needs to understand and develop tactics that will foster favourable attitudes among its members before adopting ICT innovations. Studies have shown that the successful implementation of educational technologies depends largely on the attitude of educators who eventually determine how they are used in education. Woodrow (1992) asserts that any successful transformation in educational practice requires the development of positive user attitude towards the new technology. Bullock (2004) found that teachers' attitude is a major enabling/disabling factor in the adoption of technology. Therefore gaining an appreciation of the attitudes of professionals in educational institutions, towards computer use may provide

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useful insights into technology integration and acceptance and usage of technology in teaching and learning. With this rationality, a sample study was undertaken to find the computer attitude of professionals in educational institutions in Delhi to use ICT in education.

ATTITUDE: MEANING

Attitude is an important concept and there are several definitions of attitude. It is often used to understand and predict people's reaction to an object or change and how their behaviour can be influenced (Fishbein and Ajzen, 1975; Allport, 1966, cited in Usoro 2000).

Usoro (2000) describe attitude as a complex, mostly learned and enduring but changeable system of cognition and affection which predisposes an individual to favourable and unfavourable action or reaction to an object. Object could be people, events, actions, things, ideas or institutions (The Open University, 1977).

Attitude theorists widely agree that the concept of attitude can be broken into the following components (Krech *et al*, 1962, cited in Usoro, 2000).

- Affective - the person's feelings about the attitude object.
- Cognitive - the person's beliefs or knowledge about the attitude object.
- Behavioural - the person's inclination to act towards the attitude object in a particular way.

As cited by Albirni (2006), Zimbardo et al (1977) contends that "even though we cannot predict the behaviour of a single individual, we should be able to predict that people (in general) will change their behaviour if we can change their attitudes....". This assertion explains to a large extent the wide interest in the study of the attitude towards technology.

THE STUDY

Sample:

The participants in this study were professionals working in four educational institutions in Delhi. These institutions are not only involved in policy formulation on use of ICT in education but also provide educational programmes and services for different target groups. Due to paucity of time and resources, a convenient sampling was considered in which it was decided that data would be collected from willing professionals in an institution. Therefore, a notice in this regard was displayed on the notice board of each of the institutions requesting the professionals working there to participate on a specified day and time. In all there were 49 willing participants who could take out time from their daily routine to participate on the day. The study is to be considered as an exploratory one where individuals from different institutions collectively are considered as a group of professionals working in the field of education. The study is within the qualitative and interpretative domains. Limitations to this approach need to be acknowledged.

Tool

The tool was a questionnaire comprising sections on participants' background with respect to age, gender, qualifications, work experience, training on using computers, and computer access along with an adapted version of the *Computer Attitude Scale* (CAS) from the Ohio State University Attitude towards Computer Technology Questionnaire.

The CAS comprises a 20 item-questionnaire dealing with the attitude towards computer and its use in education. Items 1-6 are designed to measure the affective domain, items 7-15 measures cognitive domain and items 16-20 measures behavioural domain of the computer attitude.

Participants responded to the CAS using a five-point scale of strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5). The scores from the items on each component were aggregated to provide individual scores on each component as well as the total. In this study, the negative items were reverse coded in order that meaningful analyses at the sub-scale level could be conducted. The CAS has been reported (Albirini, 2004) to possess high reliability (Cronbach's μ reliability co-efficient= 0.9).

Results:

The characteristics of the professionals in the sample are given in Table 1. It is seen that more than half (67.34%) are in the age range between 30-49years. 65.31% have work experience for more than 10 years. Only 16.33% have less than 6years of work experience. Majority (79.59%) of the participants were holders of Master's Degree. More than half (63.27%) had attended some training course / workshops / seminars.

Table 1: Characteristics of Participants

	%
Gender	
Male	59.2
Female	40.8
Age Range	
20-29	8.16
30-39	32.65
40-49	34.69
50-59	22.45
60 and <u>above</u>	2.04

Years of work experience	
1-5years	16.33
6-10 years	18.37
11-15years	22.45
16-20 years	22.45
Over 20 and above	20.41
Highest Degree Held	
Bachelor's with teacher certificate	8.16
Bachelor's degree	12.24
Master's degree	79.59
Training course/workshop/seminar on computer use attended	
Yes	63.27
No	36.73

In other words it can be said that majority of the participants were qualified, experienced professionals having attended some training related to computers.

As highlighted by Albirini (2006), some studies have shown that there is a significant association between computer access and computer attitudes. Making computer accessible to users is an important factor that influences computer utilization (Schiffman et al, 1992). Considering this, participants were asked to rate their level of access to potential computer places: at home, at workplace and other places. The aggregate of the ratings of level of access to potential computer places is considered as Computer Access.

Table 2: Computer Access at potential places in percent

Scale	At Home	At workplace	Other (internet café etc.)
Daily	56.25	68.75	6.52
2or 3 times a week	18.75	18.75	4.35
Once a week	14.58	8.33	4.35
Once a month	4.17	0	26.09
Never	6.25	4.17	58.70
Mean	1.85	1.2	4.26
SD	1.20	0.97	1.16

Table 2 indicates that more than half (56.25%) of the participants have daily access at home and 68.75% have daily access at the workplace. About 84.79 % never or once a month access computer at other places like Internet café as they would have computer access either at home or at work place and would probably visit other places when they face a problem with their accessed computers. Those who visit other places for computer access probably go for internet facilities which they may not have access at home or at workplace.

Overall profile of Computer Attitudes

Attitude toward computer was measured in terms of Affective, Cognitive and Behavioural components in the CAS. Table 3 presents the participants’ mean scores with the standard deviations of the three subscales.

Table 3: Descriptive statistics and reliability coefficient for each subscale (n=49)

Subscale	No of items	Mean	SD	Alpha
Affect	6	4.15	0.62	0.75
Cognitive	9	4.16	0.53	0.84
Behavioural	5	4.33	0.51	0.70
Overall Attitude	20	4.22	0.46	0.89

The participants scored almost equally on the subscales. The means suggest that participants were equally positive about their affect and cognitive components of attitude towards computers with equal behavioural intentions to use computers. The mean for overall attitude is well above the mid-point of the scale (3.00) and this indicated that participants held a positive attitude towards use of computers in education.

The relationship among the subscales and attitude is shown in Table 4. There is a strong positive correlation between all the subscales and attitude. Also all subscales correlate positively and significantly with each other at the $p < .01$ level and the coefficients range from .45 to .81. This suggests that the three components were fairly independent to be used as independent variables which allow examining the computer attitudes of professionals by each subscale.

Table 4: Correlation matrix of Attitude and the Subscales*

	Attitude	Affect	Cognitive
Affect	0.83*		
Cognitive	0.88*	0.59*	
Behavioural	0.81*	0.45*	0.64*

* $p < 0.01$

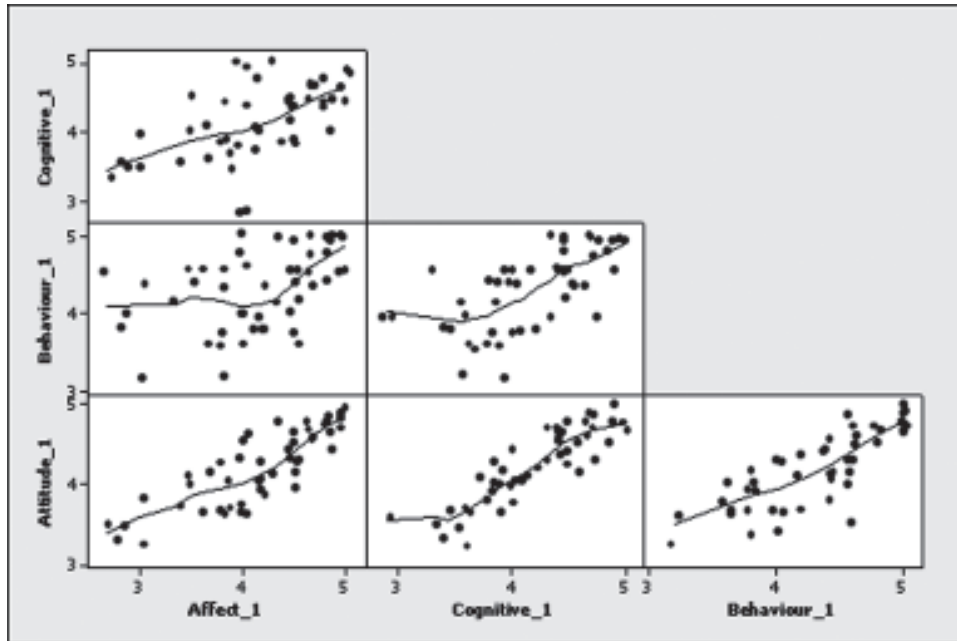


Fig. 1 shows the matrix plot of attitude and the three components.

Fig 1: Matrix Plot of Attitude, Affect, Cognitive and Behaviour

With a small sample size, Kruskal-Wallis Test which is a nonparametric alternative to a one-way ANOVA was used to find the relationship between attitude and personal factors of gender, age, work experience, educational qualifications, training in computers and access to computers respectively. Access to computers is the aggregate of the scores in availability of computers at home, at workplace and at other places like internet café.

The results of Kruskal-Wallis Test for Attitude versus Gender, Age, Qualifications, Work experiences, Training and Computer Access are shown in Table 5. The test statistic had a p-value of nearly 0.05 (both adjusted and unadjusted) for attitude versus work experience and computer access respectively indicating that there is difference in attitude in the group for these two factors.

Significant difference is seen in Attitude versus access to computers at other places where mean rank for rating 1(=daily) differed least from mean rank for all observations. Mean rank for rating 5(=never) is higher than the mean rating for all observations as the z value is positive ($z=2.62$).

Table 5: Kruskal-Wallis Test for Attitude versus Gender, Age, Qualifications,

Work Experiences and Training

Factors	Test statistic (H)	p-value (both unadjusted and adjusted for ties)	Attitude difference
Age	0.40	0.98	None in any age group
Gender	0.02	0.88	None in any group
Qualifications	3.56	0.31	None at any level
Work Experience	9.28	0.054	Exist among the groups
Training	1.21	0.27	None at any level
Computer access	15.31	0.053	Exist among the groups

Considering the result of the Kruskal-Wallis Test for Attitude versus Work Experience, the z-values indicate that the mean rank for category 5 i.e. work experience over 20 years differed least from the mean rank for other observations. The mean rank for category 4 i.e. work experience in the range 16-20 years is higher than the mean rank for all observations as the z value is positive (z=2.84).

This prompted to undergo Kruskal-Wallis Test for each of the components of Attitude versus work experience to find out which component contributed to the difference. Table 6 gives the result

Table 6: Kruskal-Wallis Test for Attitude components versus Work experience

Attitude Components	Test statistic (H)	p-value (both unadjusted and adjusted for ties)	Work experience difference
Affect	7.30	0.121	None for any group
Cognitive	8.12	0.087	Exist between groups
Behaviour	5.68	0.224	None at any group

The difference among groups is nearly significant for Cognitive component versus work experience. Further analysis showed that the mean rank for category 5 (z=- 0.69) i.e. work experience over 20years differed least from the mean rank for all observations while the mean rank for category 4 i.e. work experience in the range 16-20 years is positive and higher (z=2.80) than the mean rank for all observations in the cognitive domain (refer to Table A in appendix).

To find out what aspect of cognitive attitude differed with work experience, Kuskall-Wallis Test for work experience versus each item that measured cognitive attitude was undertaken. Results are as in Table 7.

