

Virtual University System: In Depth Study, Implementation Issues and Model Generation in the Context of India

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Introduction

The defining characteristic of all forms and generations of distance education is the separation of student and teacher in time and space. Distance education can be seen as the precursor to online learning. Before the advent of virtual universities, many higher education institutions offered some distance education through print-based correspondence courses. These courses were often referred to as a “course in a box”. These have been developed so that students can obtain almost immediate feedback from professors and online tutors through e-mails or online discussions [1].

In the recent years we have seen exponential growth of Internet-based learning. The transition to online technologies in education provides the opportunities to use new learning methodology and more effective methods of teaching.

A virtual university provides higher education programs through electronic media, typically the Internet. Some are bricks-and-mortar institutions that provide online learning as part of their extended university courses while others solely offer online courses. They are regarded as a form of distance education.

The goal of virtual universities is to provide access to the part of the population who would not be able to attend a physical campus, for reasons such as distance - where students live too far from a physical campus to attend regular classes; and the need for flexibility – some students need the flexibility to study at home whenever it is convenient for them to do so.

Some of these organizations exist only as loosely tied combines of universities, institutes or departments that together provide a number of courses over the Internet, television or other media, that are separate and distinct from programs offered by the single institution outside of the combine. Others are individual organizations with a legal framework, yet are named “virtual” because they appear only on the Internet, without a physical location aside from their administration units. Still other virtual universities can be organized through specific or multiple physical locations, with or without actual campuses to receive program delivery through technological media that is broadcast from another location where professors give televised lectures.

Program delivery in a virtual university is administered through information communication technology such as web pages, e-mail and other networked sources. As virtual universities are relatively new and vary widely, questions remain about accreditation and the quality of assessment.

The Open University in the United Kingdom was the world’s first successful distance teaching university. It was founded in the 1960s on the belief that communications technology could bring high quality degree-level learning to people who had not had the opportunity to attend campus universities. The idea for a “wireless university” was first discussed at the BBC (British Broadcasting Corporation) by the educationalist and historian J.C. Stobbart. From these early beginnings more ideas came forth until finally the Labour Party under the leadership of Harold Wilson formed an advisory committee to establish an Open University.

A number of other universities were involved in the late eighties in pioneering initiatives and experiments were conducted between Victoria University in New Zealand, the University of Hawaii, Ohio State University and Waseda University to try and conduct classes and courses at an international level via telecommunications. This led to the concept of a Global Virtual University.

Status of VU Systems in India

Some universities of India implemented Virtual University system, using this system these universities provides the online admissions to the students.

In the context of India following universities implemented virtual university system.

- Tamil Virtual University.
- Bhoj Virtual University.
- Bits Virtual University.
- Maharshi Vedvyasa International Virtual Vedic University.

A. Tamil Virtual University [2]

The Tamil Virtual University (TVU) was established in 2001 with vision to cater to the needs of the Tamils, who happen to live, outside the boundaries of Tamil Nadu, to stay in touch with their Language, Culture and Arts and to keep alive their ancient traditions, treasures, and values.

1) Tamil Education: The Tamil Virtual University is offering web based education on Tamil language, from alphabet to advanced level research. The lessons are developed with multimedia contents (including audio, video, animations, pictures, text etc.) in a manner that would create interest and promote motivation for learning in a self learning mode. In the academic programmes one can join either as a student or as an auditor for knowledge sake. The tests and evaluations will be conducted both online and offline at the Contact/Co-ordination centers of TVU.

2) Academic Programme: The TVU has the internet-based Educational Programmes leading to Certificate/ Diploma / Degree. The Educational programme covers courses on Tamil from alphabet to advanced studies and research. The Primer programme with rhymes and alphabet is for the Beginners. Certificate course, with Basic, Intermediate and Advanced levels, takes the students to the level of class 6 (of the normal standard schools in Tamilnadu) training them in language skills.

3) Virtual Class Room (E-Learning): The Teaching/Learning methodology adopted for the Academic Programme is E-learning through Internet based lessons with multimedia support. Further to strengthen and augment TVU’s web based Virtual Education Programme, a state of the art e-learning methodology through Virtual Class Room, video conferencing equipments along with a streaming server and high speed internet connectivity are being established in TVU.

