ABSTRACT

TACKLING THE ISSUE OF DROPOUTS IN THE FIELD OF ODL : THE ROLE OF TECHNOLOGY IN IMPROVING STUDENT RETENTION WITH SPECIAL REFERENCE TO VIRTUAL LEARNING ENVIRONMENT

Submitted by-

Dr. Trisha Dowerah Baruah

Assistant Professor

Bhupen Hazarika School of Mass Comunication

Krishna Kanta Handiqui State Open University

Patgaon, Rani Gate, Guwahati-781017

Mobile : 08721814209

Email ID : trisha.baruah@gmail.com

ABSTRACT

High enrollment in distance education may be counterbalanced by a high rate of attrition. To enhance retention of distant learners there is a need for an extended support system provided by academic counsellors along with technical support in the form of e-learning technologies. Dropout in distance education system means that a student who enrolled in the institute withdraws without completing the course. Very often the learners or the students discontinue their studies due to the poor assistance rendered by the institutes. This problem is experienced in almost all the institutions resulting in huge wastage of expenditure, time and effort on the part of the administration. The dropout problem is currently recognised as a significant educational and social problem as a result of which a thorough study on this vital issue is of paramount importance. Technology plays an important role in aiding student retention and reducing drop outs. Such technologies lead to improved performance of the learners, increased access to the courseware at minimum costs and enabling the learners to develop essential skills by embedding information and communication technologies within the curriculum. This paper aims to find out the impact of technology, especially e-learning technologies on student retention in ODL system. Here, special focus will be given on the use of virtual learning environment on the lines of virtual and augmented reality. This paper also tries to make a qualitative assessment of the common causes of dropout in the open and distance learning system and provide necessary recommendations in addressing this growing problem.

Keywords : Open and Distance Learning, E-learning technologies, Virtual Learning Environment, Information and Communication Technology, Counselling

Introduction

Learner's dropout is one of the burning problems of the educational system the world over especially in a developing country like India. This problem is more prevalent in a distance educational system as the learners are hardly in contact with the instructors except for counselling sessions.

This paper aims to find out the impact and assessment of the use of E-Learning Technologies on student retention with special reference to virtual learning environment. This paper also tries to find out as to how to create an environment congenial for learning so as to engage the learners in different academic pursuits. The sum and substance of the matter is that the learning environment must be such that the learner must be encouraged to go for higher education rather than drop out mid-way. Use of technology, specially in the form of E-learning technology provides advanced flexible skills that are required to flexible labour market participation in the information age. The growing use of ICT to support learning and teaching in distance offers both new possibilities and new challenges for facilitating across and equity for all students. Interactivity and connectivity are the two pedestals on which the entire framework of student retention is based. In fact, constant use of technology in the teaching-learning process assists in overcoming distance by providing remotely accessible learning opportunities and ways of interacting with fellow students and staff and encourages students to learn in their own time.

Objectives of the present study

The objectives of the present study are-

    i.   To analyse the problem of student dropout in the field of education including distance education

ii.   To study the impact and assessment of e-learning technology on student retention by specifically focusing on a virtual learning environment

iii.   To address the core problem areas that are usually encountered while delivering virtual reality learning environment

Research Methodology

The present study is basically a qualitative analysis of the use of emerging virtual learning technologies in the field of education specially distance education. The study is based on observation method. Document analysis of secondary sources has been done in order to analyse the role of technology in improving student retention with special reference to virtual learning environment.

The problem of dropout

Dropout is one of the burning problems for many reasons. From the point of view of efficiency, dropout is a concern in at least two dimensions. One, at the aggregate economy level wherein education is known to be an important determinant of economic growth and premature dropout means loss of potential productivity. And two, within the education sector, dropout raises the cost of achieving a targeted proportion of the population having some level of schooling .The other area where dropout is a problem—and perhaps the more important one—is from the equity perspective. Dropouts may appear small in number but they are preponderant among the poor which thereupon turns the wheels of intergenerational transmission of poverty against them. At the personal level, dropping out of school or college will mean consigning one to a future of low-income trajectory. Given a choice, one will obviously not opt for this. However, we often see a considerable number of learners who are not in college or University and most probably, it is not of their own choice.

