



## Distance Learning in India: a comparative study

Kashyap Mahanta<sup>1</sup> and Guruprasad Khataniar<sup>2</sup>

1 Krishna Kanta Handiqui State Open University, Guwahati, India.

2 Krishna Kanta Handiqui State Open University, Guwahati, India.

### Abstract

Distance Learning will offer people a high educational environment to share their knowledge and ideas and upgrade their qualification. The advent of the Internet (Basher et al, 2008) opened a new door to distance education. It has given a chance to the deprived people to get educated at their doorstep. In India, nowadays, distance education is a popular tool for the people who want to acquire knowledge and upgrade qualification. We analyse the learning methodology, process and system of Sikkim Manipal University (SMU), Gangtok, Symbiosis Centre for Distance Learning (SCDL), Pune and Indira Gandhi National Open University (IGNOU), New Delhi. At present these institutions have successfully running different programmes in India and abroad. In our study we found that there is enough scope to improve the services of distance learning in India. Peer-to-peer (P2P) file sharing system is one of the best systems to improve the quality of distance learning especially in higher education. Therefore we may install peer-to-peer (P2P) file sharing system for University students which will give them opportunity to improve their knowledge. Use of Information Communication Technology (ICT) in distance learning also added a new dimension to improve the quality and timely information to the students. All are analysed here.

**Keywords:** Distance learning, peer-to-peer, internal assessment, project, servents

### 1. Introduction

Now a day's distance learning is the most popular system through which people can gather knowledge in any time and from any place and upgrade their qualification. Today it has been accepted as a well recognised mode of education and relevant training to meet out the emerging demands of our society (Aslam, 2013). Thousands of people, who are deprived of higher education at a young age due to several problems, but desirous to improve their knowledge and qualification can, fulfil their desire by using Distance Learning (Kanjilil U, 2013) System. This system is also helpful for the rural and remote people; people living in mountainous and border areas can learn and gather knowledge by using this system. This will provide the remote people a high educational environment to share their knowledge and ideas. This distance education system has given them opportunity

for higher education and research (KKHSOU, 2013 and Mahanta and Khataniar, 2013)

In India, where the population is too high to the educational institutions, distance learning system will help to increase the growth of literary rate in higher education. Without which India cannot reach the goal within limited period of time. Existing systems has performed a great role in this aspect. Introduction of Information Communication Technology (ICT) also has added a dimension on this progress. Study of real time existing distance learning systems in India is of great importance. It will help to improve the existing distance learning systems to some extent. The analysis of success and failure of the existing system will help to improve the quality of the educational system. It is also a big question as to how much of the existing system is utilized by the present students as well as researchers. Is it due to the difficulty to utilize the

existing system or the laziness of the students or lack of knowledge about all existing systems i.e. computer and internet?

The cause of this lethargy is with the operation of traditional internet system, which is costly, slow and complex for beginners. Use of internet in the rural areas of India can be really cumbersome. It is near about impossible to think of a personal computer in every household of a hamlet in India. Assuming for a moment that there is availability of computers in every house of a village in India, the problem of using internet in those PCs on a monthly basis will increase the recurring expenses of those poor villagers. Moreover, the problem of higher bandwidth (Hareesh and Manjaiah, 2013, Li, 2005 and Krishna et al, 2003) has completely stopped the practice of using PC having an internet connection in remote areas of India. Therefore they could not think about things which need high bandwidth to download anything. Sometimes the time also plays a major role in downloading a file or files. If a one megabyte file is downloaded in 10 to 15 minutes, it creates a big hindrance to learn through the internet by the user. Another big problem to use the traditional internet system is that if anybody searches for a topic, similar thousands of topic will appear and at this point, sometimes it is difficult to find out the correct one. So, these are the problems which people of remote areas face and as a result fail to reap the benefits some of existing distance learning system in India.

The Indian market is not substantial when compared to the international market. e-learning (Bulkowski et al, 2006) in India has been most successful in the corporate segment where it is seen as a means of achieving business goals and motivating employees (ITU-T Report, 2012). A lot of work has to be done to make e-learning (Caleb A. et al, 2011) successful for education, both formal and informal and to cultivate faith of people in online degrees in India apart from the ones given by renowned institutions like IITs (Aggarwal, 2009 and Jin, 2003).