Table 7: Kuskall-Wallis Test for Work Experience versus each item that measured Cognitive Attitude

Items measuring Cognitive domain	Test statistic (H); p-value unadjusted	Test statistic (H); p-value adjusted for ties	Work experience difference
Q7: Computers save time and effort	10.54; 0.005	10.99; 0.004	Exist significantly between groups
Q8: Schools would be a better place without computers	5.61; 0.132	5.85 0.119	None in any group
Q9: Students must use computers in all subject matters	4.03 0.402	4.20 0.379	None in any group
Q10: Learning computers is a waste of time	8.04 0.045	8.39 0.039	Exist significantly between groups
Q11: Computers would motivate students to do more study	5.73 0.126	5.98 0.113	None in any group
Q12: Computers are a fast and efficient means of getting information	7.44 0.024	7.77 0.021	Exist significantly between groups
Q13: I do not think I would ever need a computer in my classroom	2.26 0.521	2.80 0.423	None in any group
Q14: Computers can enhance students' learning	2.69 0.442	2.80 0.423	None in any group
Q15: Computers do more harm than good	1.41 0.495	1.47 0.480	None in any group

It is found that there were significant differences in three items measuring cognitive domain and work experience. The mean rank for the scale 4(=Agree) differed least from the mean rank for all observations having also the least z values for the three items respectively (Refer to Table B in Appendix). The mean rank for scale 5 (= strongly agree) is higher than the mean rank for all observations and the z value is positive for all the three items. However the mean rank for scale 2(=disagree) is higher than the mean rank for all observations for all the three items which has lead to significant differences in cognitive attitude within the group. Except item Q12, the z value for scale 2 was less than scale 5 indicating the difference within the group that disagrees

and those who strongly agree that computers are a fast and efficient means of getting information.

DISCUSSION

The study illustrates that:

- Professionals in educational institutions showed a positive computer attitude towards the use of computers in education. The mean (4.22) for overall attitude is well above the mid-point of the scale on a 5-point scale.
- The overall computer attitude of the professionals showed positive correlation with affective, cognitive, and behavioural domain.
- Computer attitude showed no significant differences within the group for age, gender, qualifications and training in computers. With respect to such personal factors, there are different findings from many past studies. Some studies (Czaja and Sharit, 1998; Woodrow, 1992; Teo, 2008) found no difference in overall attitude between young and old while some (Chio, 1992; Blankenship, 1998 cited in Cavas et al, 2009) found that age has critical effects on attitude. Pope-Davis and Twing (1991) concluded in their study that neither age was an unequivocal determinate of attitude, nor gender played a role in determining differences in attitude which is in consistence with the results of this study. However, considering what Kay (1992) had to report, no generalisation can yet be drawn from a body of conflicting evidence regarding gender influences on attitude towards computers. Further research addressing the issues of gender needs to be done.
- The non significance of educational qualification and some training to computer attitude suggests that the form of education and training obtained by these professionals is not relevant to their use of computers in education. This is consistent with the study by Usoro(2000). However as pointed out by Usoro that such a finding is in contrast with the study by Igbaria and Chakrabarti (1990) who found that computer training contributes strongly to decrease computer anxiety to form positive attitude. Probably in this case regular use of computers in daily life whether at home or at work place has led against the development of differences within the group.
- The computer attitude versus computer access showed nearly significant difference within the group. Studies (Shashaani, 1997; Teo, 2008) have shown that computer attitude could be attributed to the availability and accessibility to computers. Further, Huang & Liaw (2005) pointed out that the length of computer use is associated with the successful use of the computer in order that positive feelings can be fostered. In this case about 75% had daily or 2 to3 times a week access to computers at home. 87.50% had daily or 2 to3 times a week access to computers at workplace. Computer access at other places showed highest differences in the group ($z=2.62$) indicating that access in other places was need based. Lim &

Khine (2006) stated that a prolonged unsuccessful period of computer use may serve as a barrier instead of facilitating further usage of the computer.

- Computer attitude seems to differ most for those with work experience between 16-20 years. Individuals in this range of work experience are in their prime workforce age and age showed a positive correlation ($r = 0.633$, $p < 0.01$) with work experience.

Among the three components of attitude, the cognitive domain versus work experience showed nearly a significant difference within the group. Three items measuring cognitive domain viz. Q7=computers save time and effort, Q10=learning about computers is a waste of time and Q12=computers are a fast and effective means of gathering information, showed significant differences with work experience within the group.

Those who *strongly agree* that computers save time and effort and learning about computers is a waste of time and those who *disagree* that, computers are a fast and efficient means of getting information have undoubtedly developed these aspects of attitude from their work experience. The study by Idowu (1998) states that current usage (knowledge of computer usage) of computers at work influence a positive attitude towards the computer. However, according to Stern (2004), Triandis's Theory of Interpersonal Behaviour (TIB) suggests that experience was positively related to usage. Furthermore, computer anxiety was negatively related to experience. Stern (2004) found that experience and support were positively related to computer self-efficacy, and computer self-efficacy was negatively related to anxiety and positively related to usage. It appears that in this case the work experience of the professionals made them to believe that even though computers save time and effort, it is not necessarily the fastest and efficient means of getting information. Also their work experience made them to believe that learning about computers is a waste of time. This may be attributed to the kind and quality of training experience encountered by the individuals.

CONCLUSION

In today's world one cannot visualise a typical workplace without some kind of computerized technology. Wilson (2004) conceptualizes and defines ICT which involves the use of computers as a scarce and desirable resource that groups and individuals contend for in order to consume or control for their own purposes. Individuals and groups who believe they will be disadvantaged will tend initially to block and oppose its diffusion, partly through ignorance of its full effects but also through an evaluation that their personal and professional status will be compromised. In other words, attitude plays an important role in the effective investment in computer technology in education to support instruction and successful integration in teaching learning situation (Lawton & Gerschner 1982; Koohang 1989). This sample study showed that overall attitude of professionals affiliated with educational institutions towards the use of computers in education is positive. Positive attitude enhances the knowledge

and creativity of computer users, whereas negative attitude may limit the use of computer as learning and teaching tool and inhibit the information technology assimilation in the educational systems. It is believed that individual cognition influences users' attitude toward an ICT innovation, which is essential to achieve a good outcome for an organization (<http://cms.unescobkk.org/index.php?id=1451>). In this study individuals did show differences in cognitive domain of the attitude to indicate that there may be cognitive dissonance in some ideas about use of computers, like learning about computers is a waste of time. This can be changed when such individuals are provided with appropriate training experiences which will positively relate computer self-efficacy to usage. It can hence be said that because of the positive attitude of the professionals, all the four institutions with which they are affiliated, are able to use computers in education.

Organizations are making significant investments in information and communication technology (ICT). However, if individuals do not use ICT applications as anticipated, successful implementation can be hard to achieve. In this context, it may be mentioned that one of the major factors affecting people's attitudes toward a new technology is the attribute of the technology itself (Rogers, 1995, cited by Albirini, 2006). Roger identified five main attributes of technology viz relative *advantage*, *compatibility*, *complexity*, *observability* and *trialability* that affect its acceptance and subsequent adoption. Further, as highlighted by Albirini (2006), Roger (1995) and Thomas (1987) emphasised the importance of the cultural/social norms of a given country to the acceptance of technology among its people. It is important for all educational institutions to recognise these aspects also for effective use of ICT in education.

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APPENDIX

Kruskall-Wallis Test for Attitude versus Work experience

Table A

Work Exp	N	Median	Ave Rank	Z
1(1-5yrs)	8	76.00	18.3	-1.46
2(6-10yrs)	9	81.00	20.3	-1.10
3(11-15yrs)	11	85.00	25.1	0.02
4(16-20yrs)	11	93.00	35.8	2.84
5(<20yrs)	10	86.50	22.7	-0.57
Overall	49		25.0	

Kuskall-Wallis Test for Work Experience versus each item that measured Cognitive Attitude

Table B

Items	1=Strongly Disagree		2= Disagree		3= Neutral		4=Agree		5= Strongly Agree		Overall Av rank
	Av Rank	Z value	Av Rank	Z value	Av Rank	Z value	Av Rank	Z value	Av Rank	Z value	
Q7	-	-	34	1.13	-	-	17.1	-3.21	30	2.62	25
Q10	-	-	34	0.64	28.8	0.38	17.1	-2.81	29.1	2.39	25
Q12	-	-	44	1.97	-	-	20	-2.22	27.9	1.43	25

Attitude Questionnaire

Instructions: Please indicate your reaction to each of the following statements by circling the number that represents your level of agreement or disagreement with it. Make sure to respond to every statement.

	Items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1.	Computers do not scare me at all.	1	2	3	4	5
2.	Computers make me feel uncomfortable.	1	2	3	4	5
3.	I am glad there are more computers these days.	1	2	3	4	5
4.	I do not like talking with others about computers.	1	2	3	4	5
5.	Using computers is enjoyable.	1	2	3	4	5
6.	I dislike using computers in the instructional process.	1	2	3	4	5
7.	Computers save time and effort.	1	2	3	4	5

8.	Schools would be a better place without computers.	1	2	3	4	5
9.	Learners must use computers in all subject matters.	1	2	3	4	5
10.	Learning about computers is a waste of time.	1	2	3	4	5
11.	Computers would motivate learners to do more study.	1	2	3	4	5
12.	Computers are a fast and efficient means of getting information.	1	2	3	4	5
13.	I do not think I would ever need a computer in my instructional methods.	1	2	3	4	5
14.	Computers can enhance learners' learning.	1	2	3	4	5
15.	Computers do more harm than good.	1	2	3	4	5
16.	I would rather do things by hand than with a computer.	1	2	3	4	5
17.	If I had the money, I would buy a computer.	1	2	3	4	5
18.	I would avoid computers as much as possible.	1	2	3	4	5
19.	I would like to learn more about computers.	1	2	3	4	5
20.	I have no intention to use computers in the near future.	1	2	3	4	5

Enrolment, Success Rate and Expenditure in Open and Distance Learning - The Experience of the First Open University in India

Dr. P. Krishna Rao

Today, costs of educational provision have become the stumbling block in accelerating the pace of human resource development through the conventional modes of education in many countries. The limitations of physical, financial and human resources have, in turn, had an impact on enrolment and growth. The desire to meet the growing demand for higher education, across the world, have compelled planners of education to formulate a supplementary mode to reinforce the conventional system of higher education which is prohibitive in terms of costs due to its huge investment requirements for buildings, permanent staff, laboratories, furniture, equipment etc. Thus Open Distance Education (ODE) took root in many countries as a means to resolve political compulsions as also to fulfill the aspirations of different sections of the people who had missed educational opportunities, not as a matter of individual choice but as compulsions of social and cultural contexts. Prior to the establishment of the U.K. Open University (UKOU), distance education was - with very few exceptions - available only through private correspondence schools. However, the establishment of UKOU at Milton Keynes in U.K. in 1969 - as a public funded institution - marked the beginning of a new and prestigious era in the history of distance education.

Drawing inspiration from UKOU, many countries in the world set up Open Universities at the higher educational levels and Open Schools at the basic, Secondary and Senior Secondary levels at different points of time to offer academic programmes through the distance mode. Gradually the concept has gained ground and has become a world-wide phenomenon owing its popularity to its openness, flexibility, wider access, use of multi-media and the wide range of course offerings relevant to social needs.

In India universal education had been acknowledged as apriority early enough. Recognizing the significance and relevance of the concept of equality, the Indian Constitution had enshrined in its preamble, "Equality of status and of opportunities" as the ideal for the people of India¹. Particularly after independence, ODE has been perceived as an inevitable form to match the growing demand for educational opportunities. The demand for relevant quality education far exceeded the supply through conventional educational institutions. The Central Advisory Board of Education appointed a committee under the chairmanship of Dr. D.S. Kothari in 1961, and made significant recommendations in regard to the nature, scope and modes of organization

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of correspondence courses in higher education. These recommendations paved the way for the establishment of the first Directorate of Correspondence Courses of the University of Delhi in July, 1962 and the offering of the academic programmes through distance mode.