Distance education can be judged from the number of learners that are enrolled and the dropout rates of the respective institutes. The educational system in the country has witnessed a number of learner dropouts both in the conventional and distance mode.

Some of the important reasons leading to student drop outs include financial problems, lack of family support, ambiguous and vague concept of the learning materials etc. With poor retention rates, there are financial implications, accreditation concerns and the negative impact on reputation. The distance learning institutes and universities spend a significant amount of their resources in attracting the students. So, whenever the learners leave the respective institutes/universities without completing their degree, it leads to a loss in an investment by a university. Thus, in order to address the burning issue of student dropout rates, a carefully planned strategy must be in place.
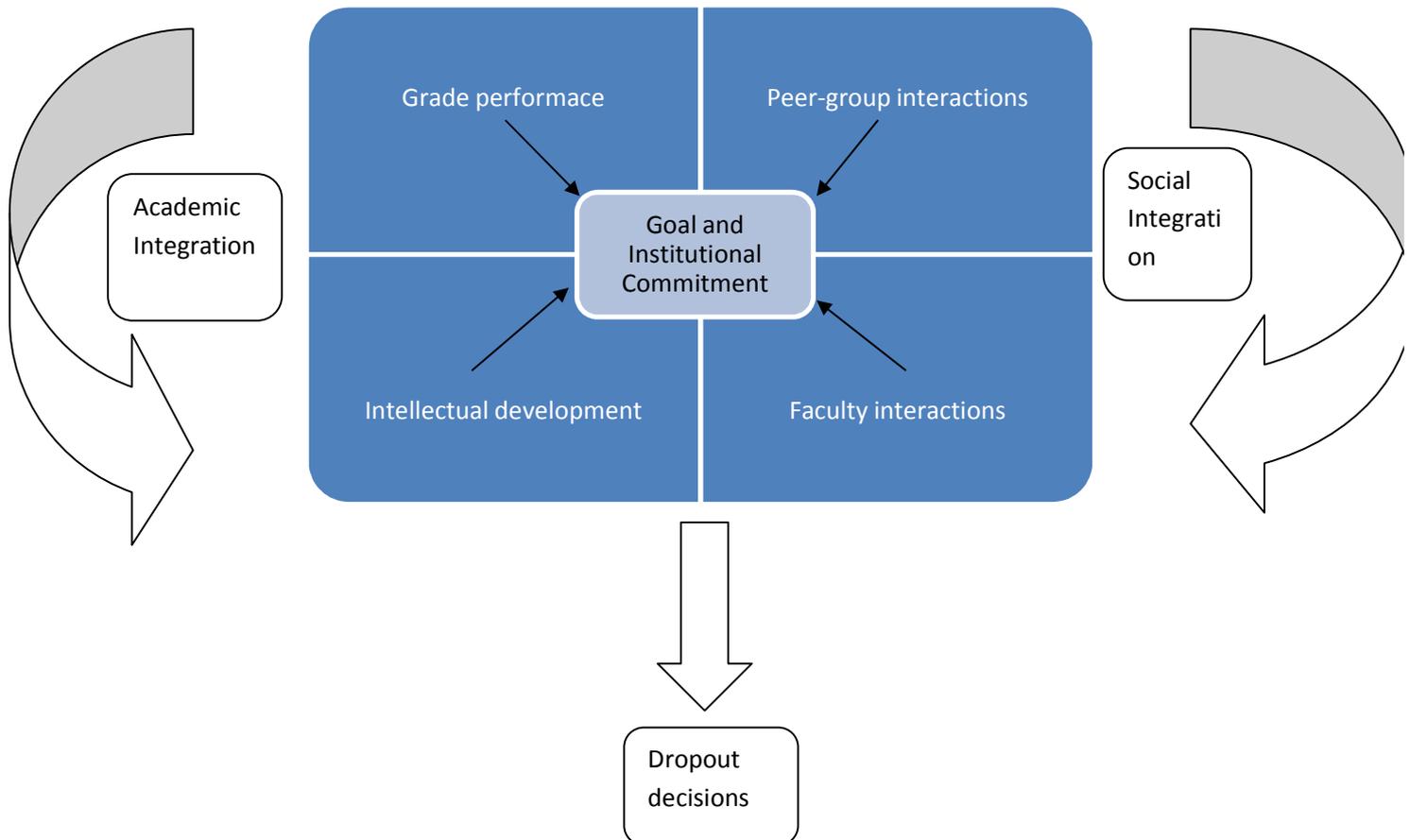
Understanding the problem of dropout with reference to Tinto's Model of Student Integration