## 2. Literature review

### 2.1 Sikkim Manipal University (SMU)

Distance learning provides opportunity to the students who are unable to attend on-campus classes but desirous to upgrade their qualification and knowledge. It also helps one to reach a wider student audience. It links students from different socio-cultural, economic and empirical backgrounds.

### 2.1.1 Online education

The advent of the Internet opened the door to big changes in distance education. It became relatively easy to deliver high quality course content through the internet. From the starting point students can get information about the university, courses they offer and other information from different authorised study centres, and/or from the official website. After that they get enrolled to the courses they want to pursue through online or respective study centres. Then they get the softcopy of course materials and other documents. They can also put their queries through e-mail and chatting. Therefore students at remote locations can get all the information in time. Internet allows easy communication among students and between students and the instructors. It also makes the mechanics of online learning much easier to implement (website: *smude.edu.in*).

### 2.1.2 The SMU-DE

The programmes offered by Sikkim Manipal University-Distance Education (SMU-DE) are recognised by the Distance Education Council (DEC) and University Grants Commission (UGC). The University is also recognised by the Union Ministry of Human Resources Development. It provides high quality education to the students through more than 6,500 dedicated and high qualified counsellors. Students can learn any matter directly through these counsellors face to face in the study centres. The study materials provided by the University are also excellent, eminent and easy to understand that anyone can get the information easily. When one join the programme, he/she will be informed in advanced about the course work, exam schedule. Students also get the information when their result would be announced and the day of delivery of their provisional and original University certificates. All information about the programme including student support programmes launched by the university would be informed to all students via e-mail or texting (SMS) by the student support team. The continuous conversation helps students to become an integral part of the university (website: *smude.edu.in*). Total number of 725 Authorised Centres in 310 towns helps the students to pursue programmes in time. These centres perform as access points for advice, counselling or rendering any assistance required by the students. Any employee in transferable jobs can also complete their education from anywhere in India with help of these Authorised Centres.

### 2.1.3 Learning methodology



**Fig.1 : SMU-DE System**

SMU-DE system always tries to improve the quality of distance education programmes to the students all over the country. They also try to develop the overall quality of all types of students so that they can face day to day challenges and make them self superior to the traditional campus based programmes. For this the SMU-DE designs a figure with some important parameters. They are:

- a. **Self Learning material:** In distance education self learning is the core process by which students can gather knowledge. Therefore the study material provided by the University would be simple, error-free and straight forward, so that students can easily get the things and understand. The SMU-DE has provided high-quality self-learning material in both printed hardcopy and softcopy available online.
- b. **Counselling at Authorised Centres:** Academic Counsellors are available in all Authorised Centres to provide all kind of services to the students. They try to clear all doubts and problems of the students regarding course and syllabus face-to-face.
- c. **EduNxt:** The University launches the next generation learning system called EduNxt, through which students can get all information including softcopy study material, recorded presentations and shared

browsing. They also gather knowledge through virtual classrooms (Aggarwal, 2009). Students can be allowed to access over one million online books and journals from anywhere and at anytime through this system.

- d. **Daily Lectures:** The University make available a provision for the students to carry out daily classes from central studios through VSAT.

### 2.1.4 Evaluation procedure

- **Internal Assessment:** There is great importance of introducing the marks of internal assessment. Internal assessment includes the mark of assignments, class test, seminars and practical examinations.
- **Project:** As per schedule made by the University, the Project/ Practical examinations will be conducted by the Authorised Centres. They have to follow the University rules and guidelines in this regards and evaluated by the external examiners appointed by the University.
- **Semester End Examination:** After every completion of semester the University organises a semester end examination generally of Multiple Choice Questions (MCQ) type. For national students it is held in the month of January and July and for international students it be held in the month of March and September. Students have to appear this examination and secure the minimum marks for success.

### 2.1.5 Award of degree

Successful candidates are given Provisional Pass Certificate and Consolidate mark sheets by the University through Authorised Centres within two months of the declaration of results. After successful passing of all papers, the students will be awarded the degree by the University. The original certificate will be issued within six months.

### 2.2 Symbiosis centre for distance learning (SCDL)

Symbiosis Centre for Distance Learning (SCDL), the institute situated in Pune is one of the largest distance learning institutes of India. It is recognised by the Distance Education Council, Ministry of Human Resource Development, Government of India. Last five years, it has enrolled more and more students in

India and abroad. Today, the total strength of the student is more than 2,53,577.

