

Technology Based Distance Education For Adult Learners -A Case Of Botswana

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ABSTRACT

Technology driven distance education plays an important role in the development of higher education especially in assisting adult learners. In the context of Botswana, the development of distance education and the significance of technology in the delivery process is examined. Finally, the future prospects and the viable technology for the distance education programmes is suggested.

Among different innovative methods of education, distance education mode gained prominence in the development of higher education in recent years. The obvious reasons for this choice are flexibility, economized mode, learner friendly, adults' favourite. Commonwealth of Learning(COL) has been playing a vital role as a catalyst in advocating the use of modern communication technologies in distance education for different clientele. Some developed countries put more emphasis on technology, some go by traditional approach (print media) and others use the combination of latest technology and traditional approaches to complement each other in the learning process.

Technology based distance education is termed as the delivery of courses/programmes through different means of technology. In distance education, technology is used to communicate with the learner instead of depending mainly on the teacher lecturing. Each and every means of technology that is used in distance education will work towards effective communication of information.

In the context of Botswana, the distance education, although dated back 1986 (as a provider), its effective use and expansion is of a recent phenomenon. Pre-tertiary education by distance mode has been in place for quite sometime, but the tertiary education is of a recent occurrence.

The Government of Botswana is committed for the development of distance education through its lead agency (NDP 8) i.e. University of Botswana, the only higher learning institution in the country by adapting the latest developments in distance education

especially technology based and technology supported approaches. Further, the government is willing to strengthen the technology supported distance education programmes. Since the country has a sound economic base, it took deliberate steps to assist adults (be it employed or otherwise busy in the domestic work) through the delivery of technology based distance education.

Technology based distance education will yield more benefits to the learner who can access it at their own pace, time and geographical location. Recently, the University of Botswana and Botswana College of Distance and Open Learning (BOCODOL) have introduced some new programmes and also installed latest equipment needed for the programmes.

In view of the importance attached to technology supported distance education and also on the basis of demand for programmes through distance mode, this paper analyses the following:

- Development of distance education in Botswana.
- Significance of technology based distance education for Botswana.
- Current programmes of operation and their relevance.
- Current status or available means of technology used for distance education.
- Future prospects and the viable technology for distance education programmes.

While analysing the above issues, the most viable technology, among the available technologies, is suggested for teaching and learning through distance education programmes in the country.

DEVELOPMENT OF DISTANCE EDUCATION IN BOTSWANA

The importance of distance education in Botswana was recognized as early as 1966. The need was felt looking at the general level of educational opportunities at all levels i.e. primary, secondary and higher education.

Distance education in Botswana started at two levels, one as a consumer and another as a provider of distance education. The teachers in Botswana received training from Zimbabwe between 1960 and 1965 (Jones 1979) to train about 48% untrained teachers in

Botswana (Jones 1981). In 1986 Botswana became the provider of distance education through the UNESCO Project which was located in Francistown. This programme relied on a combination of residential courses and private study to upgrade 700 teachers (Jones 1979). This initiative led to the establishment of Botswana Extension College (BEC) and its courses were targeted for learners at Junior Certificate (JC) and General certificate of Education (GCE) levels. During 1977, the National Commission on Education reviewed the situation and recommended the necessary provisions to develop education both in formal and non formal set up.

Later in 1978, the Department of Non Formal Education (DNFE) was established in the Ministry of Education, which absorbed the BEC and started functioning as a Distance Education Division (DED) of the DNFE. This Unit was aimed at out-of-school education at Junior and Senior Secondary levels by distance mode.

Later in 1994 the Institute of Health Sciences started the distance education programme to upgrade the qualifications of nurses in the Ministry of Health (Moesi and Mmolawa 1998). At the same time, the University of Botswana was also involved in distance education through its Department of Extra Mural Studies within the Institute of Adult Education (IAE). Although IAE was divided into Department of Adult Education and Centre for Continuing Education (CCE) formally in 1991, the CCE has been active in programming since 1994. Within CCE, Distance Education Unit (DEU) was established with the responsibility of developing distance education programmes at tertiary level.

