5. **Pakistan Case Study: Distance Education in Pakistan**

Pakistan like other South Asian countries initiated its distance education programme historically to provide mass education and literacy to the people. Over time distance education evolved to cater to the needs of those who for various reasons were not able to attend formal institutions or those who desired flexibility in their education. The Allama Iqbal Open University set up in 1974 was the first Open University to be set up in Asia. This was followed more recently by the setting up of the Virtual University in the year 2000. Distance education is now poised to evolve into another stage with the advances in information and communications technologies and ways of learning, which could place the distance education model as one of the most responsive to the changing educational needs.

The telecommunication industry in Pakistan has witnessed a boom following its deregulation; this has laid a strong foundation for Pakistan to strengthen its distance education delivery mechanism. However, there are also many constraining factors that need to be overcome to take full advantage of a distance education system. These factors include language barriers, current state of ICT penetration, computer literacy, and apprehension to move away from traditional learning methods.

5.1. **Modes of Distance Education**

A combination of radio, television, and the Internet is used in distance learning institutes in Pakistan. Since 2004, when the government deregulated telecommunication in Pakistan, the sector attracted 54% of the total Foreign Direct Investment (PTA 2006). It is estimated that 10,184 hours of programming are broadcast annually on 3.6 million TV sets; the estimates for radio programming are four times this figure (Iqbal 2004). The Institute of Educational Technology (IET) established in Allama Iqbal Open University is a centre of media production. The educational audio and video content developed in IET is broadcasted on national television and radio channels. Virtual University of Pakistan operates four free-to-air satellite channels on which some of their lectures are broadcasted.

5.2. **Major Initiatives**

Distance Education in Pakistan is dominated by Allama Iqbal Open University (AIOU), Asia’s first Open University, which was established in 1974 with a mandate of providing educational opportunities to the masses and to those who could not leave their homes or their regular jobs. In 2000, the Government of Pakistan developed a new initiative—the Virtual University of Pakistan (VUP). VUP was established specifically to create more capacity in the system by leveraging modern information and communications technologies. Even though VUP used ICT to deliver education through a distance learning mode, it was not conceptualized as an “open” university since AIOU already served that market (PANDORA Distance Education Guidebook). Together AIOU and VUP serve 750,000 students (with an annual growth rate of 14%), which is three times the student population of all other universities in Pakistan combined (Ansari and Saleem, 2010). Due to the
efforts made by the government as well as private and non-government donors, enrollment in distance learning institutes has increased from 199,660 to 305,962 from 2005-06 to 2007-08 (Economic Survey 2008-09). Some of these initiatives are highlighted in the following:

5.2.1 Allama Iqbal Open University

The primary objective of AIOU is to provide educational opportunities to people who can not leave their homes or jobs. It also aims to fulfill Pakistan's current shortage of technical and professional education opportunities for the lower middle class and poorer classes. It is a distance education institution and has its headquarters in Islamabad and a network of regional centers spread across the country. AIOU is also one of the 17 members of the Mega University Club. (A Mega University is one in which the number of admissions exceeds one hundred thousand annually.) In 2007–08, student enrollment was more than 1 million, more than 50% of whom were females and 58% were students from rural areas. The budget for the year 2007-08 was 1921.848 million [Treasure’s Department (budget section), AIOU] and the university gets around 15% as grants from the government and other donors.

Teaching Methodology

The University applies a non-formal method of correspondence through three basic models of education delivery: traditional distance learning, traditional face-to-face learning, and blended learning. The traditional distance learning mode uses special textbooks and reading material prepared on self-learning basis, part time teachers engaged near students' residence and a system of study centers spread across the country. This traditional method of teaching has also been supplemented with radio and television programs. The university produces audio and video programs, which are regularly broadcasted on the radio and television; they are also sent to the students in the form of cassettes. According to the Academic Audit of AIOU 2006, the university broadcasted 1,034 media programs for 144 courses. The traditional face-to-face learning mode is used for students studying science programs, who need regular access to laboratories. For this purpose, evening and weekend classes are offered. The third model of education delivery is blended learning or e-learning, for which it utilizes Satellite and Internet facilities. e-Learning was started at AIOU in 2000 with the initialization of a conceptual online education framework called Open Learning Institute of Virtual Education (OLIVE). OLIVE is a Learning Management System (LMS) which allows students to interact with teachers in a virtual classroom by enabling Web-based management and delivery of courses.

