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Improving Student Retention through Technology in India

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ABSTRACT :

This paper aims to find out the impact and assessment of E-learning Technologies on student retention in ODL system. E-Learning refers to using electronic applications and processes which include web-based learning, computer-based learning, virtual classrooms and digital collaboration. 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 the use of information and communication technologies within the curriculum. The main objectives of the paper are:

1. To find out the impact of Information and Communication Technology (ICT) in Open and Distance Learning (ODL) system
2. To discuss the ICT tools that are used in ODL system
3. To make an assessment of the Information and Communication tools that are widely used in ODL for student retention
4. To discuss the problem of student retention and subsequently offer solutions to maximize student retention.

For the purpose of assessing the impact of E-Learning technologies on student retention Indira Gandhi National Open University(IGNOU) has been taken as a model university and IGNOU Regional centre, Guwahati as a case study to find out the implication of E-Learning on student retention. This is mainly because IGNOU uses a variety of E-learning technologies in delivering the course materials to the learners. The main findings of the report show that student retention in IGNOU is high and that E-Learning technologies have been playing and important role in reducing drop outs.

1. INTRODUCTION :

This paper aims to find out the impact and assessment of E-Learning Technologies on student retention. E-Learning technologies or Information and Communication technology (ICT) is widely used in various fields of life and education is one such sector where it is used on a wide scale. E-learning is developed to increase the level of access of education through online courses overcoming geographic or physical impediments. E-learning is also essential in equipping students with the technologically advanced flexible skills now 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. The good thing about e-learning is that it assists in overcoming distance by providing remotely accessible learning opportunities and ways of interacting with fellow students and staff, and promotes students to learn in their own time. The distance education system responded

positively and quickly to the revolution in ICT. It is mainly because of three important reasons - the need to provide education that is cost effective, introduction of need based curriculum to a large number of learners and last but not the least to reduce the time required for sanction of new programmes by adopting flexible nature of administration.

The quality, assessment and implication of distance education can be judged from the number of learners that are enrolled and the drop out rates of the respective institutes. The educational system in the country has witnessed a number of learner dropouts both in the conventional and the distance mode. Some of the prominent reasons leading to student drop outs include financial problems, lack of family support, ambiguous and vague concept of the learning materials. 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. But when the learners leave the respective institutes/universities without completing their degree, it leads to a loss in an investment by a university. So, in order to address the burning issue of student drop out rates, a carefully planned strategy must be implemented at the earliest. In this case, ICT can be used as a tool to cut drop out rates thereby leading to student retention. With the implementation of E-Learning technologies, the drop out rates has virtually come down in the last few years. In common parlance, retention means to keep learners in programmes until they achieve their goals.

2. OBJECTIVES :

The main objectives of the study were:

1.To find out the impact of Information and Communication Technology (ICT) in Open and Distance Learning (ODL) system

2.To discuss the ICT tools that are used in ODL system

3.To make an assessment of the Information and Communication tools that are widely used in ODL for student retention

4.To discuss the problem of student retention and subsequently offer solutions to maximize student retention.

3. METHODOLOGY :

For the purpose of finding out the impact and making an assessment of ICT on student retention, I have take up IGNOU as a case study. This is because IGNOU uses a variety of E-learning technologies in reaching out to the unreached. Data information has been collected from the database of IGNOU Regional Centre at Guwahati and also from other secondary sources like website of IGNOU, pamphlets, newsletters, journals etc. This report is basically a qualitative and quantitative analysis of the implication of ICT on student retention.

The headquarter of IGNOU is in New Delhi while a large number of regional centres are spread all across the country including one in Guwahati. It is worth mentioning here that apart from IGNOU, there are also 14 other state open universities in the country including one in Assam known as Krishna Kanta Handique State Open University. Krishna Kanta Handique State Open University has already started operating its community Radio centre from 2009 and will be utilizing ICT tools in its delivery of study materials in a phased manner. There are two Distance Education Institutes in Assam known as the Institute of Open and Distance Learning (IDOL) under Gauhati University and Directorate of Distance Education (DDE) under Dibrugarh University.

4. E-LEARNING TECHNOLOGIES IN OPEN AND DISTANCE LEARNING :

Over the past few years, distance education system has assumed paramount importance in the society.