Later in 1999, the government of Botswana established Botswana College of Distance and Open and Learning (BOCODOL) to take care of pre-tertiary education in the country through distance mode. At the moment the DEU in University of Botswana and the BOCODOL are working hand in hand in the development of distance education in the country. The two institutions have introduced quite a number of programmes and many others are in the pipe line to be introduced at a later date. Government of Botswana is also supporting these two institutions and reiterated its strong commitment in National Development Plans (NDP – 8 and 9).

SIGNIFICANCE OF TECHNOLOGY BASED DISTANCE EDUCATION

In order to provide open access to higher education to all, especially to those disadvantaged groups who could not join the formal system of education due to inbuilt constraints of the formal/conventional system. Open and distance education institutions have been increasing their access to higher education for a larger segment of population

through multi-media instructional system. At present there are 117 institutions offering 31,000 courses in 103 countries (Madhavan, K and Manoj R. 2001). In its mission to reach out to the masses, the institutions have started introducing different technology in the delivery process to make the learners comfortable and to receive education at a convenient time and place as dictated by the learner. Hence the role of technology in distance education delivery process is imminent and thus the whole process became learner-centred approach.

With the advent and advancement in communication technology, the education is becoming high- tech and the instructional changes are taking place. A variety of audio, radio, video, television, teleconferencing, video conferencing, computer technologies etc have become part of the multi media package in teaching and learning at a distance. Radio, Audio and video teaching are considered as old technologies where as video conferencing and computer teaching are high tech/new modes (A.W Bates 1995). The new technology enables the learners to do courses offered from any part of the world with out moving out from their homes.

In the field of distance education most of the institutions adopt different modes of delivery starting from print media as first level development to the present high tech video conferencing and computer teaching as a fifth level development. The modes of delivery have undergone different changes over the years and the institutions are competing to become more learner centred and assisting the learners with more supplementary modes of delivery. Now, the trend is towards the use of new technologies in distance education as a supplementary to the existing systems.

In the context of Botswana, the higher education in the conventional system is taken care by the Government by Supporting with sponsorships. The question is now to assist the disadvantages groups mainly adults in different settings. Most of the adult community who prefer distance education are working force and also those who could not attend to formal system due to distance, time and age factor. Since the country's population is wide spread geographically, the significance of technology as a mode of delivery is the order of the day. Further, most of the young school leavers prefer the formal education. But the adults who wanted to learn at their own pace, time, location,etc., have increased in number. And the majority of learners who enrolled in the DEU/CCE programmes are adults. Even at BOCODOL, the adult community is the majority in their programmes.

Although initially the programmes were supported by print media, the necessity of technology based delivery, of courses, is increasing and at the same time becoming more viable. In addition, the Government is also committed to invest in technology based

distance education as long as it assists the adult community. This was reasoned due to the fact that the adult community is the one which has heavily subscribed in most of the distance education programmes in the country. In addition, it is also the advantage of the technology that delivers the lectures to adults. This process seems initially expensive, but its usage yields far reaching benefits to the learners. By using different technology, we can save on heavy capital costs and on permanent infrastructure. Since the learners are spread over different geographical locations, the technology will help for effective delivery. The different technologies would supplement and complement the other modes of delivery thereby enhancing the learners' skills and eliminate the fear of distance from a classroom teacher. Further, it delivers cost effective and quality education with easy understanding signals.

CURRENT DISTANCE EDUCATION PROGRAMMES IN BOTSWANA

The Distance Education Unit at the University of Botswana is the leading agency for the development of distance education in the country at tertiary level. The BOCODOL concentrates on pre-tertiary levels. At present, these are the two institutions which are actively involved in distance education.

The Centre for Continuing Education of UB has got the following programmes of operation at the moment.

Diploma in Primary Education: This programme was introduced in 2000 with a task of upgrading 11,000 primary school teachers. At the moment there are 2400 on roles.

Diploma in Adult Education: This programme was introduced in August 2003 and there are 30 students at the moment.

Commonwealth Youth programme: This diploma programme accredited by Zimbabwe Open University was introduced in 1999. At the moment plans are at advanced stage to incorporate this programme into University of Botswana.