Open Learning Institute of Virtual Education—An e-Learning Framework

OLIVE, which was developed to overcome the shortage of trained teachers in Pakistan, is an online model to get support of teaching and research faculty from abroad. It also focuses on developing infrastructure needed for supporting blended activities and e-learning. For quality of education and better learning, the use of multimedia courseware is considered an essential at OLIVE and as a result multimedia CDs have been distributed nation wide in about 25 cities where students were
studying under different OLIVE delivery models; TV and Radio programs are also broadcasted. Some of the courses offered at OLIVE have used multilingual multimedia content. Keeping in mind the diverse needs and geographic location of its students, three e-learning models under the OLIVE framework are used at AIOU. A brief description of each delivery model is highlighted in the following table:

### Table 17: Delivery Model at Allama Iqbal Open University - Pakistan

<table>
<thead>
<tr>
<th>Model</th>
<th>Student profile</th>
<th>Delivery mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model A—Regional Study Center Student</td>
<td>Used where the class size is small and study centers have been established in the local community</td>
<td>• Each study center is equipped with high speed Internet connectivity, laboratories and trained faculty</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Developed multimedia courseware is streamed in centers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Each student also has an online access to the main campus server or regional server for additional open self learning sessions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• However students are not allowed to participate in online sessions as they have been provided teaching support at the center.</td>
</tr>
<tr>
<td>Model B—Internet-Based Student</td>
<td>Aimed at students who have access to the Internet at home or at the office.</td>
<td>• Internet is used for online assignment submission, additional online lecture sessions and live sessions with teachers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Multimedia courses are available to students online.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Students can access recorded video conference lectures.</td>
</tr>
<tr>
<td>Model C—Girl at Home</td>
<td>Aimed at students who do not have access to the Internet.</td>
<td>• Students are supplied self learning multimedia courseware on CD’s and other reference materials at their home.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Students can use the Internet facilities available at either the main campus, study centers or Internet Café’s to submit assignments.</td>
</tr>
</tbody>
</table>

In addition to providing student learning, OLIVE has also been used to address access issues, administrative issues, and teacher resources. Students can register themselves through the online admissions software; this allows the university to predict student enrollment and make arrangements of teachers and classroom sessions accordingly.

**ICT Directorate**

The ICT Directorate was established in 2007 to develop, guide, and provide technical support for the AIOU ICT infrastructure and also to train staff, faculty, and students in use of modern ICT devices. The specific objectives of the department are mentioned as follows:

- Transforming AIOU into a 21st century Open Distance Learning University
- Developing a TV channel and FM radio network
- Developing electronic media to support distance learning
- Providing online support services for academic and administrative functions

To achieve its objectives, the directorate has various departments operating under it which have been established through a phased program under the sponsorship of the Higher Education Commission. These departments include the LAN department, the Internet department, and the e-learning department.

**Other ICT-Based Learning Methods**

Following the success and cost effectiveness of OLIVE, AIOU has planned a major organizational change to incorporate ICT-based learning in all its traditional education programs. To facilitate the shift in the delivery mechanism, AIOU in collaboration with the Higher Education Commission (HEC) has taken the following initiatives:

- The Multimedia Courseware Design Centre (MCDC) was established to develop the infrastructure required for the design, development, testing, and deployment of multimedia electronic courseware at AIOU.
- An FM radio broadcast system was established at AIOU to broadcast live discussions on many professional courses offered at the university
- University campus was networked with fiber optics. WAN was established to connect regional centers and student centers.
- A digital library was created and made available on campus. This growing eBook collection spans all academic subjects taught at the university
- In 1980, the computer center was established which enables the university to address administrative issues such as enrolling students, conducting exams, tabulating results, registering tutors et cetera
ICT Vision at AIOU