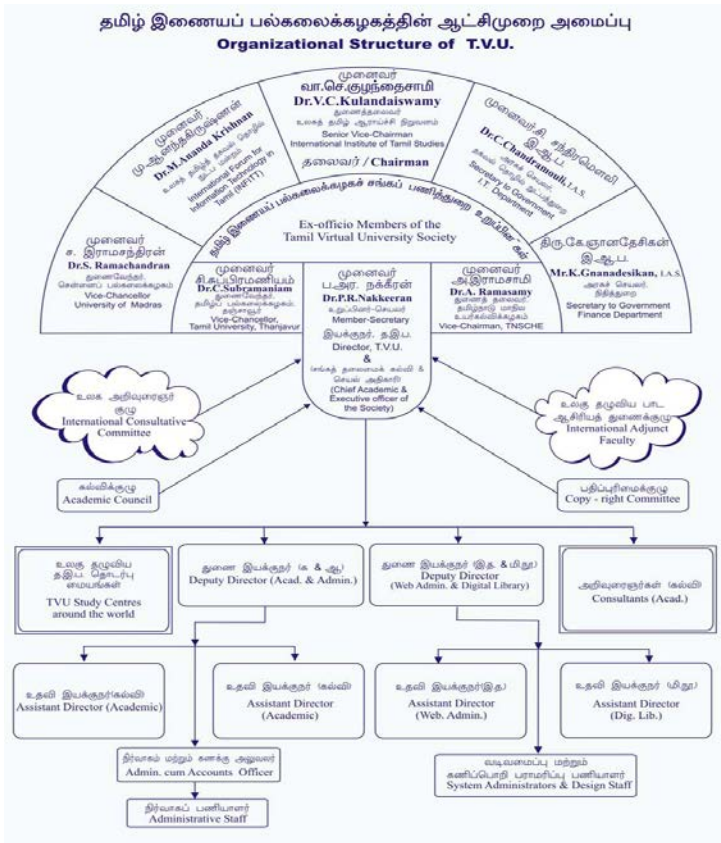


Fig.1 Organizational structure diagram [3]

B. Bhoj Virtual University [4], [5]

The National Policy of Education (NPE) 1986, emphasized that distance education is an important medium for the development and promotion of higher education. In this context, for the expansion and promotion of distance education the Central Advisory Board of Education (CABE), Government of India took an important decision that in the VIIIth year plan every state should establish a state open university following the distance education pattern. On this basis Madhya Pradesh Bhoj (Open) University (MPBOU) was established under an Act of State Assembly in 1991.

The University disseminates knowledge and quality education to different target group of learners irrespective of their age, gender, region, status and employment. MPBOU is the main University in the state for providing easily accessible and quality higher education through Open and Distance Learning (ODL) system. One of the important objectives of the University, as mentioned in the Act, is the extension and expansion of Higher Education by reaching the un reached through various flexible means suited to the open and distance education mode using emerging Information and Communication Technology. The University also gives due emphasis to special target groups of learners coming from rural/tribal areas and those suffering from the physical disabilities.

One of the main aims of the University is to develop and provide easily accessible system of higher education and training, by use of different modes of educational inputs such as lessons in print, text books, contact teaching, practical classes, TV/Radio/Video/Audio programmers, using satellite communication, etc. The University has, by now, developed systems which are capable of providing quality higher education and training even in remote and less developed rural and tribal areas.

A feature of the system is the orientation to take special care of the requirements, expectations and training needs of interested individuals, practicing professionals and students. Thus, the ultimate goal of the University is to provide higher education and training at the doorstep of the professionals, students and other seekers of education.

In India, just 6.5% of school leavers go on to higher education, compared to 30% in developed countries, hence the MPBOU is working earnestly for making higher education more accessible.

C. Bits Virtual University [6]

The Birla Institute of Technology and Science (BITS), Pilani is an All-India Institute for higher education deemed to be a University by the Government of India. BITS Pilani is a technological university currently offering Master's degree and Doctoral programmes in various areas of Science, Humanities, Management and various branches of Engineering & Technology. As of this writing, BITS Pilani has three full-fledged campuses at Pilani & Goa in India and at Knowledge Village, Dubai in UAE.

These programs were initially offered to only on-campus students. However in the past decade it has had significant experience in distance learning pedagogy and instructional design. To make its model of distance learning scalable, reachable to wider audience and leverage the benefits of emerging technologies, BITS conceived and designed the BITS Virtual University (VU).

This VU project envisages the design and development of multimedia course that is web-enabled that goes towards the curriculum of a full-fledged degree program. This enables people who are off-campus to avail of the facilities offered to a normal on-campus student registered under the same program. The advantage of this concept of VU is that students can get a degree from BITS, while being off-campus. Since these courses are web-enabled, the student can work in his own comfortable environment and is not restricted to the classroom. Moreover he can work at a pace with which he finds convenient.