Distance learning can be thought of as education or training that is delivered to individuals who are geographically dispersed or separated by physical distance from the instructor using computer and telecommunication facilities. Distance education is a great boon for those learners who were unable to complete their formal education or any form of education due to unavoidable reasons. The basic advantage of undergoing a distance education is that it offers flexibility in learning. A student does not have to follow hard and fast rules as is generally seen in the conventional mode. A learner can thus opt to appear for examination in the following year if he/she is unable to appear in the current session. In order to bring the learner at par with those of the conventional system, certain special services are provided to the learners which are commonly known as Learners Support Services. These services include supplying of study materials popularly known as SLMs (self learning materials), library facilities, audio-video facilities, counseling, face to face interaction at the study centres and so on. Thus, distance learning has attained world wide reputation as an important mode of learning catering to a wide audience irrespective of caste, creed and sex. 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 identified 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). In the present context both the fourth generation and the fifth generation model are widely used in distance learning. 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. ICT tools help in effective delivery of learning materials via the web. VSAT satellite systems are increasingly seen as a powerful distribution mechanism for Internet based resources, with easy access to interactive learning tools and email, especially when linked or packaged with key educational web-site resources, servers and service. The increase in the so called 'virtual classrooms' has opened up new vistas for the distance learners who can access any websites for educational purposes at the click of a button.

Most of the E-Learning technologies are divided into two groups : *synchronous and asynchronous*. In case of synchronous technology, the mode of delivery is online where all participants are "present" at the same time requiring a timetable to be organized. Asynchronous is also a mode of online delivery but here the participants access course materials on their own schedule. The important synchronous technologies are :

Web based VoIP

- Telephone
- Videoconferencing
- Web Conferencing

The important asynchronous technologies include-

- Audiocassette
- E-mail
- Message Board Forums
- Print materials
- Voice Mail/fax
- Videocassette/DVD

Virtual University Model is the latest form of digital technology-enabled distance learning where all aspects of the study – managerial, logistic, pedagogic, organizational and others – take place virtually with the help of multimedia, internet, conferencing, or by using the latest versions of the mobile phone technology. Some of the instructional technologies that are widely used to support distance education and training are Computer-based training (CBT), Computer-aided instruction (CAI), Web-based training (WBT), Teleconferencing, videotape and video tele training.

5. THE PROBLEM OF LEARNERS / STUDENTS' DROP OUT :

Learner drop out is one of the glaring problem of any system of education. There can be varied reasons for student drop out in distance mode. The possible reasons might be :

- One of the prime reasons could be academic failure on the part of the learner. Failure in any course reduces the self-esteem of the learner which results in lack of confidence. Thus, the learner ultimately drops out of the course.
- Another important reason could be financial problem that the learner might be facing back home. This is most commonly seen in learners who hail from rural areas where financial problems force them to discontinue their studies and help their parents in household work.
- The third most important reason is basically individual which stems from the learner's attitude and aptitude. Since the learners do not interact on a daily basis with their teachers, they tend to be demotivated towards their studies and ultimately discontinue their studies.
- Lack of good interactive support systems can also be a possible reason for learner's drop out. This is because unlike the conventional mode, students in a distance educational system need good interactive tools to supplement the face-to-face interaction in a traditional university/college. So, the lack of proper interactive tools can be a major cause of demotivation to the learners which ultimately leads to drop out.
- Most of the learners work in some organizations to supplement their family income. So, due to work pressure and paucity of time most of the learners discontinue their studies.
- Peer group pressure is another reason for drop out. The learner may be bogged down by peer group pressure to discontinue his/her studies.
- Major change at workplace or home such as relocation, promotion or retrenchment also leads to an increase in the learner's/students drop out rates.
- Lack of need based course can also be a major drawback. A university or programme that is not focused on meeting the needs of the students will have difficulty maintaining a high retention rate.

However, of late, it has been seen that the drop out rates among the learners have reduced in distance mode of education.

6. STUDENT RETENTION :

Student retention is one of the major issues in a distance education system. This is primarily because of three principal reasons. Firstly, there is a perception among most of the people that ODL is second choice in comparison to on-campus delivery. This has led people especially those from the academic field believe that ODL has significantly lower retention of students as compared to conventional system. Secondly, the focus on student retention is driven by complex financial considerations. There is a general notion that distance learning institutes/universities have to incur a lot of expenses in preparing course materials whereas the traditional mode universities have fixed costs for buildings. In most of the cases some of the learners discontinue their studies owing to high costs. So, if the university in the distance mode is unable to retain the learners then it is economically not viable for the distance learning universities to stay afloat. Poor retention rates leads to financial implications, accreditation concerns and the negative impact on reputation. Institutions/universities spend a major chunk of resources in attracting and admitting students.