The university plans to continue incorporating ICT for the delivery of education and to overcome many operational and academic problems. The university has signed an MoU with HEC to establish a Self-Access Centre (SAC) to facilitate teacher training in Computer-Assisted Language Learning (CALL) and Internet-Mediated Language Learning (IMLL). An agreement has also been signed with Intel to provide AIOU students with 700,000 computers by 2012. Further detail of AIOU’s plans related to accessibility and ICT infrastructure is highlighted in the following box:

ICT Plans: 2009-2012

- AIOU will establish VSAT-based television and live communication channels. Its network will be extended to all AIOU regional buildings, selected community schools and Interactive Learning Centers (ILSC). Current telephone and mobile service will be integrated with the AIOU network.
- E-learning software and content will be acquired and delivered in a digital form and, where needed, in a local language. New learning technologies and tools will be continuously added
- Electronic assessment facilities will be provided
- Both Communication network and content delivery services will be extended to students in all localities.


5.2.2 Virtual University of Pakistan

The Virtual University of Pakistan is a not-for-profit university under the Government of Pakistan. It aims to overcome the acute shortage of qualified faculty and lack of sufficient infrastructure in current universities to accommodate new students, by using technology to share the knowledge of existing experts in the field and making it available to a larger set of people. To achieve its objectives, the university uses a blend of free-to-air television broadcasts, the Internet and multimedia technologies. Currently, 17 degree programs are offered; however, programs that would require the use of physical infrastructure such as science laboratories are not yet available at the university. There are more than a 100 campuses located in 60 cities of the country. Student enrollment has increased from 1,095 students in 2004 to close to 50,000 in 2009. Major funding for the university is provided by the Higher Education Commission, though students are charged a relatively subsidized fee.

Teaching Methodology

The delivery mechanism of the VUP is based primarily on ICT; the university operates four free-to-air satellite channels, which utilizes Pakistan’s first communications satellite, PAKSAT-1 (PANdora Distance Education Guidebook). The channel is used to deliver lectures; the Internet is used to
facilitate interaction between the students and the professors. Video content has been developed for over 170 courses covering more than 7,650 lecture hours (Baggaley and Belawati, 2009).

To overcome the shortage of qualified teachers, the university identifies renowned professors in the country and requests them to develop hand-crafted courses, which are distributed to VUP students as well as the general student population. These professors belong to other top universities of the country and are recognized experts in their fields. To efficiently utilize the limited amount of time that these domain experts can spare, the experts are requested to deliver the lectures in VUP's studio. After the lecture has been visually modified by the graphics department they are broadcasted on the university's free-to-air channels.

The lectures are available to the students on campus according to a defined timetable or via a CD to view at home. They can also watch the lectures at defined broadcast times from their homes. The students receive and submit their assignments using the Internet through the Learning Management System. They can also check their grades as these are made available on the LMS by the teachers. Examinations and assessments are conducted through traditional methods and centers have been established throughout the country for undertaking these periodically.

**Learning Management System**

While the television is a powerful tool to deliver the lectures to the students, VUP uses the Internet to facilitate contact between the teachers and the students. Through the in-house developed Learning Management System (LMS), VUP provides flexibility to interact with the teachers irrespective of the student's geographical location. Every registered student of the university receives a unique ID to access the LMS. Students can post questions on various subject matters on the Moderate Discussion Board (MDB). The discussion topics are segregated by courses and then further divided for each lecture so that teachers can respond to questions pertaining to their expertise. LMS is also used by students to chat with other students, view their grades for each assignment submitted, view course material available online, and practice problems related to the course at their own pace.

**Other ICT-Based Learning Methods**

Television, radio, and the Internet are the driving modes of education delivery at VUP. The university along with the Higher Education Commission has initiated several steps to enhance the quality of these modes; these initiatives are discussed as follows:

- Establishing the “Virtual University Radio (VUR)—Sound of Knowledge,” which is a Web radio service aimed at delivering educational and informational programs via the Internet to the people of Pakistan as well as the rest of the world
- Increase the number of television channels dedicated to education as well as enhance the automated and manual broadcast infrastructure at the university
• Providing Virtual University Channels on cable networks so that the university campus and all the major cable-head-ends have the necessary equipment to receive the television broadcast through PAKSAT-1.