Bachelor of Business Administration (BBA): This programme was introduced in August 2003 and about 250 students were registered at the moment. The programme was introduced with proper identified needs in the community which are helpful for the economic development of the country. The programme has been well supported by both the government and the employers of the registered learners. The programme is relevant on its own merits and fulfill the goals of the vision 2016 of the country.

BOCODOL is engaged both in Academic and vocational programmes and the courses it is running at the moment are as follows:

Junior Certificate (JC) This programme is offered mainly as out of school education taking into account the dropouts and failures in JC. The students are assisted through the regional centers with necessary support services.

Botswana General Certificate of Secondary Education (BGCSE): This programme is also offered as out of School of Education to assist dropouts and even failures. Eventually the learners complete this course and move upwards into higher education programmes.

Certificate in English for Professional Development: This programme is offered to the interested clientele and mostly to the working people to improve their skills in English for their professional development which will aim at imparting skills and preparing people for better life.

Certificate in Small Business Management: This programme has been designed for Small business entrepreneurs to manage their businesses effectively. The programme is waiting to recruit students in the coming academic year.

Interactive Communication programme: This programme is being prepared for a special purpose to develop and improve the interactive communication processes among the people especially with supervisory cadres and of course mostly for working people. The programme will start recruiting students soon.

In the near future both CCE of UB and BOCODOL would come up with an understanding and mount some new courses in tertiary and pre-tertiary levels respectively.

Relevance of the programmes: The programmes presently run by CCE and BOCODOL have been generated after undertaking proper needs assessment surveys. Looking at the country's economic and educational scenarios, Accounting, Management and Teacher Training Courses are offered by the University. These courses have positive impact on the lives of people and contribute to the wealth of the country. With regard to BOCODOL, the JC and BGCSE are crucial for the people, because there are many students who dropped out from the schools due to many reasons. Thus BOCODOL, takes it as a challenge to assist these groups in the society. The students on the completion of these courses move to higher education courses providing link for continuity.

AVAILABLE MEANS OF TECHNOLOGY FOR DISTANCE EDUCATION

Although distance education and its development is not new to Botswana, the use of technology and its suitable role is the recent phenomenon. As such the role of technology in the delivery of distance education programmes is limited. However, National Development Plan (NDP 9) reassured the Government's commitment on the use of technology in distance education programmes. While the rationale for the use of technology is tied mostly to meet the needs of adult community, its future growth acceptance by the government and other distance education institutions led to a wide range of positive responses from different clientele in the society. The knowledge of technology based distance education should guide all facilitators as they play their roles in sensitizing the importance of technology in distance education. This should further help to understand learners' problems and thus ensure the selection of proper technology to the intended purpose.

In the process of identifying suitable mode of technology, the concerned institution should conduct needs assessment surveys and come up with the proposals to invest in technology. Apart from this, the International Council for open and Distance education (ICDE), Canadian Association for Distance Education (CADE) European distance education network (EDEN) and other relevant international agencies should guide these institutions with the required technology. In the days to come Virtual Universities are bound to become a reality when the institutions make ubiquitous application of new technology to deliver cost effective quality education to learners all over the world.

The Centre for Continuing Education uses the following multimedia approach for educational instruction to increase access to its learners.

- Supplying the printed course material, which is prepared in a self instructional format.
- Providing facilities for contact-cum counseling sessions at the study centers
- Organizing residential sessions/week end sessions for intensive coaching
- Broadcasting radio lessons through Radio Botswana
- Producing audio tapes and availing them to students at study centers
- Providing continuous evaluations through assignments
- Providing laboratory practical sessions in science subjects.

Video lessons: The department is planning to record video lessons in its recently established Audio-Visual Suit and deliver the video cassettes to the students through the study centers.

On-line Communications: In view of the importance that is attached to computer net working, the department is seriously thinking to make some of its courses available through on-line wherever internet facilities are available. The government of Botswana is prepared to invest in this process of development and already internet and e-mail awareness has increased in the country and facilities are available in most places of the country.