The institute engaged more than 350 full time efficient faculties to control all programmes and curriculum. To ensure quality, the institute follows the best curriculum that is similar to traditional full time institute. The resources like teaching, evaluation, e-learning and self learning material are chosen and construct very carefully, so they can provide the best materials to the students.

Symbiosis Centre for Distance Learning (SCDL) has introduced some innovative concepts in distance education. It has introduced the 'blended learning' methodologies which includes three forms of learning. They are self learning materials, pre-recorded DVD lectures and faculty interaction (Virtual Classroom Facility) (Holden et al, 2010). They also introduce online chat sessions which allow students to interact with the teachers. The institute also introduces dedicated Call Centres through which students can directly contact to the Academic Counsellors.



Fig. 2 : SCDL-DE model

### 2.2.1 Teaching methodology

The programmes made for the students at Symbiosis Centre for Distance Learning are very flexible, so that anybody can pursue a programme at any time from any place and pace. The teaching methodology of Symbiosis Centre for Distance Learning includes:

- Study Material:** The study material prepared for the students are dynamic and easy to learn. The books are authored by renowned faculty and that are sent to the students through courier.
- e-Learning modules:** There is a revolutionary initiative taken by the institute i.e. e-Learning platforms (Caleb et al, 2011) which offers interactive learning experiences on key concepts of the curriculum (website:[scdl.net](http://scdl.net)).
- e-Mentoring:** Through this scheme students get academic information via e-mail. This will help the distance learning students to collect the study materials, institute information and other.
- Virtual Classroom Sessions:** This service is available throughout the year for all courses. Students can participate in the live online classroom and conversation with the experts via internet. Students can clear their doubts and ask questions to clear any topics from anywhere without physical presence of a classroom.

### 2.2.2 Evaluation procedure

The Evaluation Strategy of the programs includes a combination of online assignments, on demand examinations, submissions, project report (website: [scdl.net](http://scdl.net)). The evaluation procedure for different programme is almost similar. Each subject comprises of online assignments and computer based examination. The online assignment carry 30 marks out of 100 and students have to appear the computer based examination for 70 marks only. Students have to submit the online assignment within a period of time. They also complete the programme within a period of time i.e. for one year programme the maximum time period is two years and for two years programme, the maximum time period is four years. The final examinations are conducted by the designated examination centres across the Country. Students are required to reserve their examination slots as per their time.

### 2.2.3 Award of degree

After declaration of results, the successful candidates are awarded degree or diploma by the institute if they fulfil all the criteria laid down by SCDL.

### 2.3 Indira Gandhi National Open University (IGNOU)

Indira Gandhi National Open University (IGNOU) is the pioneer of distance learning system in India established by an Act of Parliament in 1985. The main objective of IGNOU (Parhar, 2003 and website: [ignou.ac.in](http://ignou.ac.in)) is to increase the Gross Enrolment Ratio (GER) by offering high-quality teaching through the Open and Distance Learning (ODL) mode. It began by offering academic programmes in 1987 with only 4528 students. Now the University has more than 4 million students all over the India and abroad.

The University has started a new era of technology-enabled education in the country in 20<sup>th</sup> September, 2004, the launch of EduSat, a satellite dedicated only to education. The University is being offered free of cost education to the jail prisoners (website: [ignou.ac.in](http://ignou.ac.in)).

There are number of consent of the University out of which few are:

- Offering number of programmes to the disadvantaged group of people to all parts of the country including remote areas at affordable costs
- Encourage all kind of people to attain the benefits of quality education through open and distance learning in the country.
- Providing the quality higher education using a variety of media and latest technology in imparting education.

#### 2.3.1 Teaching methodology

- a. Study Material: The study material prepared for the students are self motivated and easy learning, students can easily get the information.
- b. Tele-conferencing: There is a provision for two ways tele-conferencing through which students can get information and ask different questions and make discussions on a topic.
- c. EduSat: In 2004, with the launch of EduSat the University has ushered technology-enabled education in the country.
- d. Authorised Centres: Regular classes are arranged for the students for all programmes through the Authorised Centres. Students can clear their all doubts sitting face to face with the qualified faculties of the Authorised Centres.

- e. Electronic media: IGNOU operates a 24 hour educational TV channel Gyan Darshan, which will be helpful for the students to acquire knowledge in different fields. The University also operates a radio-cooperative (Burns, 2011) Gyan Vani which is helpful for the University students (Kanjilil, 2013).



