

## TELEMATICS AND THE DEVELOPMENT OF OPEN AND DISTANCE EDUCATION INSTITUTIONS (The Zimbabwe Open University)

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Telematics plays a very crucial role in the development of open and distance learning systems as education at a distance is made possible by means of various media which can cover long distances in a short space of time. Telematics in open and distance learning systems refers to the delivery of information from institutions, that is tutors, to distant learners through the use of tele-communications technologies such as the radio, the television, the telephone, video and audio cassettes, computers, satellites etc.

The use of technology for communications purposes was inherent in many pre-colonial and pre-industrial societies all over the world. Africa, since time immemorial, has perhaps been a world leader in distance communication using available local technologies. A good example was the use of the talking drum to send messages to people in distant places while others used the *kudu* horn or the *going*. Advances in technology have now made it possible for two-way communication and interaction between the learner and the tutor to take place even where these are physically separated from each other by long distances. Distance education as a method of teaching and learning is made possible by the extensive use of technical multi-media which provide this vital two-way communication so that the student can benefit from and even initiate dialogue with the tutor and with other learners.

Distance and open learning systems have evolved in response to the demand for access to education at all levels, but specifically post primary and higher education following the democratisation of education in many developing and the more developed countries. Unlike conventional education systems where the content of the subject is mainly communicated by word of mouth in a face-to-face learning situation, modern communication technologies are being used to reach a large number of learners of various age groups and in diverse non face-to-face learning situations at any time. Virtual face-to-face situations can now be created making it possible for audio and visual interaction to take place. In Zimbabwe like in many other countries telematics have created multiple opportunities for disseminating audio-visual information. With low cost satellite-based technologies for example, the areas now covered by radio, television and the telephone has increased tremendously and now covers almost the entire country. With the help of terrestrial transmission networks and satellite-based communication the radio is able to reach the entire length and breadth of the country. With the telephone and its improved versions, people all over the country can reach each other instantly. Telephones with the fax machines have made postal systems more efficient. People from distant places can now send and receive information without any delay in transit. The computer technology brought about tremendous advantages within reach, of the people. Similarly, video text technology adds the possibility of having access to more information by turning the home television into a computer terminal. This technology can retrieve textural information, figures and graphics from remote data bases, and also allow people to have access to various frames of information on their television screens connected to a computer data base. Through wireless transmission people can, without travelling or attending workshops, physically have the same functions done through either audio, video or computer teleconferencing.

Commutation technology is also used to teach. This feature of distance education has proved that learning is possible anytime anywhere and the barriers of time and space to teaching-learning process have been broken. Advanced communication technologies such as videotext, video disc and computers are being used for education in developed countries. Being expensive and sophisticated, these technologies are not frequently used in developing countries including Zimbabwe. Broadcast technology has been and is being used for education and development in the developing countries in general including Zimbabwe.

The importance of telematics in education lies in its student-centredness. The student can use the cell-phone, radio, television, computers, videotext, teletext to increase knowledge, gather, process and store information.

With the growth and availability of electronic media, distance education has taken a very gigantic leap into the area of student support services. They impart education and have two-way pedagogical communication with the learners. Electronic media can give tremendous support to the distance learners. In fact student support is the main stay in the successful implementation of distance education programmes.

Radio broadcasting has been used extensively for education and for development purpose. If the country is to democratise education by bringing it to the doorstep of all citizens of the country, radio can be of immense help in achieving this objective. The television has an edge over radio. In addition to the audio, the actual experts,

subject matter, places, events, etc., can be seen on the television screen. Television is more appropriate for teaching science subjects. Especially through radio and television broadcasts students can come into contact with the most talented teachers of the country and this factor alone can minimise the gaps between the rural and urban students. The use of audio and video cassettes and benefit students at study centres.

Telephone is mostly used for interpersonal communication. For example a students' service hour could be opened so that a student may call his tutor and clarify his problems. The telephone line is used for various communication devices, such as fax, e-mail, computer, etc. It can also be useful if audio-conferencing is conducted for the students.

Computer assisted instruction is very helpful in distance learning. Computer diskettes can acquire, process and store a large amount of information for dissemination.

Teletext and videotext devices are advanced communication technologies. The television can be connected with a master computer and the desired information can be retrieved from the master computer.

The facsimile and the electronic-mail can also be used as a transmission mode of communication and are faster, quieter and less expensive than many of the tools available today. They can remove time and space barriers. The tutor can respond to learners problems while at home and can offer more individualised attention to learners with specific learning needs.

The strength of using telematics in distance education lies in the fact that they contribute well to distance learners' learning activities e.g. in drilling and practising learners in mathematics and language learning - can promote discovery approach to learning.

- They motivate learners psychologically. Use of a variety of media heightens interest and is exciting.
- They help learners get involved. Psychomotor skills are learnt better if practised while watching a film in which those skills are being performed and demonstrated.
- They promote participatory learning.
- They increase learners' concentration on a task.
- They accommodate individual needs and interests especially through computers e.g., programmed instructions are specifically designed for individualised learning.
- They help learners monitor the information input and allow learners the freedom to choose how much information they would like to get exposed to and also enable them to choose their own convenient time to receive any given information.

The radio/audio medium provides easy accessibility, wide coverage, low capital investment and operating cost, easy learner reception, effective thought promotion and easy production.