Vincent Tinto (1975) put forward Model of Student Integration in which he says that student dropout is a longitudinal process of interactions between the individual and institutional systems during which the individual's experiences – as measured by their integration with those systems- modify his or her goals and commitments in ways that lead to persistence or dropout. The basic concept underlying this model is the individual's level of integration with the respective educational institution. This particular model has been examined a number of times and it has been found to have a better fit with data from part-time students than full-time. In other words, this theory will be particularly helpful in dealing with online, open and distance learning students.

Its central idea is that of "integration": It claims that whether a student persists or drops out is quite strongly predicted by their degree of academic integration, and social integration. These evolve over time, as integration and commitment interact, with dropouts depending on commitment at the time of the decision.

Academic integration basically consists of grade/marks obtained by the students, academic self-esteem, enjoyment of the subjects, identification with academic norms and values and identification with one's role as a student. Social integration usually relates to sharing a rapport and having good contact with the instructors/teachers. This fact is exemplified in the following diagram which has been adapted by Stephen W. Draper from Tinto's Dropout from Higher Education : A Theoretical Synthesis of Recent

Research which was published in the Review of Educational Research, Vol. 45 (pp-89-125) as given below-

Grade performace

Peer-group interactions

Academic Integration

Social Integration

Goal and Institutional Commitment

Intellectual development

Faculty interactions

Dropout decisions

As is evident from the above diagram, a student has certain commitments when he/she is inducted into any academic programme- goal and institutional commitment. Students are driven by a goal to succeed in their life by getting absorbed in any field of work by successfully pursuing their different academic pursuits. Such kind of commitment again depends on a host of other factors like the learning facilities/support services provided by the educational institutions, family issues, financial problems, educational qualifications and so on. When a student is unable to keep his commitment or is unable

to achieve his goal, then he or she usually opt out of the curriculum leading to the problem of dropout.

Thus, in this theoretical model of dropout, it has been argued that individuals enter institutions of higher education with a variety of individual characteristics, family backgrounds and prior educational experiences which influence the manner in which the individual interacts within the college/university setting. More importantly these attributes also influence the expectations and motivations for additional education which individuals bring with them into the educational environment. Referred to here as goal commitment, this factor is central to an individual's decision to dropout- higher the level of an individual's commitment to the goal of college/university completion, the lower the likelihood that an individual will drop out of college. Given individual's characteristics, prior experiences and goal commitment, it is the individual's integration into the college/university environment which probably relates to continuance in the respected educational institutions.

Other things being equal, the higher the degree of integration of the individual into the educational institution, the greater will be his commitment to the specific institution and to the goal of college/university completion. Usually referred to as institutional commitment, it is the interaction between the individual's commitment to the goal of college college/university completion and his/her commitment to the institution which determines whether or not the individual decides to dropout from the institution. In other words, the lower an individual's institutional commitment, the more likely is he/she to dropout from that particular institution.

In a similar fashion, insufficient integration and institutional commitment might lead to transfer to another institution of comparable level or to one of a lower level (e.g from a four year to a two year institution).