So, when these students leave the distance institute/open university without completing their degree, it could be considered a loss in an investment by the respective institutes or universities. On the personal front the student also suffers financial loss as he/she discontinues a particular programme for which he/she had paid some amount of money. Thus, in order to remove such notions from people's mind, a lot of emphasis is given on student retention or in short "to keep learners in programmes until they achieve their goals" (Kerka, 1995).

7. STEPS TO MAXIMISE STUDENT RETENTION :

- A student grievance cell should be there in almost every institute to address the learner's problems. The learners should be guided on different aspects like problems in studies, personal problems etc.
- Incentives or awards should be provided to the learners for academic achievements so that they feel motivated to continue their studies.
- A set of well qualified teachers and support staff is necessary to provide the necessary inputs to the students.
- If possible, tuition facilities should be provided to the academically weaker students free of cost.
- Processes for delivery of learning material and for tutoring, assessing, moderating, administration, dealing with student complaints and queries, library and other sources should be well sourced and of a high standard.
- A tailored, individualized and need based learning package that would minimize possible withdrawal for a number of causes can be developed. The tailored package might be designed to maximize deep learning for that particular student.
- Student support services that are provided to the learners must be technologically sound and best suited to their needs. A student that is not ale to maintain motivation and strong attention to the goals being sought will have difficult time in focusing on his/her work, especially in light of competing responsibilities of work and family. Along with the technologically supported services, a little bit of human touch in the form of loving and supportive teachers/counselors will go a long in building a healthy relationship between the learner and the taught.
- Interactive online course materials (or ICT based learning) must be developed in order to infuse interest in the minds of the learners.

Of all the steps given above, the last one needs to be given the much needed attention to increase student retention. E-Learning Technologies are widely used in today's educational field especially in the delivery of learning materials.

8. E-LEARNING AND STUDENT RETENTION :

The student is probably the most complex, variable and important component in the 'institution-environment-student' triangle when considering student retention and support issues. E-learning technology is widely used these days to make the interaction between the learners and the students interactive. Very often it has been observed that due to prolong absence from formal mode of education, the students 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 junction from where they are unable to move ahead and yearn for the love and support of their loved ones. At this juncture, the teachers and the counselors can play the role of goodwill messenger and inculcate in them the values of head and heart.

Along with this healing touch what is necessary is the crux of distance education, i.e , interactive, user friendly and interesting learning materials. Most of the time, the adult learners consider themselves to be technologically unsound. Since they are unsure of the level of technology needed to complete online courses, they might get discouraged to use the online mode of support services. That is why it is essential that the E-learning tools/technologies must be easily understood to the learners and not ambiguous. Problems such as inadequate internet service provider or poor knowledge of using the software can lead to frustration and discouragement and be a barrier to learning.

On the other hand, when learning is made interactive and user friendly, it increases the learner's interest and concentration. Thus, the learners are encouraged to aim higher and go for further studies. Since use of E-Learning tools requires a lot of concentration and dedication, it increases the learning capability of the learner. Such technologies mainly serve two purposes: to distribute teaching material and to stimulate learning by means of one way or two way communication.

Teleconferencing, videoconferencing, interactive radio counseling, bulletin boards/newsgroups for discussion on special topics ,multimedia, webcasts, podcasts etc, offer means of delivering learning material to the learners without physical arrangements. Well designed and structured printed materials, cassettes, or broadcasts are designed to promote learning by stimulating an active response from the learner. New media technologies have made it possible for the learners to send their assignments to a tutor by fax or email at the shortest possible time. Though the installation for communication technology is expensive, yet in the long run, it is cost effective as it helps in the effective delivery of learning resources to the learners at the shortest possible time frame. However, it is important to note that the learner must be well aware of the basics of handling a computer or any such communication device. For this to happen, it is necessary to develop training programmes to improve students' learning skills. It is the bounden duty of the respective institute/university to make sure that the study centres have computers/desktops with well developed communication networks.