Fig. 3 : IGNOU-DE model

#### 2.3.2 Evaluation procedure

- Internal Assessment: In the evaluation process of the University for Different Programmes, there is a provision to submit the assignments by the students; which is compulsory. The examiner of the Authorised Centres will evaluate the assignment copy and send the marks obtained by the students.
- Project: In some of the courses at the last semester, students have to submit a project report to the university which will help to increase the research activity. In the examination, students have to explain the project guided by the senior faculty in front of the External Examiner. Both students and the Authorised Centres have to follow the University rules and guidelines in this regard and evaluate the entire by the external examiners appointed by the University.
- Semester End Examination: After completion of each semester the University arranges semester end examination both Theory and Practical. For

students within the country it is held in the month of January and August. Students have to appear these examinations and secure the minimum marks for success.

### 2.3.3 Award of degree

After successful completion of the course, the University awarded candidates the degree or diploma and Original Certificate.

## 3. Methodology

In order to develop the proposed model of P2P File sharing (Dinh and Ryan, 2010 and Emule Project, 2002) system in facilitating of knowledge sharing of University students as well as researchers, the methodology shall be carried out in six main steps as shown below

*Step 1: Literature Review of existing distance learning system of India and P2P file sharing system*

In this step study of the existing distance learning systems in India has been performed. Also the causes of success and failure of the existing system are also reviewed. Parallel study of P2P file sharing system also performed and considered how this arrangement can be used in distance learning system.

*Step 2: Conduct a Survey*

A basic survey on the existing distance learning systems, Authorised Centres of different Universities, Students enrolling in different programmes of different Universities has been performed. For this a simple Questionnaire has been designed which shall be used for evaluation process. Also surveyed how students are benefited by the existing Information Communication Technology (ICT) (Aggarwal, 2009 and ITU-T Report, 2012) and other online systems.

*Step 3: Formulation of the Proposed Model*

In this step the formulations of our proposed P2P model have been performed. Based on earlier literature review and survey results (Krishna et al, 2003), we have tried to design a modern and upgraded version of P2P file sharing system, which will help the students directly in acquire knowledge and share resources. They can also download high quality classroom video directly and attend classes from doorstep.

*Step 4: System Design*

In this step the process of architectural design of the proposed model has been illustrated. How the model will reflect the best output and help the students which are more powerful and user friendly, will also be carefully observed in the design process.

*Step 5: System Evaluation*

After successful completion of the system design, the model would be tested using some limited nodes (Tigelaar, 2012). In this step system error are carefully viewed and system debugging has been performed.

*Step 6: Documentation:*

The summarisation of the finding and the summary of all steps have been documented in this step. If any problems occur in the proposed system, then first viewed this documentation and try to find out the problems which can be further eliminated. Therefore this step is considered very important and necessary for any system simulation.

## 4. The proposed model

We have seen that in the above existing systems students can get the materials through various ways. Out of which internet is considered as the best way of communication between students and University. But frequently students face some troubles in accessing internet. They are

- a. Students can get the best materials through internet easily, but they cannot download classroom videos as it need very high bandwidth to download.
- b. For this they have to pay fees amount to the Internet Service Provider (ISP)
- c. The process also need more time due to bandwidth constraint.
- d. Searching process in this system is complex. If one searches for a topic, thousand of similar topics will appear and make one confused.
- e. Sometimes copyright issues also disturb the students and researchers getting information.