Video-Conferencing: This facility at the moment is available with the CCE. The equipment is installed through Education Democracy and Development Initiative (EDDI) project sponsored by USA. The facility is functional and the staff are also being trained on how to use the system and soon the facility will come under effective use.

BOCODOL is also using more or less the same multi media for the delivery of distance education programmes which includes, Print materials, contact –cum counseling radio and audio lessons, assignments, laboratory facilities, etc .The Video programmes have just started to complement the other media which will be very useful for practical subjects. The institution is also planning to introduce computer network to deliver lessons through internet and e-mail. Plans are also underway to deliver some of its courses through T.V. channels.

FUTURE PROSPECTS FOR THE USE OF TECHNOLOGY IN DISTANCE EDUCATION

Before discussing the future prospects, it is desirable to know the different approaches used in instructional delivery.

- **Integrated approach:** In this approach, several media are used together to deliver educational services. This requires to be planned at the curriculum development stage.
- **Complimentary approach:** In this approach, different media are used for different part of the syllabus. In this various media are given assigned roles and this should be planned at the time of curriculum development.

- **Supplementary approach:** In addition to print media, any other media is used as an additional/alternative presentation depending on the amenability. This is used at any stage to enrich the knowledge.
- **Independent approach:** In this approach, any media is used alone for delivery of educational programme.

In view of the above approaches, the best approach is supplementary approach, which is flexible and suitable in most settings. This approach is being used at present both at CCE and BOCODOL.

In Botswana, the future of distance education development lies in the effective use of the following media:

Audio lessons: Audio lessons can be well planned and presented by adding the element of dramatization sound effects, synchronization with music, etc. In U.K open University and IGNOU in India, audio cassettes are extensively used. Audio cassettes can either be mailed to students as part of their learning materials or made available at study centers. The CCE has to double the capacity in this area and dub many lessons on this media. Since, it is easy to integrate the audio lessons into course design and development, the audio technology should play an important role in optimizing teaching/learning activity in Botswana.

Radio lessons: This is another important media used in distance education. Radio has been extensively used for educational purposes all over the world. Although CCE is using this media, it is not enough, and the number of hours per week should be increased to accommodate as many subjects as possible. In fact the UB should negotiate with Government of Botswana for a separate channel in future when the programmes are expanded. This is also very helpful media for adult learners giving the situation under which these adult community live. Since some adult learners are unable to listen to the Radio lessons as the time might be unsuitable, the CCE would arrange to make copies of Radio lessons in the form of audio cassettes and dispatch the same to study centers.

Video lessons: The lessons prepared at the studio setting will be supplied to students through video cassettes. This facilitates everybody, whoever has got T.V and VCRs, to watch these lessons and supplement the print media. Informal feedback suggests that this media will be used extensively because most households have T.V & VCR sets, moreover these can be arranged at study centers at the cost of the providing institution. These lessons are extremely useful for teaching science subject which involve

demonstration, laboratory tests, etc. Besides, the video cassettes have an advantage over television as they enable the learner to have control and watch the programmes according to his/her time, place and pace.

Television lessons: This is another method which can be tried to make use of the T.V channel which is dedicated for the purpose. This is considered to be an effective medium for imparting education as most learners prefer watching television to reading or studying course material. It is one of the most accessible media for open and distance education. Television as a medium has been subject to considerable change since the mid 1980s (Bates 1995).

The U.K and USA were among the pioneers in the world to launch educational programmes through television. The U.K. open University uses television for 35 hours a week and in china the central T.V University uses 32 hours. Thailand Open University and the Athabasca University, Canada uses 12 hours per week. In Japan T.V is used on a large scale for this purpose(G. Ram Reddy 1990). The CCE should dwell on this media and negotiate with Botswana Television for possible telecast of lesson for distance learners. Most of the adults prefer this media because of its flexibility. Apart from personalized viewing, the CCE should establish these facilities at study centers.

Introduction of Interactive Radio Programmes: Another innovation in the radio broadcast has been the element of interactivity. The interactive radio or phase- in-counseling has been introduced by many distance education institutions in many countries. In this process, the students can listen to the lecture by the subject expert and after listening, the learners would have their questions clarified by phoning in.