The distance instruction programmes and course design should enable individual learners the flexibility to plan and execute a personal study pattern that meets their particular needs. Open, flexible and distance learning technologies can benefit from the use of network technologies, connecting learners with distributed learning resources. These strategies make education more accessible, convenient and cost-effective for both the learners and the education providers. Thus we can say that E-Learning technologies or ICT indeed helps in student retention and prevents drop outs.

9. IGNOU : A brief Profile

Indira Gandhi National Open University (IGNOU) which was established in 1985 is entrusted with the dual responsibilities of (i) enhancing access and equity to higher education through distance mode and (ii) promoting, coordinating and determining standards in open learning and distance education systems. Since its inception, IGNOU has undergone rapid expansion and emerged as an international institution in the field of Open and Distance Learning.

Instructional System:

The university provides multi-channel, multiple media teaching-learning packages for instruction and self-learning. The different components used for teaching/learning include self-instructional print and audio-video materials, radio and television broadcasts, face-to-face counseling/tutoring, laboratory and hands-on experience, teleconferencing, video conferencing, interactive radio counseling, interactive multimedia CD-ROM and internet –based

learning, and the use of mobile phones for instant messaging.

Student Support Services :

The university has learners from a diverse range of social, economic and regional groups, viz, rural, urban and tribal areas, the physically challenged, jail inmates, personnel from government and non-government sectors, parents and home-makers, personnel of armed and paramilitary forces, the employers and the employed. The university has an extensive network of 59 regional Centres, about 2300 learner Support Centres, including work centres. IGNOU initiated the development of a knowledge repository in Oct, 2005, to store, index, preserve, distribute and share the digital learning resources developed by the ODL institutions in the country. This is termed as ***e-gyankosh*** (www.egyankosh.ac.in). Today e-gyankosh has emerged as one of the world's largest educational resource repositories. Over 95% of the self instructional print material (26,000 volumes) has already been digitized and uploaded on the repository. Over 16,000 video programmes are being provided through a special channel of IGNOU in You Tube with the metadata link in the repository. The repository also has a wiki for collaborative content generation and a blog for discussion on various issues, share ideas and thoughts. Live educational programmes are available through the web casting platform (www.ignouonline.ac.in / broadcast) which at present provides access to broadcast channels, Gyan Darshan-2 simulcasted with Edusat and Gyan Vani (Delhi).

IGNOU makes use of the Information and Communication Technologies (ICTs) extensively for imparting education. In addition to self-instructional printed materials, the university utilizes Audio/Video programme tapes, teleconferencing, Gyan Vani (FM Radio), Gyan Darshan (educational TV Channels), computer networks for imparting instructions.

With the launch of "One Stop Education portal SAKSHAT" ; in October 2006 by the then president of India, Dr. A.P.J Abdul Kalam, IGNOU developed plan to use this platform, extensively to provide knowledge resources and impart education to its students.

IGNOU launched the SMS Alerts service on November 18th, 2008, when Vice Chancellor IGNOU, Prof. V.N. Rajasekharan Pillai sent SMS to approximately 40,000 students and staff of IGNOU. The different educational technology used by IGNOU in delivering courses is given in the Diagram 1.

Brief descriptions of the important ICT tools that are used by IGNOU are given below:

Electronic Media Production Centre (EMPC):

The Electronic Media Production Centre (EMPC) established in collaboration with Japan International Cooperation Agency (JICA), government of Japan, is entrusted with the task of production of audio and video educational programmes. EMPC has emerged as a major hub in the region in the use of electronic media in distance education. EMPC coordinates the following educational radio and television channels:

a. Gyan Darshan
   Gyan Darshan , a fully digital 24 hour exclusive Educational TV channel, is a digital bouquet of 4 channels. This 24-hour channel beams programmes produced by IGNOU and those from UGC, National Council for Educational Research &Training (NCERT), Central institute for Educational Technology (CIET), NITTRs, IITs and different Ministries of Go0vt of India
b. Gyan Vani
   This is a unique low cost, interactive medium for enhancing and supplementing the teaching-learning process by reaching out to widespread learners. Gyan Vani (105.6 FM) stations operate as media cooperative

with the day-to-day programmes being contributed by various educational institutions., NGOs, government and semi-government organizations, UN agencies, Ministries such as Agriculture, Environment, health, Women and child Welfare, Science and technology etc. besides national level institutions such as NCERT, NIOS and State Open Universities.

c. Teleconferencing : Important nation-wide programes for IGNOU learners, lectures by eminent experts/dignitaries, discussions with RC staff, Induction for new students and convocations for graduating students are conducted live through teleconferencing every year. Besides, counseling sessions are conducted for select application oriented programes such as nursing, information technology, CEMPA/CEMBA, MBA etc. in which the students get ample opportunities to interact with the faculty.