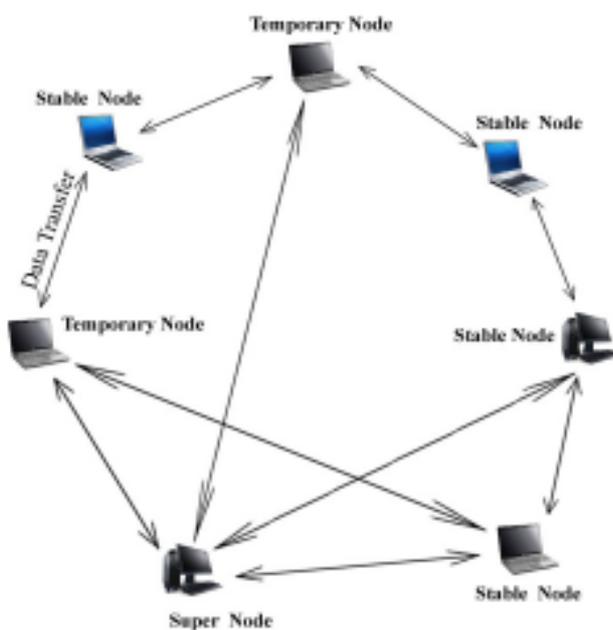
To overcome the following problems, we have designed a system which will be helpful for the University students specially those who have enrolled in distance education. The proposed arrangement uses peer-to-peer (P2P) file sharing system where each peer participated in the system and contributed some resources (Jhou *et al.*, 2007) without any centralized control (Stoica *et al.*, 2001). Peer-to-peer (P2P) systems are distributed systems in which nodes of equal roles and capabilities exchange information and services directly with each other (Veena and Rangarajan, 2013).

The design includes three communities through which the process will run. They are- the student community, the research community and the teacher community. We have distributed these all due to the

distribution of knowledge, communication skill; research activity and qualification of all community are different. So they can share their information and resources between them.

*Peer-to-peer files sharing Technology:*

Peer-to-peer (P2P) file sharing technology is a collaborative technology which is based on individual users making computer resources freely available, through their internet connections. The traditional internet system is based on client-server system where one server contributes and other client retrieves. In P2P network systems, there is little or no central control and the resources are shared among all the individuals. Node in the network plays the role both of a client and a server. They can directly communicate each other and in P2P the clients are sometimes called servents, since they act as both servers and clients. Sometimes it acts as a server and provides the information or replies the queries from other servents and sometimes it acts as a client when it makes the request for information to other servents. When large numbers of such servent applications form a network together, they constitute a powerful and robust information and computational infrastructure that is independent of any single central server. Therefore the system is very fast, cost effective and easier to search for a file as number of peer in the system is limited.



**Fig. 4 :** P2P Network

There are three types of Nodes in the system namely Temporary Node, Stable Node and Fully Stable Node or Super Node. Temporary nodes are those which can leave and join in the system at any time. Information is stored partially in these nodes and immediately transfers to another node if the system is switched off. Stable nodes are those which cannot leave the system for more times, they are attached to the system and contribute a lot. Super nodes are those which normally do not leave the system and attached to the system.

In our study, we propose a peer-to-peer file sharing model (Tewari, 2007) that connects two peers based on personal information exchange by using P2P concepts, in order to support creative learning activities in distance learning communities. We develop a system that supports more refined matchmaking in users' encounter across the networks, based on peer-to-peer information exchange (Aggarwal, 2009). The searching process of our system is very easy and people can search for a file and easily they can find out the correct one. The search process will follow an algorithm called search algorithm which will be based on rating system. All files are stored using file-id. Searching process follow different factors like the total number of use of files, grade of files given by experts, readers comment and indexed etc. Depending on these factors the system displays the search results in a specific order. Thus the users can get the accurate information which the system discovered for them by obtaining more detailed information, making the system user friendly.

Implementation of the proposed model is performed using Java programming which will enable to connect to the other nearest peer for data communication. It will enable to create comprehensive network applications using socket programming. All peers can communicate to each other using this technology.

The proposed system is very useful and fast because there is no control of third party administrator. All peers can download information directly from each other. Therefore big files like classroom videos can also be downloaded directly. Therefore the system is time saving. Each community can contact to each other and share information. Searching process is also very useful and anybody can find out information easily.

## 5. Conclusion

The proposed study has been carried out to analyse the existing distance learning systems in

India with a limited number of Universities or institutions.

The reality of the existing distance learning system in India is not fully satisfied to meet the goal. It need time to rectify the process and make students more intelligent and facility given by the University as well as Government will help to meet the goal. Nowadays, technology is developed in an accelerating rate. We have to improve and use the latest technology which will help the all category students to face and

meet any challenges and utilise the all types of facilities. ICT (ITU-T Report, 2012) has enabled to perform all types of help to the all category of people. In education sector it has make a revolutionary change during the last two decades. The use of peer-to-peer file sharing technology (Jin, 2003) will help to improve quality higher education to the students. P2P networks potentially offer an efficient routing architecture that is self-organizing, massively scalable, and robust in the wide-area (Lau *et al.*, 2004).

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