All the students registered for the current semester are given a login and a password. Using this the student can access course materials for which he has registered. Prescribed textbooks and materials which will be useful to the student are made available separately.

Multimedia based Soft-Teachers are deployed for explaining concepts. Some innovative methods of using Java based "concept applets" for educational resource development have been used. An attempt has been made to simulate classroom teaching so that it is easier for the student to understand the course. To give the student a feel of lab environment, an introductory virtual lab framework has been designed, which can be reused for certain categories of practice-intensive courses.

Desktop IP based Video-Conferencing, Scheduled Video over IP and Video-on-demand over IP facilities are available as integral components of this learning support system.

Currently only a few subjects that form part of the Master's program are available in the Virtual University mode, but as the "Virtual University" concept gains momentum and popularity other programs will be made available as well. However, the evaluation components, until the technology matures, shall remain conventional.

D. Maharshi Vedvyasa International Virtual Vedic University [7], [8]

1) Virtual Origin: M.V.I.V.V.U is an autonomous Virtual University and conducts multidisciplinary & multilingual Vedic courses which are novel, innovative and unique in its own way. E-Vedic Courses which can give true satisfaction to aspirants of Vedic knowledge located in any place of this earth, but connected with internet. This will resurrect the aims and objective of ancient Vedic Universities.

The functions of a Virtual University as stated by the Commonwealth of Learning are

1. To provide a vehicle for collaboration in the development and use of emerging technologies that are needed to develop virtual education models such as subject matter databases and learning management systems;
2. To provide leadership in the planning, design and delivery to learners of programs, curricula and courses that are pertinent to the human resource development needs; and
3. To provide support services to students, which would include assessment of current skills and knowledge, advice regarding

academic plans, quality-assured access to courses, record of learning and the provision of awards where these are not available from other organizations.

MVIVVU is associated with many national and international Vedic institutes. The departments of University will be known as e-Gurukuls.

Each e-Gurukuls will be associated with a particular subject of Veda or Vedic Science, Technology and Philosophy. For e.g. e-Gurukul of Vedic Microbiology will conduct courses on Vedic Microbiology. And an Acharya (Lecturer/Instructor) will be appointed for management of that concerned Gurukul and for research and development activities of that subject.

2) Mvividu's E-Gurukuls: The traditional form of education during "vedic times" was called "GURUKULAM" where specialized education in the fields of music, dance, art, medicine or priesthood was taught in the gurukulam style.

The essential part of the GURUKULAM style of training was residential training at the teacher's place, a highly accomplished person in the chosen field. The education and training primarily took place through lectures and practical application, though not in the class room atmosphere.

Communication facilities and systems took a quantum leap with the introduction of personal computers and internet. As the cost of communication drastically reduced with broadband service for internet, educationists saw great opportunity to further expand the horizon of education across the world without any borders.

E. Global Virtual University ^{[9][10]}

Under the auspices of the United Nations University (UNU) the Global Virtual University (GVU) is a consortium of universities that work together to enhance learning for environmental sustainability. Through a range of online study programmes and courses offered by partner universities, the mission of GVU is to increase people's sensitivity to and involvement in finding solutions for environment and development issues. The consortium acknowledges the importance of education for development and is particularly designed to meet the educational needs of the developing world.

Online learning (e-learning) forms the basic educational method for all our study programmes and courses. This implies that a substantial part of teaching, collaboration, and supervision take place on the Internet. The pedagogy has a social constructivist approach, which means that group work, online discussions and joint assignments are important. It further implies that an active and regular participation among the students is essential. Students meet their classmates in virtual classrooms, in some cases supported by a face to face session in the beginning of the course.

Objectives and Scope

The idea of a virtual university as an institution that used computers and telecommunications instead of buildings and transport to bring students and teachers together for university courses.

Providing access to higher education for all students, especially adult learners, is made easier by the fact that most virtual universities have no entry requirements for their undergraduate courses. Entry requirements are needed for the courses that are aimed at postgraduates or those who work in specific jobs.

Studying in a virtual university has essential differences from studying in a brick and mortar university. There are no buildings and no campus to go to because students receive learning materials over the Internet. In most cases, only a personal computer and an Internet connection is needed. Course materials can include printed material, books, audio and video cassettes, TV programmes, CD-ROM/software, and web sites. Support is offered to learners from the professor or a tutor online through e-mails if they are having problems with the course.