Computer interactivity and on line teaching: This is one of the latest methods used to increase the accessibility to education by all groups. To start with the Government of Botswana should come forward and invest in this technology by creating this service at the study centers. Later on, in the process of development, the individual learners will have their own computers either at work place/homes. This web based learning will make a world of difference in accessing materials.

VIABLE TECHNOLOGY FOR DISTANCE EDUCATION IN BOTSWANA

The viability of the available or future innovations will be judged against the cost of technology, accessibility, flexibility of usage, suitability to the situation and to the

intended purpose, sustainability and finally the adoptability by the learners and also by the distance education practitioners.

Since Botswana has got a sound economy, the government is more than willing to invest and to create the appropriate technology to assist the distance education programmes. In addition, there is a large adult community willing to enroll for distance education programmes who is in a way wanting to have more supplementary media to understand the lessons. Since most of the adults either dropped from school early or employed with lower qualifications, they want to take the distance mode to upgrade their qualifications. Moreover they are reluctant to the formal teaching methods due to rigidity of the formal system and thereby looking for technology based distance learning.

In the light of experiences with the available programmes, both from the angle of practitioners and learners, the following technology is suggested to be a viable and sustainable media of instruction in the distance education. The suggested media will assist the print media as a supplementary mode and enhance knowledge. The new technologies suggested here have direct relevance in increasing access to higher education through open education system. The new technologies will assist to overcome the barriers of time and in built constraints of conventional systems.

Radio and Television lessons: The CCE should embark vigorously on this technology to increase the access. Informal surveys revealed that Radio and Television lessons will assist the learners to a maximum extent in addition to the print media. The CCE should try and negotiate for a separate Radio and T.V channels for distance education. Further, the schedule of programmes has to be informed to learners well in advance.

Audio video lessons: In addition to the existing audio lessons (tapes), the department has to increase the number of lessons through audio cassettes. Further, the video lessons recording activity should be introduced. The video lessons are quite suitable for practical subjects, by which we can reduce the contact and counseling hours and save costs on these processes.

Computer interactivity and on-line teaching: Since there is potential for this media, plans have to be formulated with the assistance of government agencies to provide lessons through this media. To begin with, all the study centers be equipped with this facility and thereby disseminating instruction from the central point i.e. headquarters which will save on further infrastructure facilities and or contact hours. Since internet, e-mail have come to stay in the life of most people, this computer interactivity will be viable for the intended purpose. Self instructional material can be arranged on CD Rom

or World Wide Web (WWW) to increase the access. The CCE should exploit the computer network with interact facilities to offer on line programmes and bridge the digital divide that exists between the technology haves and technology have-nots (Naresh Bala 2001).

Video conferencing: Since the video conferencing facilities are in place at CCE the programmes should start on this mode. At the moment three centers are connected and due training was imparted to some staff. Although this media is considerably expensive, we need to use this to supplement other modes. Further, this is as good as a live situation or classroom demonstration, because it provides two way communication between the learner and the teacher at the same time.

Training of Teachers:The distance education although not a new venture to Botswana, its progress has been a bit slow due to lack of sensitization among the top level policy making bodies. At the moment both CCE and BOCODOL programmes are supported by mostly print material and skeleton support from audio and radio lessons. To make the above suggested technology as a viable strategy, It is quite imperative that the teachers receive professional training in all these media as the situation demands. Taking into account each media and equipment, the base level team of trainers should be given the skills to teach on this media. This facilitates the teacher to improve and convert their existing expertise into technology oriented and produce quality lessons. Since internet based e-learning is the fastest growing segment (Rastogi:1998) the trained software tutors at the University have to cultivate a culture of continuous web based and live distance e-learning and e-teaching through computer network. Further, a team of specialist staff have to be appointed and establish a audio visual department within CCE. With this, the experienced staff with proper training will make the new technology work positively in assisting adult learners in the whole process of distance education.

In distance education, the use of proper technology will make all the difference in providing effective communication to the learners. With the suitable technology in place, the distance education will become a high quality education compared to conventional education, and will become a preferred mode of education in the present and future settings.

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