Inspired by this innovative experiment, many universities in the country also started Correspondence Courses to widen the access to higher education. The University Grants Commission, (UGC) supported the establishment of Correspondence Course Institutes (CCIs) by formulating guidelines and providing seed money. However, the so called CCIs which were established in the existing universities happened to operate according to the regulations and control of the parent university. As a result, the CCIs were used more or less as surplus-making machines for the parent institution without any concern for the quality of learning.

The Government of India appointed an eight-member working group under the chairmanship of Sri. G. Parthasarathy, the then vice-chancellor of Jawaharlal Nehru University, in 1971 and the committee recommended the establishment of a National Open University in the Country. The Government of Andhra Pradesh was quick to take up the recommendation and start the first Open University in the country. The Andhra Pradesh Open University was established by an Act of State Legislature in August 1982. The motto of this University is "education for all". With the change of its name to Dr. B.R. Ambedkar Open University (Dr. BRAOU) in 1991, the year of the leader's centenary, the University came into its own as a trend-setter in the region. At the national level, the Indira Gandhi National Open University (IGNOU) was established in 1985 to provide access to higher education through ODE. Many State Governments also set up Open Universities to cater to the needs of the people in their States. As of now, apart from IGNOU, there are 14 States which have Open Universities in the country. The Open and Distance Learning (ODL) system has grown not as a counterpart but as a supplement to the conventional system in the country. The contribution of ODL in higher education is around 25 percent in the country ². The Open University system may historically have come later to provide a second chance for education, but it cannot afford to provide second-rate education³. Providing access to higher education is one task but making the students autonomous and successful learners is another task. An ODL institution needs to take up these two tasks with utmost commitment utilizing the available resources optimally.

In this paper an attempt is made to study the average graduating costs keeping in mind the total enrolment in the programmes and the overall graduating numbers for the programme. The following are the specific objectives:

OBJECTIVES

- i. To study the enrolment of students and their progressive enrolment for the subsequent years.
- ii. To analyze the results of the students awarded degrees/certificates in various convocations, and

- iii. To examine the expenditure incurred in relation to the students awarded degrees / certificates.

ENROLMENT OF STUDENTS

The enrolment of students stands testimony to an institution’s robustness. However, in the conventional system seats are limited and are given to the candidates based on merit and the rules of reservation. As a result, only the meritorious candidates get seats and their potential to be on rolls till the completion of the course period is more than 90 per cent. Further, their pass percentage is more than 70 per cent in the majority of the cases.

In the ODL system, the seats are many in the majority of the programmes and the students are allowed to be on the rolls, generally, for double the minimum period of the programme. Dr. BRAOU has been enrolling students in Undergraduate (U.G.) Post Graduate (P.G.), M.B.A., P.G. Diploma, Research and other certificate programmes at different points of time. It is proposed to examine the picture of enrolment of students over the years to determine the programmes which have attracted more students since its establishment.

Table-1
Enrolment of Students in various programmes from
1983-84 to 2009 - 10

U.G.	P.G.	Professional	Diplomas and others	Total
1153129	84837	59516	21992	1319474
(87.39)	(6.43)	(4.51)	(1.67)	(100.00)

Source: Compiled from University records
 (Figures in parentheses are percentages to total)

Table -1 Presents the enrolment of students in various programmes from 1983-84 to 2009-10. The U.G. Programmes consist of B.A., B. Com., and B.Sc., whereas the P.G. Programmes include M.A., M. Com., and M.Sc., programmes. The professional programmes comprise M.B.A., M.L.I.Sc., B.L.I.Sc., B.P.R., etc. and the Diplomas and others include Post Graduate Diplomas and certificate programmes. Of course, all the P.G. and many of the Diploma programmes were started only after the 1990s, except the professional programmes like B.L.I.Sc and B.P.R. and the Post Graduate Diploma in Public Accounting which were launched before the 1990s.

An analysis of the table indicates that the U.G. programmes accounted for a dominant share of 87.39 per cent followed by P.G. programmes 6.43 per cent, professional programmes 4.51 per cent and other programmes 1.67 per cent against the total enrolment. As the university has emerged strong in U.G. programmes, a fall in those programmes without a rise in other programmes, will adversely affect the survival of the institution.

As the U.G. Programmes constitute a significantly higher share in the total enrolment of all programmes, it is pertinent here to depict its trend over a period of time to get an idea about the progressive enrolment of the 3 - year U.G. programmes.

Table-2
Progressive Enrolment in Dr. BRAOU from 1985-86 to 200-10 in U.G. Programmes.

Years	U. G. I Year	U.G. II Year	U.G. III Year	% of II year over I Year	% of III Year over I Year
1985-86 to 1989-90	84405	42246	24078	50.05	28.53
1990-91 to 1994-95	155691	50249	34486	32.39	22.15
1995-96 to 1999-2000	236449	97651	51812	41.30	21.91
2000-01 to 2004-05	290705	137870	85291	47.43	29.34
2005-06 to 2009-10	368317	239737	162778	65.09	44.20

For the purpose of the progression of students in a 3- year U.G. programme from I year to II Year and then II Year to III year, a five- year period has been chosen to neutralize the year-wise fluctuations due to unforeseen events. It may be observed from the table that during the first five year period (i.e., 1985-86 to 1989-90), the students who enrolled in the first year U.G., and progressed to second year were only 50.05 per cent and to the third year were 28.53 per cent of the first year. This means that the progressive dropout rate is 49.95 per cent by the second year and 71.47 per cent by the third year over the first year. Similarly, the progressive enrolment rate in the second, third and fourth of the five- year period was 32.39 per cent and 22.15 per cent; 41.30 per cent and 21.91 per cent; 47.43 per cent and 29.34 per cent over the corresponding first year enrolment. It is significant to note that the dropout rate for the second five- year period (i.e. 1990-91 to 1994-95) was 67.61 per cent in the second year and 77.85 per cent in the third year in relation to the first year. The reason for such a drastic fall in enrolment could be attributed to doubts about the system itself in building the capacities of the students, recognition of the degrees and the starting the departments of distance education in conventional universities in the region. Even in the third and fourth five-year period, the dropout rate seems to be very high. However, the last five- year period of study shows a significant improvement in enrolment as compared to its preceding five-year period i.e., 47.43 per cent to 65.09 per cent in second year and 29.34 per cent to 44.20 per cent in the third year. Further, the progressive enrolment in the last five-year period was 65.09 per cent and 44.20 per cent in second and third years respectively over the first year. Even this rate seems to be very low when compared to conventional universities where the progressive enrolment would be over 95 per cent.

On the whole, the progressive dropout rate in the entire study period appears to be 68.43 per cent over the first-year enrolment and this calls for some measures that might help to bring down the dropout level such as conducting

of extra counseling classes and intensive classes, appointment of experienced and thoroughly trained teachers for counseling, making the course material more learner-friendly, simplification of the subject matter, and making electronic media inputs rich and effective for learning.

STUDENTS AWARDED DEGREES

So far the University has held eighteen convocations to award degrees and certificates to the candidates who successfully completed their programmes up to March 2010. It is now proposed to study the number of degrees/certificates awarded at various convocations to get an idea about the number of successful candidates.

Table- 3
Total number of Degrees/Certificates awarded by
Dr. BRAOU in various Convocations.

Sl. No. of Convocation	Date of Convocation	No. of Degrees awarded
I	29.03.1987	1494
II	30.04.1988	2020
III	05.05.1989	2858
IV	19.05.1990	2094
V	08.05.1991	3649
VI	06.03.1993	3427
VII	23.08.1994	3834
VIII	13.12.1997	7350
IX	12.03.1999	2730
X	25.11.2001	17591
XI	04.12.2002	9547
XII	29.11.2003	7920
XIII	29.01.2005	6322
XIV	24.01.2006	9820
XV	18.01.2007	10413
XVI	29.03.2008	15074
XVII	21.02.2009	17966
XVIII	19.04.2010	19731
	TOTAL	143840

Source: Collected from various convocation reports.

It can be seen from the table that in 8 out of 18 convocations, the number of degrees awarded were less than 5000, between 5000 and 10000 in 5 (convocations) and above 10000 in the remaining convocations. It may also be observed from the above data that the convocations were not regularly held every year. Sometimes, they were held once in two years and three years. On the whole, the total degrees / certificates awarded during eighteen convocations were 143840.

It is now pertinent here to study the composition of degrees awarded against the number of candidates eligible to be awarded degrees by the eighteenth convocation so as to find the success rate in various programmes and also the overall success rate in the university.

Table- 4

Number of Candidates Awarded Degrees/Certificates up to the 18th Convocation against the actual number of candidates to be awarded.

Programmes	Actual No. of Candidates eligible to be awarded	No. of Candidates awarded degrees	Percentage of candidates who successfully completed the programmes.
U.G.	924296	127871	13.83
P.G.	75958	6204	8.17
Professional	56107	5975	10.65
Diplomas and Others	21661	3790	17.50
Total	1078022	143840	13.34

Source: Compiled from student services records and convocation reports.

The U.G. Programmes include B.A., B.Com, and B.Sc., programmes. Likewise, the P.G. Programmes consist of M.A, M.Com, and M.Sc. The professional programmes comprise M.B.A, M.L.I.Sc, B.P.R programmes etc. Finally, the Diploma and other programmes include P.G. Diploma in Public Accounting, P.G. Diploma in Marketing Management, P.G. Diploma in Environmental Studies, P.G. Diploma in Business Finance, P.G. Diploma in Writing for Mass Media, P.G. Diploma in Human Rights, Certificate Programme in Food and Nutrition, Certificate programme in Computing etc. While determining the number of candidates eligible to be awarded degrees / certificates up to the eighteenth convocation, the minimum period for the completion of the programmes was taken into consideration. For instance, for the 3 year U.G. programmes, the students enrolled up to 2006-07 batch, for the two year P.G. programmes the students enrolled up to 2007-08 and for the one year Diploma programmes the students enrolled up to 2008-09 were taken into consideration for the reason that the eighteenth convocation was held during April 2010, awarding degrees to all the students who had completed their programmes up to the end of 2009.

An analysis of the above data reveals that the percentage of students who successfully completed their programmes stood at 13.83 per cent, 8.17 per cent, 10.65 per cent and 17.50 per cent respectively for U.G., P.G., professional and Diploma and other programmes. However, for the diploma and other programmes the percentage of graduates is 17.50 per cent due to inclusion of the students of the Certificate Programme in Food and Nutrition, which is a programme of 6 months duration and accounts for 36 per cent of that stratum. On the whole, the pass percentage for all the programmes appears to be at 13.34 per cent which is grossly low, and needs to be enhanced by conducting studies on the needs of the learner community.

It is now proposed to analyze the degrees awarded in various convocations to have an idea about the share of each cluster of programmes.