IGNOU offers one hour of *live phone-in* counseling programme weekly through the national Network of AIR and the Gyan Vani stations where studio invited experts clarify student queries put across to them from their homes via telephone.

d. EDUSAT

The launch of EDUSAT has ushered in an era where both internet and intranet can be used for transmission, interaction, dialogue, digital repositories, digital multimedia content, and for virtual education and research.

Thus it is seen that IGNOU uses a variety of ICTs and e-learning technologies to reach out to the learners. The 'ODLSoft' – ERP of IGNOU's back office processes is being undertaken which will facilitate the availability of an integrated database to all concerned.

Library services : The Central Library is the main library which co-ordinates the effective functioning and development of Regional centres and Study Centres.

The Library and Documentation Division manages the E-resources, indigenous database and NODLINET (National Open and Distance Learners' Library & Information Network).

Flexilearn : It is a personal learning space where free learning resources are integrated with learning managemnet system for anyone who wants to learn whatever their educational needs and experience.

These technologies have helped in retaining a vast majority of learners in the various programmes and thereby lowered down the drop out rates.

10. FINDINGS AND CONCLUSIONS :

For the purpose of finding out the impact of E-learning on student retention, we have tried to focus on the enrollment trend of IGNOU for the last 10 years. In this way we can find out whether there is high drop out rate or high enrollment rate. The table 1 below shows the number of learners enrolled from the period 1999 to 2009.

Year	Number of students enrolled
1999	172550
2000	196650
2001	291360
2002	301724
2003	316547
2004	334415
2005	366161
2006	429542
2007	468444
2008	550600
2009	555310

Source : Vice Chancellor's report , IGNOU, 20th Convocation , New Delhi

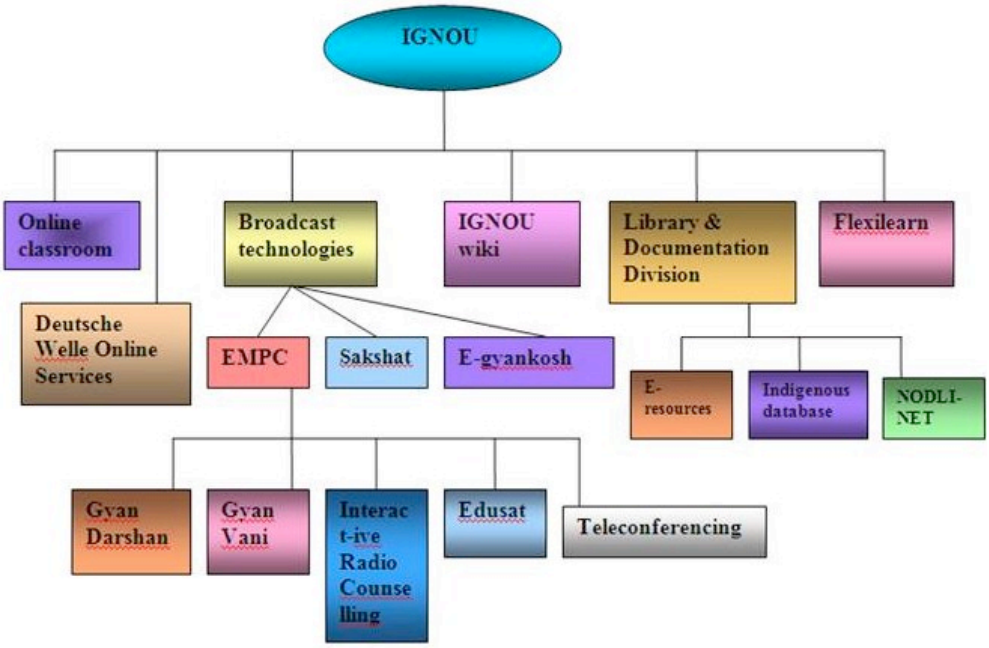

Diagram 1: IGNOU *(Source : Diagram prepared by the author)*

If we examine the table we can see that the enrollment of students have been increasing with every passing year. The trend of enrollment is very encouraging which points out to the fact that student retention is very high under IGNOU with visibly lesser number of drop outs.