Sometimes, it so happens that due to either the changing external conditions in the job market which affect the "value" of the goal in the occupational sphere or as a result of the individual's re-evaluation of the goal itself, the individual may also decide to withdraw from the college/university in spite of having become integrated into the

institution. In this case, voluntary withdrawal, rather than dismissal, is generally the outcome.

Improving student retention : the role of technology

Student retention means to keep learners in programmes until they achieve their goals. Tinto's model have put emphasis on the importance of goal and institutional commitment as the two driving force towards containing student dropout and increasing retention. Now, this particular aspect is widely applicable in conventional institutions where the teacher-student interaction or for that matter peer-to-peer interaction is a common practice. However, in field of open and distance learning, it is not so. This is primarily because of the fact that in distance education, the learners are not constantly in touch with the instructors/tutors as a result of which they tend to feel demoralized and disinterested to continue their studies further. In order to keep the learners on the right track in pursuing the different academic programmes, certain services are provided to them which are known as the learners' support services . Some of the important support services are counselling, library facilities, laboratory facilities, provision of self-learning materials, radio phone-in programmes etc. However, most of these services are not sufficient to keep the learners to continue with their education and dissuade them from dropping out of the respective programme. That is why , a proper technological framework must be in place so as to keep the learners engrossed in their studies and encourage them to carry on their commitment without fail. In other words, it wouldn't be wrong to say that a blended approach is the key to attaining balance in the teaching – learning process where face-to-face interaction can be combined with e-learning technologies.

Distance education has evolved through a number of stages which are commonly known as generations of distance education. The five main global generations of distance education technology that have been identifies by Taylor (2001) are Correspondence Model (first generation), Multimedia Model (second generation), Tele-learning model (third generation), Flexible learning model (fourth generation) and Intelligent Flexible Model (fifth generation). The fourth and the fifth generation model are widely used in the present context. Information and Communication Technology (ICT) tools or E-learning technologies are widely applied in distance education system in the

form of satellite broadcast, internet, intranet, audio/video tape, interactive CDs and computer based training. These days such form of ICT tools are slowly being replaced by a virtual learning environment which has been further enhanced by the use of *virtual reality, augmented reality and mixed reality technologies.*