Table-5

Analysis of Degrees awarded by Dr. B. R. Ambedkar Open University

Convocations	U.G. Degrees	P.G. Degrees	Professional Degrees	Diplomas and Others	Total
I	954 (63.86)	-	224 (14.99)	316 (21.15)	1494 (100.00)
II	1648 (81.58)	-	165 (8.17)	207 (10.25)	2020 (100.00)
III	2467 (86.32)	-	258 (9.03)	133 (4.65)	2858 (100.00)
IV	1814 (86.63)	-	181 (8.64)	99 (4.73)	2094 (100.00)
V	3270 (89.61)	-	309 (8.47)	70 (1.92)	3649 (100.00)
VI	2535 (73.97)	-	344 (10.040)	548 (15.99)	3427 (100.00)
VII	3435 (89.59)	-	266 (6.94)	133 (3.47)	3834 (100.00)
VIII	5772 (78.53)	360 (4.90)	593 (8.07)	625 (8.50)	7350 (100.00)
IX	2267 (83.04)	200 (7.33)	159 (5.82)	104 (3.81)	2730 (100.00)
X	14681 (83.46)	1425 (8.10)	803 (4.56)	682 (3.88)	17591 (100.00)
XI	8235 (86.26)	784 (8.21)	434 (4.55)	94 (0.98)	9547 (100.00)
XII	6763 (85.39)	598 (7.55)	501 (6.33)	58 (0.73)	7920 (100.00)
XIII	5099 (80.65)	591 (9.35)	549 (8.68)	83 (1.32)	6322 (100.00)

XIV	8532 (86.88)	742 (7.56)	469 (4.78)	77 (0.78)	9820 (100.00)
XV	9697 (93.13)	328 (3.15)	194 (1.86)	194 (1.86)	10413 (100.00)
XVI	14252 (94.55)	326 (2.16)	339 (2.25)	157 (1.04)	15074 (100.00)
XVII	17305 (96.32)	504 (2.81)	102 (0.57)	55 (0.30)	17966 (100.00)
XVIII	19145 (97.03)	346 (1.75)	85 (0.43)	155 (0.79)	19731 (100.00)
Grand Total	127871 (88.90)	6204 (4.31)	5975 (4.15)	3790 (2.64)	143840 (100.00)

Source : Records of Dr. BRAOU

(Figures in parentheses are percentages to total)

It may be seen from the table that, except in the first, sixth and eighth convocations, the U.G. programmes accounted for more than 80 per cent of total degrees awarded by the University. The P.G. programmes which were started only after the 1990s accounted for less than 5 per cent in 5 convocations and between 5 per cent and 10 per cent in the remaining six convocations. As far as professional programmes are concerned, their share to the total degrees awarded was less than 5 per cent in seven convocations, between 5 per cent and 10 per cent in nine convocations and 10 per cent and above in the remaining two convocations. With reference to the Diploma and other programmes, the share stood at 10 per cent and above in three convocations, 8.50 per cent in one convocation and below 5 per cent in the remaining 14 convocations.

In essence, the U.G. programmes account for 88.90 per cent, followed by P.G. programmes 4.31 per cent, professional programmes 4.15 per cent and other programmes 2.64 per cent of all the convocations.

As the U.G. programmes account for a large share in terms of total degrees awarded, it is proposed to examine the share of individual degrees in the total U.G. degrees awarded in all the convocations.

Table-6
Discipline-wise U.G. Degrees awarded by the University

B.A.	B.Com	B.Sc.	Total
99360 (77.70)	14140 (11.06)	14371 (11.24)	127871 (100.00)

Source: Compiled from convocation reports.

Table 6 presents an analysis of discipline-wise degrees awarded by the university at all convocations. It can be seen from the table that the B.A. programmes which cover general humanities and social science subjects accounted for 77.70 per cent of the total U.G., degrees awarded. The remaining two programmes i.e., B.Com., and B.Sc., accounted for almost an equal share in the total U.G., degrees.

In fact, the Open University systems have a mandate to launch programmes which have the potential for employability in the market, so that a large number of the working population – perhaps those in the informal sector gravitate more towards distance learning to learn while they earn. Another prominent group of learners who look for this mode of study may be those who seek some form of livelihood. For this, it is suggested that the university may start skill- oriented and vocational programmes in a big way to stand as a unique model in the domain of higher education in the country.

EXPENDITURE IN RELATION TO DEGRESS AWARDED

Now, it is relevant here to make a comparison of the expenditure incurred in relation to the number of degrees awarded so as to find out the approximate cost of graduation in an Open University. For this purpose, only the expenditure incurred by the University on learner centered services which includes salaries of academic and supporting staff, who are directly concerned with the preparation of learning inputs, maintenance of student records, arrangement of guidance for the learners, production of audio-visual programmes, assessment of student performance, provision of library facilities etc., and costs other than salary expenditure (such as expenditure on study centre maintenance, course development, course printing, contact-cum-counseling classes, production of Audio-Visual materials, laboratory training, term-end examinations, evaluations etc.) have been taken into consideration upto the year 2006-2007 to show the expenditure on an average for the degrees awarded by the university. Since the year-wise details for the first, second and third years of a programme are not available from the records of the university the expenditure on learner-centered services for the years 2007-2008 and 2008-2009 have been ignored.

Table-7

**EXPENDITURE ON GRADUATES UPTO 18TH CONVOCATION
(Expenditure incurred upto 2006-2007)**

Salaries of Academic and Supporting Staff (Rs. in lakhs)	Other than salary expenditure on learner centered services (Rs. in lakhs)	Total Expenditure (Rs. in lakhs)	Number of Degrees and Certificates awarded	Average expenditure (in Rs.)
6560.00	10660.00	17220.00	143840	11972.00

Source: Compiled from the Annual Accounts of the university

It may be observed from the table that the average expenditure on a learner securing a degree has come to Rs. 11972. As a matter of fact, if the

proportionate expenditure for the year 2007-08 and 2008-09 had also been included in the above expenditure, the average expenditure per graduate would have been still higher. It may also be noted that, for this study, only learner-centered expenses have been taken into account. If the system-centered expenditure had been included, the average expenditure per graduate would have been far higher— almost Rs. 20,000. Thus we may conclude that the ODL system proves to be cost-effective only when the rate of graduating students from the university stands at a higher level.

CONCLUSION

Like in any other country in the world, Distance Education has come to stay in India to cater to a large chunk of the population which was left uncovered by the traditional universities. The experience of the first open University in India i.e., Dr. BRAOU shows that in terms of enrolment in academic programmes from the years 1983-84 to 2009 -10 the U.G. programmes account for the lion's share as against the total enrolment. A significant fall in U.G. programmes will adversely affect the life of the University.

Examination of the progressive enrolment of the students from U.G. first year to second year and then second year to third year reveals that the dropout rate is very high, more in the first 15 years of the study as compared to the subsequent 10 years perhaps reducing due to the increasing trust in the ODL System.

The number of degrees awarded by Dr. BRAOU, upto the 18th convocation, which was held during April 2010, were only 143840 and accounts for only 13.34 percent against the total number of candidates eligible to be awarded degrees/certificates, which is very low as compared to the conventional universities where the percentage of graduates would be more than 60 percent. With regard to the degrees/certificates awarded at various convocations, it is observed that the U.G. programmes account for the largest share.

As for the academic programmes, the Open Universities need to start more skill-oriented and vocational programmes to stand out as a unique system of higher education.

Finally, from this study it can be concluded that the Open University System can prove to be cost-effective only when the number of graduating students is high.

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2. Vijayalakshmi Pandit, P., *Expanding the scope of Open Distance Learning (ODL) for learning for development in India*, University News, Vol.46, No.14, April 07-13, 2008, p.1.
3. Prasad, V.S, and Venkaiah, V., *India's First Open University-Experiences of two Decades*, Prof. G. Ram Reddy Research Academy of Distance Education, Dr. B.R. Ambedkar Open University, Hyderabad, 2005, p.73.
4. Various convocation reports of Dr. BRAOU.

***LeadIT*: a school based programme providing the “just in time” support required by teachers to improve their use of technology for distance education teaching**

Annie Reid

Abstract

Open Access College has operated the *LeadIT* program as the most effective and efficient way to support and improve teacher use of technology for e-Learning. *LeadIT* involves ten teachers, including the e-Learning Coordinator, each of whom is provided 0.1 release time to assist teachers. The e-Learning Coordinator also facilitates a weekly meeting of the team to develop and monitor PD offerings, assemble and provide advice to other groups within the school in matters relating to e-Learning and to explore and discuss new initiatives undertaken by each of the team members. The program has been operating for five years and has been expanded from involving the senior levels of schooling to encompassing the entire school, R-12.

The context for implementation

The *LeadIT* program was originally initiated by the Coordinator of e-Learning in 2007 as a means to improve the way support was provided to teachers within the senior years of schooling. At this time teachers were expected to be developing subject websites through a learner management system and to be integrating e-learning activities to support student engagement and interaction. New screen capture software was being explored and a core of teachers was engaged in action research to ascertain the outcomes and concomitant value of the new methods undertaken.

While we have come to accept continual change as a given in the context of teaching, a growing gulf became apparent between those teachers who embraced the opportunity to test new technologies and teaching methods and a group who were less inclined to innovate, many of whom were quietly anxious about being left behind. As a consequence this group often felt less inclined to seek assistance for fear of being seen as ‘incompetent’ or ‘lacking’ and this only served to further widen the gap.

Another factor pointing towards the need for a different approach to providing technology support for teachers related to the situation that one person, the e-Learning Coordinator, was nominally responsible for providing teacher support. While this worked effectively when introducing new approaches or technologies through structured PD sessions, one person could not hope to address all the incidental inquiries and support required by teachers as they worked at their desks.

Australia

With groups of 5-9 teachers working in each room the natural solution as far as teachers were concerned was to call on a colleague for assistance and this arrangement evolved into an accepted support mechanism that had the additional benefit of developing a very effective collegiate 'room culture'. The downside was that it was often the most technologically savvy teacher who was called upon most by others in the room.

What was needed was a program of support that coupled the provision of structured group training, most effective with the introduction of new software, with the provision of the 'just in time' support teachers needed to make the new software an integral part of the normal practice.

The aims of the program evolved to:

- increase the use of ICTs across all subject areas and by all teachers
- share practice as a means of ensuring rigor and depth to teaching/ learning
- better monitor issues related to teacher use of ICTs and to develop the most appropriate strategies to support them
- provide 'just in time' support for teachers using technology for teaching/ learning
- recognise and support the existing 'room' culture of collegiate support that naturally occurs between teachers.

Support and more

Establishing a team of teachers and providing them with a small amount of time to support their colleagues was made possible through Flexible initiatives resourcing – an Education Department resource to specifically aid teachers in their work. While the reality is that *LeadIT* teachers provide more than the 0.1 time allocation covers during the course of a year, the perceived personal benefit to being part of the team is considered by the members to compensate.

The application process to become a *LeadIT* teacher requires a one page written application with referees and the selection criteria are as follows:

- proven ability to embed ICTs into teaching and learning programs
- evidence of innovating with ICTs
- ability to work as part of a collaborative team to achieve outcomes
- ability to manage and organise a number of tasks in order to achieve desired outcomes
- ability to be flexible, approachable and supportive.

The selection process is based on merit although the strategic location of the team is taken into account to the extent that at least one *LeadIT* teacher is located in each of four main teaching areas.

LeadIT: a school based program providing the

As well as providing one-to-one support, each term the team develops and delivers a schedule of one hour sessions on a range of different technologies and teachers register for participation at least three days in advance.

Because the *LeadIT* team have opportunities to observe the range of eLearning strategies used by various teachers, they have more recently set up a program of 'eLearning Highlights' to be presented at staff meetings. This involves short presentations from various teachers who are using technology in ways that are effective and that others would benefit from emulating.

Weekly *LeadIT* meetings are used to monitor teacher requirements and to assess the quality and timeliness of support offered to them. At the end of each year an evaluation process gauges teacher response to the effectiveness of the program.