With the goal of bringing higher education to all those who wanted to access it, the committee came up with various scenarios before settling on the name Open University. The first idea floated in the UK was to have a "teleuniversity" which would combine broadcast lectures with

correspondence texts and visits to conventional universities. In the "teleuniversity" scenario courses are taught on the radio and television and in fact many universities adopted the use of this technology for their distance education courses. The name "teleuniversity" morphed into the "University of Air" which still had the same goal of reaching the lower income groups who did not have access to higher education. The name "University of Air" did not stick and by the time the first students were admitted in January 1971 the name had become what it is today "Open University". OU proved that it was possible to teach university-level courses to students at a distance.

The virtual class laboratory it used dedicated telecommunication systems to make it possible for students to attend class virtually or physically and was at first supported by a number of telecommunication organizations. Its purpose was to seek the critical factors in using ICT for university level education.

Teaching Modes

When online courses first began, the primary mode of delivery was through a two way audio-visual network. Then as well as now, many of the virtual study programs were mainly based on text documents, but multimedia technologies have become increasingly popular as well. These web-based delivery modes are used in order to expand access to programs and services that can be offered anytime and anywhere. The spectrum of teaching modes in virtual education includes courses based on hypertext, videos, audios, e-mails, and video conferencing. Teaching on the web through courseware such as Web and Blackboard are also used.

The major perspectives of using e-learning can be generalized as follows: an opportunity for overcoming the limitations of traditional learning, such as large distance, time, budget or busy program; equal opportunities for getting education no matter where one live, how old he/she is, what is health and social status is; better quality and a variety of lecture materials; new consortia of educational institutions, where a lot of specialists work in collaboration, use shared resources and the students get freedom to receive knowledge, skills and experience from other universities.

Virtual university provides education, which is not appeared in college.

- Who is economical poor.
- Who is engage in some private or government job or business.
- Some students who have suffer some social problem and due to this problem that is not appeared in regular classes.
- Student gets his education freely on his own house, without tension of time or pressures of faculties.
- Students are direct communicates to the higher staff of university.
- Students attend the video conferencing without spend more expense.
- Students got information from any university of world, which is collaborating to other university.
- Reduce the man power in this method.

Major Challenges ^[11]

Following are the challenges and issues in virtual university system nowadays:

1) Lack of finance: The major challenge in implementing the virtual education is the lack of finance. It is not possible to make any resource available without appropriate financial support.

2) Inadequate Infrastructure: The major constraint virtual university systems face in the Indian environment is the lack of infrastructure. A virtual university system requires a certain investment in hardware, Software, and support staff.

3) Lack of Knowledge and Training: One of the main constraints of virtual university systems is that students need to know how to use the particular information technology. Much more attention will be required in the future web based training that will be delivered over the internet using the non propriety www server and client technology.

4) Lack of High quality teaching Staff: Highly qualify teacher must require developing and implementing the virtual university system.

5) Lack of Evaluation: There is no mechanism of assessing teaching effectiveness and Evaluation of study in virtual university system.he

Objective of the Research

1. To find the inadequacies in the present traditional University system of delivering education in India.
2. To explore the various implementation issues/challenges (Technical as well non technical) in the selected universities who have already implemented the concept in India.
3. Generation of enhanced conceptual E-model.

The model will be benefited to those universities who have implemented the concept or those who are in plan to implement it.

Conclusion

This research is primarily set out to identify and consolidate the implementation mechanism associated with Virtual University and to formulate a framework to evaluate, categorize and handle these issues. The insights that will be gained from the research are expected to form a set of guidelines for designing this system in the form of a structured framework for generating a model.

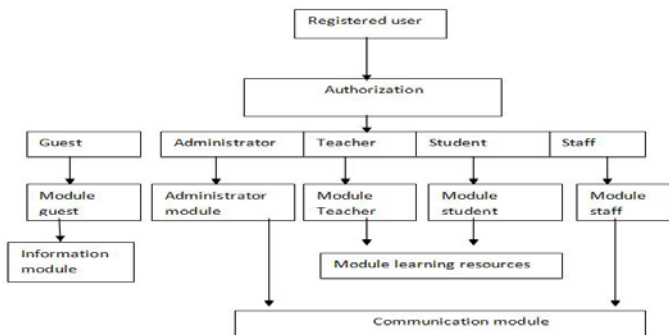


Fig. 2 Basic Logical VU Model ^[12]

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