A *Virtual Learning Environment* (VLE) is a system for delivering learning materials to students via the web. These systems include assessment, student tracking, collaboration and communication tools. They can be accessed both on and off-campus, meaning that they can support students' learning outside the lecture hall 24 hours a day, seven days a week. In a way, this enables institutions to teach not only traditional full-time students but also those who cannot regularly visit the campus due to geographic or time restrictions. A prime example of a virtual learning environment (VLE) is that of University of Delhi's Institute of Lifelong Learning ((http://vle.du.ac.in/). Started in 2012, the multi-media interactive contents that are loaded on VLE are categorized discipline wise. The lessons are developed by highly qualified faculty members across the universities and are continually edited and reviewed, primarily by discipline-expert fellows employed to edit, oversee and coordinate the content. VLE also contains multimedia repository in form of audio, video and short films to expose students to new technologies. A screenshot of the website is given below-
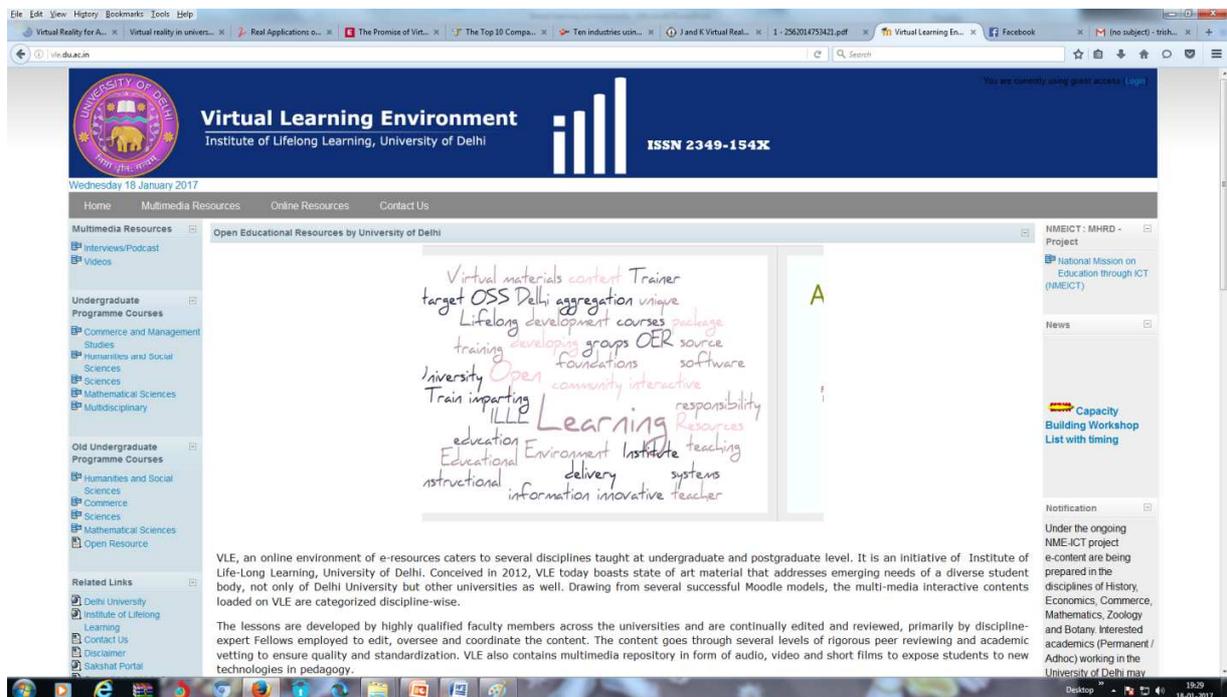
It is imperative to mention here the growing use of Learning Management Systems like Blackboard, Moodle, Desire2Learn, N@tschool, Teletop, Sharepoint, IT's Learning, Merlot, etc. However, more and more institutions are using portal software to integrate separate ICT-tools that support learning (e.g, Skype, email, document sharing, YouTube channels, iTunes, Facebook, etc.).

The world of virtual learning has been augmented by the application of sophisticated technology like virtual reality. **Virtual reality** (**VR**) usually refers to computer technologies that use software to generate realistic images, sounds and other sensations that replicate a real environment (or create an imaginary setting) and simulate a user's physical presence in this environment. Now the question that arises is why we should give emphasis on VR? This is because VR is able to immerse us in a computer-generated world of our own making: a room, a city, the interior of human body. With VR, one can explore any uncharted territory of the human imagination. Being a new paradigm of user interface VR provides an easy, powerful, intuitive way of human-computer interaction. In a way, it offers the following benefits for learners which are specially useful for those separated by geographical barriers. Through the use of virtual learning technologies, the learner will feel as though he or she is being given practical hands on training by the teachers/instructors.

VR has been widely used in a number of universities the world over specially in the US. Some of the popular universities which have made use of this technology include Stanford University, University of Southern California, Georgia State University and University of British Columbia. Most of the courses pertain to the area of Medicine, architecture and engineering. At the University of British Columbia, realtime lecture is provided in virtual reality as shown below-

Realtime lecture provided in virtual reality at University of British Columbia

However, its applicability in the field of distance learning is yet to materialize. This is probably because of the cost factor involved. Most of the VR devices (hardware) are pretty expensive making it difficult to provide the devices to each and every student. Apart from this, necessary infrastructure (powerful computers and uninterrupted power supply) must be in place in order to support the proper functioning of the VR technology. Nevertheless, if such technologies are provided to the distant learner, then it will change the very landscape of distance learning in the following way-

- ➤ It will provide Collaborative learning
- ➤ It will enhance interactivity .
- ➤ Leads to development of cognitive skills and attitudes. Use of simulations can help students build mental models of physical, chemical or biological systems through visualising concepts that appears on textbooks.
- ➤ Help in building a networked community. A strong sense of community is often the key to building viable network-linked educational programs and resources and sustaining them over the long term. They create network environments that

are conducive to interdisciplinary and collaborative activities and to research projects that explore an ever expanding scope of resources.