Each year the *LeadIT* teachers choose an area of technology/pedagogy to explore. Once tested for wider application, the software or process may be systematically implemented to expand the repertoire of strategies available to all teachers. Examples of these initiatives include:

- the use of *Articulate Presenter* to enable teachers to create high quality learning objects
- the use of screen capture software to provide feedback on student work, to teach particular software programs and to create screen-based presentations.
- the whole school shift from one learner management system to another (a strategically significant undertaking)
- the use of *Rubicon Atlas* as a means to store and retrieve all teaching programs

As part of the ongoing support for e-learning the team has also made available via the intranet an extensive range of *QikGuides*, illustrated 'how-to' documents.

Conclusion

Successive annual evaluations have endorsed the value of the *LeadIT* program as an effective way to provide for teacher's needs with 'just in time' support. Teachers have supported the continual funding of the program because they know there is an imperative that they stay abreast of technologies that can enhance teaching and learning. There is also a growing emphasis on working together to develop curriculum and maintain the currency of the web sites that support it. Doing one's 'share' as part of the subject team or year level team means being conversant with the range of possible technologies and e-learning teaching strategies that can enrich the learning program for which a team is responsible.

Reflecting more broadly over four years, the *LeadIT* team has also contributed to the smooth implementation of change. Working as a cohesive, coordinated group has made it easier to work with teachers and undertake significant

transitions such as the shift to a new learner management system. This was a complicated undertaking that could have caused widespread discontent and teacher frustration, but careful planning, keeping teachers informed and providing multiple opportunities for PD, ensured a smooth transition.

Other developments that have occurred and had *LeadIT* support include:

- Increased use of Moodle: all senior level and VET courses are now delivered through this learner management system (121 Moodle sites); Middle years have only been using Moodle for the past two years (38 sites); Primary curriculum is being redeveloped and this will eventuate in Moodle.
- Increased use of Centra Symposium: this synchronous online technology is the principal teaching technology in the Primary years and is increasingly being incorporated as a delivery option in the Middle and Senior years.
- Wider inclusion of a range of technologies including VOIP, interactive PDFs and screen capture.

The *LeadIT* program also provides valuable opportunities for the team members. A recent evaluation highlighted the following:

- Acting as a *LeadIT* teacher provides opportunities to develop leadership skills and means personal expertise can be passed on to other teachers.
- The *LeadIT* position involves an expectation of independent research. The group acts as a forum to discuss this research and experimentation and results in a more rapid filtering to teacher colleagues.
- The *LeadIT* position has an element of kudos around the role that gives added confidence to voicing an opinion and offering support. *LeadIT* teachers felt they were more likely to be listened to by leaders because they were expected to show initiative and have some expertise.
- The position legitimates an opportunity to focus on in-depth exploration and to establish networks within the school.

The diversity of skill amongst the team and the fact that they are available at different times makes the program an effective and efficient PD resource. The program provides teachers with a choice about who they can approach for support and in this sense, further caters to teacher's preferences.

The *LeadIT* program has proved its worth. Given the commitment of the team members and the time used by each to innovate and support, the program represents good value for the college from a resourcing point of view.

Some Economic Aspects of Open and Distance Education

Ramesh Chandra

SECTION – I

The application of the principles of economics to the different aspects of education particularly the Open and Distance Education (ODE) has remained a neglected area in the science of economics. Educationists in early days never appreciated the idea that a noble activity like education should be measured in terms of money value. Their view was that 'education is for the sake of education; its aims are to develop the personality and cultivate good qualities like character, loyalty, truthfulness and sincerity etc., in the human beings. It is only during last few years educationists have realised that education which does not solve the economic problems of the educands is a mockery. The economists now feel that education is one of the powerful tools which could help in economic development of a country. Some prominent economists like Prof. T.W. Schultz, Gary S.Becker, John Vaizey, Mary Jean Bowmen, have pleaded for 'investment of education in human capital'. In India, Prof. V.K.R.V. Rao, Dr. A.K. Sen, Dr. Nalla Gounden etc., held the same views. If we study the latest writings of economists and educationists in India, we would observe that both economists and educationists have realized the importance of each other. Prof. Rao, the eminent economists had written " I must confess that I have always held the view that education cannot be treated as an end in itself. It has to be treated as an investment in human resources. At the same time, one cannot think of education only in terms of investment. If we do that we will be in as much difficulty as when we said that education had nothing to do with investment. While, therefore, I have always refrained from taking an extreme position".¹Lala Lajpat Rai, great modern educationist and social reformer, had written, "We have heard a great deal of the desirability of keeping education free from sordid motives.

In season and out of season, we have been told that knowledge should not be sought for and judged by its money value... To me it seems that the whole idea is the result of defective thinking. Neither education nor the resultant knowledge can be end in themselves. Education is a social function, the transmission of the experience and thoughts of others to the recipient. Its value depends on its aims and purposes. An education which does not fit its recipient to increase his productivity, thereby adding to his own usefulness, as well as to that of the society of which he is a member is certainly defective."² From the above quotations, it is obvious that now both educationists and

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1. Singh B. (Ed.) (1967). **Education As Investment**, Meerut, Meenakash Prashan, p.5
2. Rai L. (1966). **The problems of National Education in India**, Publication Division, Ministry of Information and Broadcasting, Govt. of India, Delhi, pp. 94-95.

economists feel the desirability of developing a sound discipline like 'Economics of Education' on scientific lines. In other words, this opens the way for economic analysis in the context of different concepts of economics in the field of education including Open and Distance Education (ODE). This paper, however, limits its scope to discuss a few concepts like 'Investment' 'Consumption' and 'Savings' used in economics vis-à-vis their application in the field of education including ODE. Further, the paper invites the ODE planners to view their field from a different lens of vision to make their programmes more popular and effective.

SECTION II

ODE as Investment or Consumption- A Distinction

To understand whether ODE is investment or consumption, the logic put forwarded by Arther Lewis (The Theory of Economic Growth, p. 183) and John Vaizey (Economics of Education, p.26) that all goods and services can be divided into investment or consumption or both. This hold true with ODE also. All education, including ODE, if it helps in accelerating economic growth, can be called as investment aspect of education. On the other hand, if it does not meet this particular objective but simply gives mental satisfaction to recipients, can be called as consumption aspects of education.

Though it is very difficult to distinguish between the investment and consumption aspects of education, by and large it has been accepted that education in relation to economic development, at micro or macro level, is investment. In other words, when we say education including ODE is investment, we emphasize that recipients have acquired the productive capacity which may help in raising the income of individuals or country. Dr.Rao states, "when we say that education should be related to development, what we mean is that as a result of training given in educational institutions, the pupils acquire productive capacity; they would be in a position to add to the sum total of production, and in fact produce much more than they would have done in the absence of education". The belief that education increases the productive capacity has also been supported by Professor Kindleberger and some other economists; and it has now acquired wide acceptance. 'It has been estimated that a number of countries having divergent backgrounds, only about 1/5th to 2/5th of the annual increment in the national product may be the result of investment in the traditional factors of production, namely, land, capital etc. This means that investment in non-traditional factors (and education would be, perhaps, the most important one in this group) contributes something between 3/5th to 4/5th of the additional annual flow of output in the countries'.

From this it would not be wrong to conclude that education, including ODE, by and large, is an investment not simply consumption. This is more applicable to developing countries where education has to play an important role in the development process. In such countries, theoretically, consumption portion is always kept less and education wheel is placed on the lines of fast economic growth. It has been observed that these countries lay more emphasis on

technical and vocational education. Because of this, some economists have come to the conclusion that technical education is investment and general education is consumption. This is perhaps the result of wrong thinking.

In fact general education is also necessary to support technical education. One is not complete without the other. **When ODE is geared to the needs of the development of the country, it will be categorized as 'investment'; however, if this point is not taken care, the ODE will be treated as 'consumption' aspects of education.** Hence the education planners of ODE may take extra pains while designing the teaching-learning process of ODE.

ODE as Investment in Human Capital

The concept of Human Capital in relation to education is always central and interesting and also important to other branches of education like ODE. When ODE is treated as investment in human beings, it creates assets in the form of knowledge and skills which increase the productive capacity of learners in the same way as investment in new machinery raises the productive capacity of the stock of physical capital. ODE as investment in human capital (i.e. learners) will give benefit to the receiver in the form of higher income and also to the society as a whole. "It is a well established fact that educated workers earn higher wages or salaries than those who are illiterate or those who have completed less education or have lower educational qualifications".

Although the above thinking about education as investment in human capital is relatively new, education for economic development by its very nature is an investment in the people'. This was recognized almost three hundred years back by the renowned British Political arithmetician Sir William Petty who emphasized the money value of human beings to society. Other economists also stressed the need of human resource in development. For example, Adam Smith in 'The Wealth of Nations' tried to point out the importance of education and included 'the acquired and useful abilities of all the inhabitants or members of society'³ in his concept of fixed capital. Alfred Marshall considers education "as a national investment" and thinks that "the most valuable of all capital is that which is invested in human beings"⁴. Modern economists, however, could not pay much attention to this part of inquiry as the classical economists did, but in recent years again Prof. T.W.Schultz, Gery S.Becker, Harbison and Myers etc, have started taking interest in the subject. As Mr. Halter W. Haller puts it : "It is only in the last few years, there has been a revival of interest among economists in the subject of human capital and its productivity, as distinguished from labour and its utilization There was an earlier time when economists were quite concerned with the value of human capital. They not only wrote about the subject, but made valiant attempts to measure and quantify"⁵ .

3. Smith A. (1937). **An inquiry Into the Nature and Causes of the Wealth of Nations**, Cannanod, Random House, Inc. Book II pp. 265-266.

4. Marshall A. (1930). **Principles of Economics** (8th ed.), Macmillian & Co. Ltd. London, pp.216 and 564

5. OECD (1965). **Policy Conference on Economic Growth and Investment in Education**, Washington, p.30.

ODE and Human Resource Development

Human resource development through ODE means the process through which knowledge, skills, and capacities of learners could increase. In other words, it is an accumulation of human capital which has important role in effective investment in the development of economy. ODE when planned according to the man/women power need leads to the augmentation of stock of skills, knowledge and understanding possessed either by individuals or by society as a whole. The economists therefore concerns the manner in which choices affecting the stock are made, both by individually who demand education and by the teachers and institutions which supply it"⁶. The human resource development could be achieved through ODE, by acquiring on the job training and knowledge, skills etc., for the quest of the self development. Education (including ODE) in relation to human resource development, which has been made with a view to accelerate economic growth, is certainly an investment, but the process cannot be explained solely in economic terms. It has consumption aspects also. Frederick Harbison writes "It is incorrect to assume, even as an analytical exercise, that the central purpose of human resource development is to maximise man's contribution to the creation of productive goods and services.... And increase in productivity certainly should not be taken as the exclusive test of the effectiveness of human resource development"⁷.

There need not be any conflict of views between economists and humanists on this problem. If a country, as it is found in majority of the cases, aims at rapaid economic growth, the programmes of education in relation to human resource development will have to be designed keeping in view the needs of the economy. However, if it neglects to relate human resource development to the needs of the society, it cannot make significant progress. This does not mean that human resource development programmes completely reject the ideas of 'education for citizenship', 'life adjustment', 'freedom', 'dignity' etc. These aspects of education are also important and play a significant role, may be indirectly, in rapid economic growth. ODE aims at achieving both the objectives.

ODE and Returns

As stated earlier, educators have traditionally resisted that their discipline be viewed from price and efficiency. However, Schultz said that analysis of price of education does not debase it. 'Because the rate of return of investment in education are higher than involvement in non-human capital ... there seems to be a close relationship between education and earnings'.