Television and video provides higher quality of instruction, use of best teacher, provides audio and visual, can cater to the explosive increase in student numbers, cost effective if utilized on a large scale, user for in-service training computers can be used for pedagogy, training and life long education.

### **Choice of Medium**

Bates (1982) in his book entitled, the foundations of distance education argues that the appropriate medium for distance education system has to have the following characteristics:

- Availability in most homes
- Convenience as to whether the student use the medium
- Academic control - can the teacher design the material himself
- Human touch - can the learner relate to teacher via the medium
- Availability of the medium
- Pedagogic effectiveness
- Costs
- Political influences
- Ability to maintain the equipment

Electronic media is not only capable of overcoming the barrier that distance presents, it also changes the very nature of the instructional process. The effectiveness and cost efficiency of educational technology, have prompted distance education institutions to use it extensively to ensure standards and provide quality education.

It is important for educational technologists to endeavour to come up with appropriate instructional technologies, in their own countries that suit the needs of the learners and consider their limitations given the

socio-cultural and economic context of learners. To make the multimedia approach in distance education a success in developing countries like Zimbabwe, an Open University must adopt an appropriate technology to match the profiles of the learners and the study centre infrastructure. As the technologies useful to the advanced countries cannot be adopted for wholesale to other countries situation, there is a need to develop a judicious mix of technologies to make them accessible and affordable to the learners in developing countries.

The very important component of distance education, namely dialogue must be provided. Developing countries that are not in a position to provide such advanced telematics need not feel inferior. As educators in the developing nations consider educational uses of technology in distance education, they need to think critically about the claim that the new technology will be a panacea to their nations' educational problems. Educators in both developed and developing nations need to critically examine the social perspectives of distance education technologies to avoid layering new inequalities of gender, access, education, power, control dependency, and wealth over the old.

Despite the sweep in information technology, the use of technology in education is not uniform throughout the world due to social, economic, political, cultural, and geographical reasons.

The application of telematics in the development of distance and open learning is perhaps best illustrated by the case of the Zimbabwe Open University.

### **The Case of the Zimbabwe Open University**

Zimbabwe Open University realises that distance education is the most viable mode to lifelong education and for self reliance and national development. The origins and subsequent development of distance education dates back to 1980. Ever since independence, the government of Zimbabwe has committed itself to a policy of growth with equity and has recognised that a most crucial element in this nation building is the development of human resources through education and training and education has remained the largest single item of government expenditure for the past 19 years. As a result there were massive expansion at primary and secondary and tertiary levels. Notwithstanding the phenomenal expansion it has not been possible to provide education and training to all who needed it through conventional modes. This pointed to the real need for distance education programmes. Again the economic environment in the 90's has made it imperative for Zimbabwe to find an alternative cost effective delivery method. The William Commission Report (1989) argues that distance education programmes at University of Zimbabwe would cost about half the cost of full-time programmes. A delivery system such as distance education that allow people in all walks of life to continue with their work while at the same time pursuing advanced studies became attractive.

Moreover distance education is an innovative approach to learning which is not restricted to time and space and would therefore be accessible to all eligible Zimbabweans wherever they may be staying. The existence of International organisations such as the Commonwealth of Learning were committed to the promotion of distance education and were willing to assist in the launching of such programmes. Now Zimbabwe Open University is offering several diplomas and degree courses to Zimbabweans from all walks of life who find such courses both convenient and affordable.

Distance education is cost effective and saves the economy high costs and large teaching staff. Learners acquire skills and knowledge while on the job hence improvement to national development. The teaching system used by the Zimbabwe Open University take into cognisance the fact that the learner is removed in both time and space from his/her tutor. Because of this limited tutor/learner contact, Zimbabwe Open University uses as its delivery system a multi-media strategy. The main medium of instruction is print which is in the form of modules, tutorial letters, selected texts, supplementary reading material and the newsletter and most of the texts are found at regional centres and libraries throughout the major centres of the country. The second medium of instruction in Zimbabwe Open University programmes is the use of electronic media i.e., audio/video cassettes and radio broadcasts. Radio broadcasts have been arranged with *Radio 4*, the educational channel of the Zimbabwe Broadcast Co-operation. These broadcasts are not whole lectures on the air but they are an opportunity for the various subject experts to draw students' attention to important issues within the subject matter. Copies of cassettes from which radio broadcasts are made, are distributed to the regional centres where they are easily accessible to any Zimbabwe Open University learners. Against the background on the development of education in Zimbabwe, the establishment of ZINADOL - Zimbabwe National Association for Open and Distance Learning in July 1997 with funding from COL has been a most welcome and necessary development for education in Zimbabwe.

The main objective of ZINADOL is to advocate and promote distance education in Zimbabwe.

In the same vein the Zimbabwe Open University is in the process of establishing a remote classroom video network which provides a remote educational environment for students through a satellite-based system. This is an important development in Zimbabwe since distance learning is a service designed to provide lessons or

lectures from one site to a potentially large number of remote locations via telecommunications. Satellite-delivery programming allows immediate dissemination of information. The students receive information on television screens. The remote classroom can also have a return audio channel for questions from students. The RCVN can also support facsimile and computer communications between remote classrooms and the central educational facility.

Zimbabwe Open University is also in the process of establishing the use of internet where students can access audio-visual information from the centre.