- ➢ Helps in reducing dropout and increase retention by way of providing better interactive tools and discussion platforms

    Student retention is one of the major issues concerning the field of education including distance education. Due to prolong absence from formal mode of education, the learners suffer from low self esteem and are easily defeated if they are unable to perform up to their expectation. They are positioned at a certain juncture where they are unable to move ahead and yearn for the love and support of their loved ones. It is at this juncture that the teachers and the counselors can play a very positive role in encouraging guiding them in their future endeavours. Along with this healing touch, what is necessary is the use of technology to maintain contacts and experience the magic of learning in 2D and 3D. In fact, use of such forms of technology gives students the opportunity to experience the activities they are learning about, whether that is working at an archaeological site, guiding airplane landings on an aircraft carrier, experiencing spacewalk, naval training or conducting surgical procedures. It stimulates learning by means of one way or two way communication.

Overall a virtual learning environment provides the following benefits to the learners-

- ❖ Provides additional course material and practical video examples
- ❖ Enable the learners to visualize difficult concepts through modeling and visualization software
- ❖ Teach concepts by video interaction, simulation and gaming
- ❖ Help the learners to receive feedback from tutors and peers
- ❖ Engage in discussion groups
- ❖ Encourages the students/learners to work together on academic assignments
- ❖ Tracking learning activities etc.

Conclusion :

The ideal instructional technology for any educational system depends on the particular needs of the organization, as well as its financial means. In reality, however, the ideal technology may not be one technology, but rather a combination of different tools . In

fact, there must be a blended approach in place so as to give the learner the best possible motivation necessary to carry on the academic works. However, the success of online and blended learning holds if ICT affords the student an "expansion of learning time" that is difficult or impossible to achieve with face-to-face instruction. In addition, the ICT-tools and the internet nowadays are making personalized learning environments possible and some even make connection to informal learning.

References :

1. Belanger F. & Dianne , H.J., (2000). Evaluation and implementation of Distance Learning : Technologies, Tools and Techniques. USA : IGI-Global

2. Chandra, R.(2005). The Future of Distance Learning. New Delhi : Kalpaz Publications

3. Chandra, R.(2005). Technology use in Open Learning System. New Delhi: Kalpaz publications

4. Lee, E. A. L., Wong, K. K., & Fung, C. C. (2009). Educational values of virtual reality: the case of spatial ability. *World Academy of Science, Engineering and Technology, 3, 991-995.*

5. Pantelidis, V. S. (1997). Virtual reality in education and Howard Gardner's Theory of Multiple Intelligences. Retrieved from http://vr.coe.ecu.edu/gardner1.htm

6. Pantelidis, V. S (2009). Reasons to use Virtual Reality in Education and Training Courses and a Model to determine when to use virtual reality. Themes in Science and Technology Education. USA : Klidarithmos Computer Books

7. Salzman, M. C., Dede, C., Loftin, R. B., & Chen, J. (1999). A model for understanding how virtual reality aids complex conceptual learning. Presence: Teleoperators and Virtual Environments, 8, 293-316.

8. Tinto,V. (1975) "Dropout from Higher Education: A Theoretical Synthesis of Recent Research" *Review of Educational Research* vol.45, pp.89-125.

9. Winn, W. (1993). A conceptual basis for educational applications of virtual reality (Technical Report TR-93-9). Seattle, Washington: Human Interface Technology Laboratory, University of Washington. Retrieved from http://www.hitl.washington.edu/publications/r-93-9/

10. Yang, F., & Wu., W. (2010). The application of virtual reality in e-learning. *International Conference on e-Business and e-Government, IEEE (pp. 5548-5551).*