The investment aspect of education is connected to increase of individual income and increase of aggregate production. To put the same in the language of economics: any expenditure which has not been done with production motto

6. Johnes G. (1993). **The Economics of Education**, Macmillan Press, London, p.1.

7. UNESCO. (1964). **Economic and Social aspects of Educational Planning**, Paris, pp. 60-61

cannot be called as investment. The expenditure should also be looked for a positive return; otherwise the process of that particular type of investment cannot continue for a longer period. The idea is connected with the 'returns on education'. We however, will not go into the details of whole concept but limit ourselves to the points raised above. The justification for allocating the resources on education (including ODE) is to increase the life time earnings of the recipient. Some calculations have also been made to find out the average earnings over a life time in different occupations. It is found that greater education helps in getting greater income. The studies have taken two sets of data in one organisation with the difference in the quantum of education. They have come to the conclusion that earnings vary as the level of education varies. The studies of Dr. H.F. Miller, (appeared in the American Economic Review), S.G. Strumilin⁸ and Bridgman⁹ also discuss about the returns on different levels of education.

As regards, the role of education in increasing the aggregate production, studies in the field have shown that there is a positive correlation between education and GNP; which means the increased expenditure on education is likely to raise the country's GNP. The improved education makes a significant contribution to economic growth and increases the GNP at a faster rate in comparison to any other input which may fall in the category of 'residual factor of economic growth'. The studies of Harbison and Myers, who worked out composite indices of human resources and compiled the data of 75 countries including India, found "significant correlation between the indices of enrolment and GNP." Denison¹⁰ who studied education in relation to the degree of increase in economic growth had found that education played a major role in the overall economic development. Bowen pointed out that there is a positive correlation between education and GNP and further observed that "the same correlation can also be viewed as evidence in support of the proposition that education is an important consumer good on which countries elect to spend more as their GNP rises¹¹. This, however, is to view education from two different angles.

ODE as Consumption

So far in our discussion we have tried to explain the various investment aspects of education. Now we may discuss in detail the consumption aspects. When education and for that matter ODE is received purely for the sake of enjoyment, which does not increase the productivity or income of the recipient and his education, does not result in any additional output, it is consumption. In education there are some subjects which increase the skills of students, but there are also some subjects like dance, poetry etc. which are enjoyed, or the

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8. See Strumillian G. (1924). **'The Economic Significance of People' Education**, Leningrad.
 9. Bridgeman D.S. (1960). **Problems of Estimating the Monetary Value of College Education in the United States**, The Economic Problems. (Other details not given.)
 10. E.F. Denison. (1962). " **The Source of Economic Growth**" in the **United States and the Alternatives before US**", OECD Supplementary Paper No. 13.
 11. Bowmen M.J. (1963). quoted in **Robbins Report on Higher Education in UK – Education As Investment**.

subjects which help in enjoyment of the recipient. This part of education should be regarded as consumption. "Education can be regarded as consumption *per se*; like other types of consumption, it satisfies the need of the consumer." Like other types of consumption, it is also subject to alternative preferences. In societies where education is provided mainly from public funds, the citizens as tax payers make the choice between various types of consumptions belonging to private and public domain. The choice is made in both the categories because of limited budget and resources. This idea arises because education is looked upon as current consumption. But education cannot be considered solely as current consumption; it is a durable consumption asset. It is not 'consumed' once for all, but in fact it has the everlasting affect.

Another thing about the consumption of education which H.M. Philips writes supporting the view of leading economist J.S. Mill that the only item of consumption which is not subject to the 'law of diminishing utility'. In other words, the thirst for having more education increases, as one start consuming education. Mr. Philips further writes, "it would be more unlikely for anyone to claim he had all the education he could usefully possess. Indeed the evidence is the more education people have the more they want" ¹².

One more important point which is worthwhile to mention here is that the consumption of education influences the other types of consumptions. We come across daily that due to consumption of education, people change their taste, fashions, and the brands of house-hold goods. Their mere reading for enjoyment sake has its effect on the daily consumption items. The resources spent on the consumption of education must be regarded as an end in itself. Like nutritious food which is good for health, the consumption of education is also advantageous to society. In fact, such consumption becomes necessary for development of a welfare state. "We may regard education as complementary, from welfare point of view, to economic growth ... growth becomes more meaningful for welfare if the future consumer has better education." These views were expressed in the OECD Conference on Economic Growth and Investment in Education held at Washington from 16-20 October, 1961.

Though we have discussed separately the various investment and consumption aspects of education, it is very difficult to draw a line between the two. Every education has both the aspects, so is the case about ODE. It is the difference of degree which makes us visualise it as investment or consumption. 'For example, the subjects like painting, music etc. may have been taught as ends in themselves (consumption) and the same may lead another person to appreciate the enjoyment of music (consumption) but may lead or inspire further another person to produce a new thing in music, which he would have not otherwise produced (investment)¹³. The same education has both

12. Philips H.M. (1961). **Economics of Education**, Indian Journal of Educational Administration and Research, Ministry of Education., Vol. II, No. I, p.14. (Date not available)

13. Hagg Ernest van den. **Education As An Industry**, Augustus M. Kelley, New York, Memo.

investment and consumption aspects and it is difficult to indicate which part of education is investment and which is consumption.

In the same way, it is difficult to distinguish expenditure on education as investment or consumption. Some people have suggested that 'the value of education as consumption may be deducted from the investment (total expenditure) in education' and the remaining portion can be designated to productive expenditure (investment). This treatment will be not only misleading but may lead to confusion also. Too much emphasis to measure in quantity of 'consumption' and 'investment' from the total expenditure on education is neither desirable nor possible for an economist when he deals with subjects like education. In support of this, we may quote Alfred Marshall who writes "wisdom of spending public and private funds on education is not to be measured by its direct fruits alone. It will be profitable as a mere investment, to give the masses of the people much greater opportunities than they can generally avail themselves ofAnd the economic value of one great industrial genius is sufficient to cover the education expenses of a whole town...."

This issue under reference is not only discussed individually, but talked in many conferences and seminars also. Simultaneously in these conferences, the controversy whether more money should be spent on the investment or consumption aspects of education was critically examined. Theoretically speaking there seems to be no difficulty, but in practice it has been found that expenditure on education is done on account of dual demand. If education was only consumption, we would [have] restricted our studies to the behaviour of people as consumers, and we would try to estimate and explain their demand for education. To the extent that education is investment, we would like to know the return and among other things its contribution to economic growth". In this connection the OECD Conference referred above also remarks: "The conference had a full discussion of whether expenditure on education should be viewed as consumption or investment. It was accepted that these two aspects of educational spending could not be disassociated and that increased spending on education would be in response to both demands."

Since it is difficult to separate the investment and consumption parts of education, it is not desirable for us to lump all the education, under the heading of "Investment" or under "Consumption." 'Education has both the important components; whereas 'investment' is needed for the improvement in economic lot, the 'consumption' is needed for the improvement in the quality of life. 'Further, education is both a means and an end. It serves a variety of purposes. It satisfies the need of individuals and at the same time of society. It is a powerful source for social change and economic development of a country.' ODE is faithfully saving these purposes.

SECTION III

Savings aspects of ODE

In the earlier sections, we discussed economic concepts - investment and consumption and their application in education including ODE. In this section,

we shall try to understand the savings aspects of education – an area in economics of education which has been completely neglected so far. The economists, in their main discipline (i.e, Economics) have recognised the importance and relationship of consumption, investment and savings; they used the former two concepts also in the field of education, but did not try extensively the third concept in education. However, there are certain elements which may be called as savings aspects of education.

First, what does 'savings' means in Economics. Generally it "means a curtailment of consumption; and its economic importance lies in its relationship to investment, that is production of real capital...." In other words it means all foregone present consumption is not savings but only that part which is kept in reserve for further production. In the same manner, the education which is kept in reserve for further production may be called as **savings of education**. This could be made more clear from an example. Suppose, a well planned country (it should be educationally planned also), at a particular point of time feels that a particular type of education is not necessary, but may become necessary for production (economic growth) after few years. The recipients of such education are kept in reserve for the period the planners speculated. The period their (recipients) education is kept 'in reserve' would be called 'savings' of education. The idea of saving of education in reserve was that it had a 'productive' element that planners thought would be of great use to the country after few years; hence they did not like to waste their (recipients) talents in other types of jobs. The situation is parallel to the other kinds of savings, which people utilize when there is a favourable market conditions.

One may argue that such a situation has never occurred in the past history of any country, but this does not mean it will also not happen in future. For instance, take the case of "Pool Officers" who came to India many years back from foreign countries on the call of Prime Minister Jawaharlal Nehru when the planning era started in our country.

These well qualified and talented persons of Indian organization were working in the foreign countries. A question can be asked as to why the Government called these people in advance and kept them in waiting. It would be wrong to think that these 'Pool Officers' were unemployed and hence the government was kind enough to safeguard their interests. Were not other educated people in the country unemployed? Then why this favour to a particular section of educated people in a democratic set up? Within the confines of economics, the answer that could be found is that the government was fully aware that the Pool Officers' education was productive and the country might need them in coming years for economic development. As the 'savings' earn interest, Pool Officers were also rewarded with the interest on their savings of education; some notional money was given which cannot be called as remuneration. Because of this fact no cadre or pay scales parallel to the permanent or temporary employees of Government departments were given to them.

The concept 'savings of education' which is being discussed here is not merely theoretical but has practical advantages also. One of the significant advantages

of 'savings of education' is that it helps in checking the 'brain drain' - a serious problem which our country often faces. The flight of talent can be minimized. Such talent can be used for economic development of the country at the appropriate time. Another advantage of 'savings of education' is that it keeps a 'buffer stock' of talented people which could be used as per demand in future. This in one way helps in efficient use of educational resources at appropriate time as per need. The need for savings of education in a planned economy may arise at any time and its future need could be speculated. If the 'savings of education' mode is not adopted in the country, the recipients may go for such jobs in which their talent would not be of much use. In such a situation not only their talents but the money spent on them for some definite purpose also would go waste. And, in future the need for that particular type of human resource would involve fresh expenditure to educate requisite clientele. If we calculate this in terms of money, it would be a great burden on the exchequer of the nation.

While explaining this significant aspect of savings of education in the language of economics, it becomes necessary to make it clear and distinguish it vis-a-vis some other terms also connected with savings that are prevalent in the field of education. In families where education receives high priority, the head of the house-hold saves for education. In such families, for giving better education or giving higher/technical education to their children parents make efforts to save from their monthly budget. Thus **savings for education** denotes the extra amount which is kept in reserve, often regularly, by the parents for the education of their children. Another term often used is **savings in education**. It implies adopting of such practices that may reduce expenditure on education. These practices are often used in a school budget or in national education budget to reduce the expenditure on education.

Hoarding Aspects of ODE

In the context of discussion on the various saving aspects of education, it would not be out of place to think whether there can be some hoarding aspects of education. In economics, savings and hoardings are discussed simultaneously. Within the education, there are certain aspects which may be called **hoardings of education**. Hoardings, in economics, means that part of savings which is not utilised for further production. In a lay man's language, hoardings are the idle savings from which no fruit could be earned. In the same way, hoarding of education is one from which no direct advantage could be received. In other words, the recipient of education does not utilise his education after its completion and thus there is no significant difference in the state of affairs before and after the period of completion of education. This could be made clearer from an example. Suppose a well talented and educated child of some millionaire, receives a certain type of productive education but do not seek any employment or do not contribute towards production, his education may be called as the hoarding of education. The reason for using such a term is obvious. Education of a well talented person

by and large should give direct benefit and help in further production, but this has not happened in the example cited above.