Thus, there is a rise in the number of students being registered under IGNOU as given in Table 2:

Years	Increase in registration of students (00,000s)
July 2004-January 2005	3.66
July 2005-January 2006	4.29
July 2006-January 2007	4.68
July 2007-January 2008	5.50
July 2008-January 2009	6.19
July 2009- January 2010	6.40

Table 2: Increase in registration

Source : Openletter, IGNOU, New Delhi, Volume 2, Issue 1, January 15, 2010

The figures given above are ample proof that the number of students taking admissions in various courses under IGNOU has been increasing over the past few years . It is worth mentioning here that such high student intake has been visible in the late 1990s . This period was marked with the development of Information and communication tools leading to IT revolution in every field of life including the educational field. Thus, there is a high retention of students which was bolstered by the growth of new educational tools that are technologically sound and user friendly.

For the purpose of finding out the impact and making an assessment of E-Learning technologies on student retention, I have taken up IGNOU's Regional Centre at Guwahati as a case study. The reason for choosing IGNOU as a case study because it employs a lot of E-Learning technologies and the student enrollment is also high. As it is not feasible to collect data of the enrollment of the number of students on all India basis, so I have taken the regional centre in Guwahati as case study.

The IGNOU Regional Centre of Guwahati was established in 1996 with a total of 6 study centres and 35 programmes.

Uptill the year 2000, Sikkim and Arunachal Pradesh were also under the jurisdiction of Guwahati. After 2000, these two states developed their own Regional Centres. The regional Centre at Guwahati has been growing rapidly since its inception both in terms of programme offered and the enrollment of learners. This has got to do with the use of a wide variety of web-based technology to reach out to the learners. Gyan Vani, Gyan Darshan, Teleconferencing, Videoconferencing etc are frequently used for educational purpose. This has, in a way boosted up the enrollment and led to student retention.

A brief overview of the admission growth of IGNOU Regional Centre, Guwahati is given in Figure 1:

Thus, from the figure, it can be seen that the number of students that are being admitted into the different programmes over the last 6 years has been increasing. This is a welcome trend because it shows that due to the implication of ICT tools , the drop out rates has come down leading to student retention.

As per July, 2010 records, the number of learners who took admission in different courses under IGNOU Regional Centre, Guwahati in January stood at 1676 while the number of re-registered students in January stood at 958. On the other hand, the number of learners who had taken admission in the month of July, stood at 3049 while those of re-registered students stood at 2150.

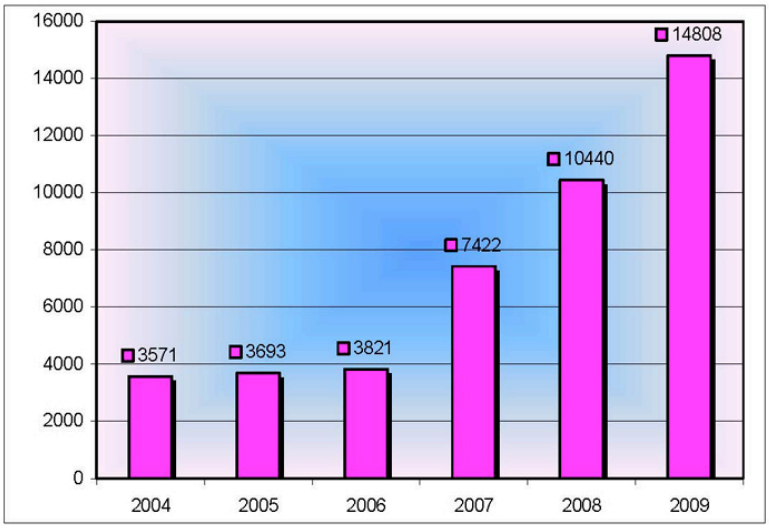

Figure 1: Trends in admission (Source : IGNOU Regional Centre, Guwahati)

Thus from the above mentioned data we can say that the enrollment of students in various programmes under IGNOU has been increasing over the past 6 years and still continuing with visibly no drop out rates. Hence we can say that, E-learning technology does help in student retention.

The ideal instructional technology for a distance learning programme 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.

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