Perhaps it would be wrong to call such education as wastage. There is a clear cut difference between these two terms because of their underlying meanings and definitions. It is not necessary to explain the term wastage of education here because it does not come within the scope of this paper. The hoardings, through proper incentives could be mobilised in savings and channelized for investment purposes, so is the case of hoarding of education which could be mobilised and brought to the employment market on various incentives. However, it depends upon the hoarder of education, how much incentive and in which form the recipient wants so that his/her education may become productive in economic sense.

The same logic could be applied in the case of ODE learners. Most important thing for the ODE will be to get away from the beaten path of formal education. It has been seen that ODE, in majority of cases, embraces the teaching-learning processes which seems to be the extension of formal education. On the other hand, the ODE programme should be 'demand based' and 'cost effective'. A recent book on '**Economics of Distance and Online Learning**' edited by William J Bramble and Santosh Panda (2008) "provide a comprehensive overview of distance and online learning from the point of view of economic planning, costing and decision making management ... the book has solid contribution to the small but growing body of knowledge on economics of distance learning"¹⁵. The system may produce talented learners: The talented ODE learners can be designated as "Pool Officers" or "Pool Experts" if immediate employment opportunities are not available. As in the long run the economic commodity fixes its price with the forces of demand and supply, the educational demand and supply will also help in absorbing the educational product of ODE.

Conclusions

From the above discussions, it is clear that there is an urgent need of ODE system to contribute in the nation's prosperity and economic growth. With this basic idea, education in general and ODE in particular has been regarded as an investment in human capital. It will be wrong to think that education is merely an investment and has no consumption aspect. Such a water tight compartment is not feasible. However, because of the limited resources, our choice should be in favour of investment rather than consumption.

Economists have well recognised the importance and relationship of investment, consumption and savings in their main discipline viz., Economics. In education, they have been applying the concepts of 'investment' and 'consumption', but have not made use of the third one viz., 'savings'. There

15. Bramble J.B. and Panda S. (Eds.) (2008). **Economics of Distance and Online Learning**, Reviewed in 'The American Journal of Distance Education', Vol. 22, No. 4, Oct-Dec. p.229.

is an urgent need to apply the concept of 'savings' in education so that many problems discussed earlier could be solved. Beside this, "more research is needed in estimating [economic] social benefits of schooling [including open and distance education] It is still an underdeveloped theme in literature and remains a research priority"¹⁶.

16. Brewar D.J., Evan P.J. and Patric J. Mc Evan (Eds.) (2010). **Economics of Education**, Elsevice Academic Press, Amsterdam, p. 49.

Augmenting the Universalization of Secondary Education Using Computer Assisted English Language Learning: the ODL Way

Dr. Pranita Gopal

Abstract

If Universalization of Secondary Education is to be achieved across India, **not** tapping into the potential of the various ICT options available for and in the classroom would be a grave error in judgment. Today computers in the classrooms have changed the dynamics of the teaching learning process. They have become vehicles that aid both the teacher and taught to facilitate their own learning processes. With its multimedia capabilities and large storage and processing capabilities a small desktop computer can act as a delivery machine as well as a developing platform. Computer-Assisted Language Learning (CALL) is a form of computer-based accelerated learning which carries two important features: bidirectional learning and individualized learning. CALL materials are used in teaching to facilitate the language learning process. This paper draws attention to how using computers will break the barriers of access, equality, relevance and various curricular aspects with respect to English language learning especially in India where there is a dearth of qualified and well versed language teacher. The paper also discusses how using computers a language resource center can be created in various districts across India, where teachers can themselves develop language learning material and exercises on computers. The paper presents ideas on how these material can be delivered to the student and how students can engage English language learning using the ODL system – either in the form of a **blended approach** or via the distance learning mode. The paper further presents a study done on learning English Grammar through Computers by students of Class IX students at the Army Public School Delhi Cantt who although were enrolled in a formal learning environment, yet they completed the concepts of English Grammar following the ODL approach.

Introduction

Computer-Assisted Language Learning (CALL) is a form of computer-based accelerated learning which carries two important features: bidirectional learning and individualized learning. CALL materials are used in teaching to facilitate the language learning process. CALL can be used to reinforce what has been learned in the classrooms. It can also be used as remedial to help learners with limited language proficiency. Depending on its design and objectives, it may include a substantial interactive element especially when CALL is integrated in web-based format. It may include the search for and the

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investigation of applications in language teaching and learning. Except for self-study software, CALL is meant to supplement face-to-face language instruction, not replace it. The design of CALL lessons generally takes into consideration principles of language pedagogy, which may be derived from learning theories (behaviourist, cognitive, and constructivist) and second language learning. CALL's origins and development trace back to the 1960's. Since the early days CALL has developed into a symbiotic relationship between the development of technology and pedagogy.

Computer Assisted English Language Learning and Universalization of Secondary Education in India

Broadly the four pillars on which the CABE Committee on Universalization of Secondary Education sought to build the edifice of Universal Secondary Education were Access, Equality, Relevance and Curricular aspects. These four aspects are actually the pillars in edifice of Secondary Education in India especially when we talk about English Language Learning vis a vis Secondary Education. Although English is an international language, it holds the promise of being a language that aids in societal and economic upward mobility. It is for this very reason that parents all over India – rural or urban – prefer to send their children to an English medium school or at least educated their child in the English language. The problem with the learning of English is not the absence of motivation or language learning capability or capacity, but it is the absence of qualified teachers across the nation who can teach English so that this language can be learnt in all the four functional skills of *reading, writing, listening and speaking*. It is here that Computer Assisted Language Learning as a pedagogical option can play a vital role can aid in the Universalization of Secondary Education especially in India.

The CABE Report envisages Access to Education in physical, social, economic and cultural terms. In India, Computers in the English Classroom can help in providing access to English language learning opportunities. In terms of physical access it can be the teacher that can read with correct pronunciation and intonation (essential component to reading and speaking skill) and even provide individual learner control lessons in case a learner requires more assistance. The computer can also act as a support to the teacher to brush up her speaking and reading skills. With computers becoming cheaper by the day many parents are able to easily provide their children with multimedia enabled computers; and places where parents are unable to provide one-schools with government funding are able to procure them for their schools.

Equality to education comes in various facets: gender, economic disparity, cultural and linguistic diversity, religion etc are to name a few. Computers in the English Language classroom can ensure, as it is just a machine that will work the same way if a male or female operates it. It doesn't understand the various divisions that exist in the society; hence the learner does not face any problems of inequality in terms of access to knowledge.

The CAGE Committee also opines that ‘...no education today can be accepted as being relevant unless it (a) helps in unfolding the full potential of the child; and (b) plays the role of linking the development of the child with the society and its political, productive and socio-cultural dimensions. We would like to list five domains in which the developmental role of education can be envisaged: (a) building up citizenship for a country that is striving to become a democratic, egalitarian and secular society; (b) interdisciplinary approach to knowledge, concept formation (not just piling up information) and its application in daily life and attributes such as critical thought and creativity; (c) evolving values in a plural society that is, at the same time, stratified and hierarchical; (d) generic competencies that cut across various domains of knowledge as well as skills; and (e) skill formation in the context of rapidly changing technology which demands formation of multiple skills, transfer of learning and ability to continue to unlearn and learn ...’ Teachers are burdened with many tasks and hence are unable to link classroom practices, syllabi and practical daily applications and thus are unable to provide the larger picture most of the time. This generally leads to a greater disinterest in students and the need to study various curricular aspects is generally lost. Using the computer, along with the teacher can spice up the learning process by providing sufficient practical-day to day-activities to the learner, this would also convince the learner about the relevance of what is being taught and the necessity to learn what is being taught.

According to the *Rashtriya Madhyamik Shiksha Abhiyan* (Pg 31)...the main reasons for failure in exams of a large number of students are their limited understanding of concepts in Mathematics and Science and their weakness in English. Computers can help students overcome their weakness in English (even Science and Mathematics) by being a tutor and a teacher and in order to utilize the potential of this machine, a lot of courseware or instructional material needs to be developed, to which students can have access to it.

Learning Resource Centre for English Language Learning

Children of India whether rural or urban deserve the right to education as given in the Indian Constitution. It is the responsibility of teachers across the country that they ensure that this right takes form and shape. In order to make this happen, teachers across India need to share their resources –both language teaching and classroom management strategies. Computers in this accord can help the teachers share, edit and manipulate resources to suit their local needs. Setting up resource centers is one of the strategies that the *Rashtriya Madhyamik Shiksha Abhiyan* recommends for Universalization of access to and improvement of quality at the secondary and higher secondary stage.

Setting up Computer Based English Language Learning Resource Centre

Setting up a Computer Based English Language Learning Resource Centre is not a very expensive or resource exhaustive task, instead commonly available multimedia computers itself help **produce** the language learning material made

by the teachers and also **deliver** these materials to the student. With the internet connection the materials that are developed in a particular place can be shared with teachers and schools of another place. In this manner a central pool of resources are developed and that pool of resources can be accessed by both the teachers and learners according to their own need.

Table 1: Computers and Language Learning Material Development and Delivery

Language Skill	Hardware Component of the Computer	Software Options in the Computer
Aural Skill	<ul style="list-style-type: none"> Speakers: for a larger audience Headphone: for a single user 	<ul style="list-style-type: none"> Media Player that comes with the operating System (for example Windows Media Player in the Windows OS, Songbird in Ubuntu)
Oral Skill	<ul style="list-style-type: none"> Microphone: to record oral speech sample Headphone or Speakers: to hear the recorded samples 	<ul style="list-style-type: none"> Audacity or any Sound Recording Software that comes with the operating system. Such software also allow editing the recorded sample
Writing Skill	<ul style="list-style-type: none"> Key board: to type data Monitor: to view the typed data Memory Disk: to save and transfer the data Printer: to print the data 	<ul style="list-style-type: none"> Word Processing Software like MS Word, Open Office Writer etc can help language students record their writing samples in the language they are learning Desktop Publishing Software like MS Publisher, Scribus for Linux etc. Presentation Software like MS Power Point or Open Office Impress, to make Presentations on content areas.
Reading Skill	<ul style="list-style-type: none"> Monitor: to view the samples Printer: to take print-outs of the sample 	<ul style="list-style-type: none"> Reading comprehension activities can be conducted using the Internet Browser, where the students can read the passage and then attempt to answer questions based on that.

Teachers can become material developers to suit their local classroom needs. They can use the following software options to create material for their English Classroom. These software are not only freely available but also are very user-friendly. Also these software can be taught during the various in-service teacher training programs for the Universalization of Secondary Education. Material developed during these in-service programs could also be shared and modified by the teachers.

- Hot Potatoes:** Hot Potatoes is a program that you can use to create cloze exercises, crossword puzzles, multiple choice, matching, and mixed form activities. Research (Chapelle, 2001; Ellis, 2005) points to the need for providing English Language Learners with opportunities for language input, making language salient and focusing on form. Through the use of Hot Potatoes English Language Learners can work with language they

understand while creating and using quizzes, games and activities to make the language real for them.

- **MS PowerPoint or Open Office Impress:** This presentation software can help the teacher create interesting content rich teaching aids or interactive games.
- **Movie Maker Software:** This software can help the teachers of English, develop their own videos, that they could use in their English Classroom to help students learn the language.
- **Audacity:** This software can help the teacher create, record, edit and share language samples; to teach the students correct pronunciation and intonation patterns in English.

Open and Distance Learning Approach to Language Learning

Open and distance learning (ODL) combines two forms of education – open and distance – that focus on expanding access to learning. It is characterized by two factors: its philosophy and its use of technology. Most ODL systems have a philosophy that aims to:

- remove barriers to education
- allow learners to study what they want, when they want and where they want.

The ODL system aims to increase educational access and educational choice by using technology as a mediator in the learning. The technology could be in the form of radio programs, computer programs, audio and video programs or interaction and discussions over the internet.

Distance learning is an educational system in which learners can study in a flexible manner in their own time, at the pace of their choice and without requiring face-to-face contact with a teacher. (Shelley 2000).

Distance language programmes include a wide range of elements and practices ranging from traditional print-based correspondence courses, to courses delivered entirely online with extensive opportunities for interaction, feedback and support between teachers and learners, and among the learners themselves. In the last decade research and documented accounts of distance language learning opportunities have come from Italy (Cusinato 1996), Finland (Tammelin 1997, 1998, 1999), Thailand (Vanijdee 2001, 2003), Korea (Dickey 2001), Hong Kong (Hyland 2001; Leung 1999), Australia (Möllering 2000) and New Zealand (White 1997, 2000; Garing 2002). Some of these accounts relate to small-scale trials with fewer than ten students; others concern large-scale programmes that have evolved over many years with up to 5,000 learners in a single course.

Many of the key issues for distance language learning, however, relate to human factors which are common to both hi-tech and low-tech environments – factors that arise as learners attempt to establish and maintain an effective

means of working within a distance learning context. The central argument developed here is that in order to understand language learning in distance education, it is crucial to maintain a focus on those who are most involved, the actual learners, and to explore the ways they respond to the demands and opportunities it presents. Technology provides an opportunity to address these diverse issues with ease. Providing the learner with structured language learning material can help them augment skills of the language.

Objective of the Study

To study the Effectiveness of the developed Computer Assisted Instructional Material (CAIM) in English Grammar in terms of Achievement in English and Written Expression Power in English separately.

Hypothesis of the Study

The Hypothesis of the Study was worded as *there is no significant difference between Pre-test and Post-test mean scores of Achievement in English of students taught through developed CAIM in English Grammar.*

Sample

The study was conducted on the students studying in Class IX and X in Army Public School, Delhi Cantt.; a CBSE affiliated school situated in New Delhi. Although this school was randomly selected from the various CBSE schools in Delhi it had an advantage of having the same management as the researcher's institution – Army Welfare Education Society. There were 6 sections of Class IX and 7 sections of Class X. The total strength of Class IX was 259 students and that of Class X was 243 students. From six sections of Class IX, two sections were selected randomly and called Control Group. From the remaining four sections of Class IX and seven sections of Class X students, who has multimedia enabled computer at home, constituted the Experimental Group. Both the Control and Experimental Group comprised of males and females. The Group-wise, Class-Wise and Gender-Wise distribution of students is given in Table 2.

Table 2: Group Wise, Class Wise, and Gender Wise Distribution of Students

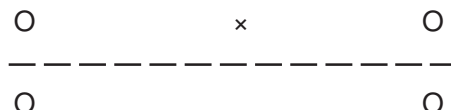
Group	Class IX		Class X		Total
	Male	Female	Male	Female	
Experimental	26	17	36	03	82
Control	50	30	-	-	80
Total	76	47	36	03	162

All the students were wards of the Army personnel and belonged to different parts of India. They were in Delhi because of their father's professional commitments. In both the groups, students had different mother tongues and

were learning English as a Second Language, even though English was the medium of instruction in the school. During the experiment the medium of instruction in both the groups was English and the CBSE prescribed syllabus in English Grammar and Writing Skill was followed.

Experimental Design

The study followed the **Non-equivalent Control Group Design**. The layout of the design was as follows:



Where, **X** was the treatment given.

Tools

Achievement in English

The Achievement in English was assessed with the help of Achievement in English Test constructed by the researcher. Since, the Achievement in English mainly dealt with English Grammar, thus, the researcher chose to use objective type questions to assess this variable. There were 142 questions, each carrying 1 mark. No mark was deducted for an incorrect answer. Of the 142 questions: one question of the Knowledge level; 45 questions of Comprehension level; and 96 questions of Application level. Since the aim to learn grammar is to understand and apply the rules to be used during communication, so there were more application level questions followed by the comprehension level.

Grammar can be learnt at two levels: the Word level and the Sentence level. At the word level, students learn about various word functions (parts of speech) and at the sentence level, they learn about various forms and types of sentences, tenses and voices. Words combine to form sentences, thus, the knowledge about word functions is very essential in the beginning i.e. at secondary school level. Hence maximum questions (totalling 112) in the Achievement in English test belong to the area of word functions (parts of speech – from Nouns to Interjections).

Achievement in Written Expression Power in English

The variable Written Expression Power in English was studied using Short Answer Type questions, where the students were made to write in various formats like a letter, notice, article, diary entry and message writing. All these formats have their distinctive grammar and style of writing. In order to write and express their ideas in these formats, the students need to learn, understand and apply the various aspects of sentences, like tenses, active and passive forms of sentences.

There were one question each on Notice writing, Message Writing, Diary entry, Article and Letter to the Editor. The students were given 3 hours to complete

the test which covered two variables- Achievement in English and Achievement in Written Expression Power in English. As the Achievement in Written Expression Power in English was studied using short answer type questions, to maintain the consistency in scoring, rubrics were designed and modified to suit the purpose.

Scoring rubrics are descriptive scoring schemes that are developed teachers or other evaluators to guide the analysis of the products or processes of students' efforts (Brookhart, 1999). Scoring rubrics are typically employed when a judgement of quality is required and may be used to evaluate a broad range of subjects and activities. One common use of scoring rubrics is to guide the evaluation of written communication like letters, articles, diary entries etc (Brookhart, 1999). Judgement concerning the quality of a given write up may vary depending upon the criteria established by the individual evaluator. One evaluator may emphasize the linguistic structure, while another evaluator may be more interested in the persuasiveness of the argument. A high quality essay is likely to have a combination of these and other factors. Developing a predefined scheme for the evaluation process reduced the subjectivity involved in evaluating the write up like letters, articles etc (Moskal, 2000). The scoring rubrics used to assess the Achievement in Written Expression Power in English, evaluated the short answer questions based on five broad criteria: Ideas and Content, Organization, Sentence Fluency, Word Choice and Conventions. Each of these criteria was further subdivided in to sub-criteria and a 5 point scale was used to assess each aspect of each short answer question.

Procedure of Data Collection

The data collection began after seeking permission of the school authorities of the Army Public School, Sadar Bazaar, Delhi Cantt., to conduct the experimental study. The students of Class IX and X were divided into Experimental and Control Groups. The students of the Experimental Group constituted the group that used the Computer Assisted Instructional Material in English Grammar, while the students of the Control Group were taught the same content using the Lecture Method. After establishing the rapport with the students, Achievement test for Written Expression Power in English, were administered to both the groups. The Experimental Group used the developed Computer Assisted Instructional Material in English Grammar for 40 days as per their convenience and at their own pace at their home during their summer vacation. They were given the opportunity to work with the material in a Distance Learning Environment, where the researcher was available all through the period via e-mail. The Control Group was taught for 40 days at the rate of 40 minutes every day. At the end of the 40 day period of treatment both the groups were administered the same Achievement in Written Expression Power in English test to get the Post-Achievement in Written Expression Power in English scores.

Data Analysis

For studying the effectiveness of the Developed Computer Assisted Instructional Material (CAIM) in English Grammar in terms of Achievement in English and Achievement in Written Expression Power in English, data were analyzed with the help of Correlated t-test.

Results and Interpretation

Effectiveness of Computer Assisted Instructional Material (CAIM) in English Grammar

Achievement in English was one criterion used to study the effectiveness of CAIM in English Grammar. The data were analysed with the help of Correlated t-test. The results are given in Table 3

Table 3: Testing-wise Mean, SD, r and Correlated t-value of Achievement in English

Testing	Mean	SD	r	Correlated t-value
Pre-test	90.0244	15.40	0.87	6.41**
Post-test	95.47	15.26		

****Significant at 0.01 level**

From Table 3, it is evident that the Correlated t-value is 6.41, which is significant at 0.01 levels with $df = 81$. It indicates that the pre and post mean scores of Achievement in English of students taught English Grammar using the developed Computer Assisted Instructional Material in English Grammar differ significantly. In the light of this, the null hypothesis, namely, "There is no significant difference between Pre-test and Post-test mean scores of Achievement in English of students taught through developed CAIM in English Grammar" is rejected. Further, the Post-test mean score of Achievement in English is significantly higher than the Pre-test mean score of Achievement in English. It may, therefore, be said that the developed Computer Assisted Instructional Material in English Grammar was found to be effective in improving the Achievement in English of students.

The developed Computer Assisted Instructional Material in English Grammar was found to be effective in improving the Achievement in English as well as Written Expression Power in English of students. Researches of Blankenship (1998), Jung (1999), de la Cal-Fasani (2000), Fu (2002), Chiu (2004), Hincks (2005), Sands (2005), Sullivan (2005), Nemeth (2006), Al Shammari (2007) and Hung (2007) showed that the use of computers in language classroom showed statistically significant results. But, the researches of Bilan (1999), Dietz (2003), Oxford (2004), Gonzalez-Mendez (2005), Kaya (2006) and Beard (2007) showed that students performed equally well in both the experimental and control groups. There could be many reasons for this finding. Computers as the medium to deliver of instruction is novel to the students and hence they

tend to pay more attention. The developed CAIM in English Grammar was based on the Cognitive theory of Multimedia in Learning (Mayer and Moreno, 1998; Moreno and Mayer, 1999; Mayer, 2001), hence it helped students to keep their attention on what was being taught. Age appropriate pictures to match the examples and stimulus variation in the audio were some of the strengths of this instructional material that made this instructional material interesting to the students. The developed CAIM in English Grammar was divided into short modules; it helped students concentrate on one topic of English Grammar first and then move to the other topic. After every topic, there was a recapitulation page followed by numerous exercises in various formats, like, fill in the blanks, jumbled sentences, match the following and crosswords; this helped to maintain the interest of the students. The developed CAIM in English Grammar, proceeded ahead only after the learner clicked the next button, this ensured that the learner was active during the whole process. As the developed CAIM in English Grammar was given to the students during their summer vacation, the students used this as and when they felt like, this helped the students choose the best time they wished to learn. Computers cannot replace the teachers, but they can be a good support system to enhance the teaching learning process.

Conclusion

If Universalization of Secondary Education is to be achieved across India, not tapping into the potential of the various ICT options available for and in the classroom would be a grave error in judgment. Today computers in the classrooms have changed the dynamics of the teaching learning process. They have become vehicles that aid both the teacher and taught to facilitate their own learning processes. With its multimedia capabilities and large storage and processing capabilities a small desktop computer can act as a delivery machine as well as a developing platform. The Computer can help deal students deal with problems of equity, access and availability according to their convenience of time and place.

India needs to achieve its goal of Universal Secondary Education. For this purpose, the Indian Education system, needs to ensure that all the students are supplemented with enough learning resources so that dependency on qualified teachers is reduced and yet, learning takes place.

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CONTENTS

EDITORIAL

Inclusive Education : Role of Media and Technology <i>Kiran Karnik</i>	1
Apathy to Distance Learning through Electronic Media in India-need for Curative Measures <i>Manoj Roy.V and Chinmoy Kumar Ghosh</i>	6
Computer Attitude of Educational Professional in India <i>Sushmita Mitra</i>	20
Enrolment, Success Rate and Expenditure in Open and Distance Learning-Experience of the first Open University in India <i>P.Krishna Rao</i>	34
Lead IT : A school Based Programme providing the "just in time" support required by teachers to improve their use of technology for distance education teaching <i>Annie Reid</i>	44
Some economic aspects of Open and Distance Education <i>Ramesh Chandra</i>	48
Augmenting the Universalization of Secondary Education Using Computer Assisted English Language Learning : the ODL Way <i>Pranita Gopal</i>	59

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