**Future Vision of VU**

“VU lives and breathes ICT from its very inception. To broaden outreach, we will have to improve the state of IT literacy in the country and also provide easy access to computers. VU has already developed a full set of interactive programs in the local language to address the former issue, while the latter is being looked at through the Universal Service Fund.

From an academic perspective, VU intends to look at major national priority areas and try to address those. In the formal domain, these include education (producing quality teachers) and vocational training (how do we do it through DE), while in the non-formal domain VU will be targeting agriculture (techniques and value addition).”

Dr. Naveed A. Malik, Rector Virtual University of Pakistan

5.2.3. Higher Education Commission: Distance Education

The Higher Education Commission has taken up various initiatives to support the Distance Education Institutes as well as other academic institutes, which contain a component of distance learning. These initiatives are mentioned as follows:

**Online Lecturing and Net-Meeting using IP-Based Video Conferencing System**

To meet the shortage of faculty members and to improve the overall quality of education, HEC initiated the “Online Lecturing and Net-Meeting using IP-based Video Conferencing System.” Under this project, HEC provides video conferencing facilities to universities/degree awarding institutions across Pakistan.

**Broadband Facility**

In 2007, HEC signed an MoU with Pakistan Telecommunication Company Limited (PTCL) whereby PTCL will provide Broadband DSL connections to students, faculty members, and administrative staff at subsidized rates at their residence.

**National Digital Library**

The National Digital Library (DL) is a programme under HEC, which provides universities (public and private) and nonprofit research and development organizations with access to journals, databases, articles, and e-books across a wide range of disciplines. DL hosts over 10,000 e-books and 20,000 full-text journals; through the British Library Document Delivery Service 150 million items can be accessed (HEC, Pakistan).
Pakistan Education and Research Network

Pakistan Education and Research Network (PERN), an initiative of HEC, is aimed at providing interconnectivity between all public and private sector chartered universities/degree awarding institutes. Currently, PERN uses the intranet and Internet to interlink 56 institutes to provide integration of data banks, collaboration of research and development activities, and resource sharing, which strengthens the distance learning departments of the concerned universities.

5.3. Constraints

Some of the constraints that Pakistan faces in terms of enhancing the current state of distance education along with some initiatives to overcome these constraints are highlighted in the following:

Language Barrier: With literacy figures being low in Pakistan, familiarity with the English language is rare. Most of the population understands only Urdu which is the national language. The unfamiliarity with the English language poses as a major constraint for Pakistan as Internet content in Urdu is scarce. Web sites that do offer Urdu content are slow to load because they contain scanned images of the Urdu script as there is no standard Urdu script for computers (Sayo et al.).

To overcome language barriers, the role of the Centre for Research in Urdu Language Processing (CRULP) is crucial. CRULP was established in July 2001 and is supported by the government. Its primary objective is to carry out research and development in areas such as Speech Processing, Computational Linguistics, and Script Processing. Currently it is in the process of developing a machine translation system, which converts and displays English Web content to Urdu (Siddiqui, 2007).

Current State of ICT Penetration: Even though Pakistan’s telecommunication sector has witnessed intensive growth, basic and broadband access to the Internet remains low. In 2007, it was estimated that there were only 10.8 Internet users for every 100 inhabitants and only 1.3% of them were broadband subscribers (ICT at a Glance, World Bank). Due to low Internet penetration, television and radio have become the major distance learning drivers in Pakistan.

“\textit{The main requirement for effective distance education would be to have broadband available across the country. Large cities already have DSL availability and further broadband penetration is now underway. Under-served areas are being supported through the Universal Service Fund of the Ministry of Information Technology. The provision of international bandwidth has improved substantially over that last few years and is no longer considered an impediment. The shortage of electrical power however, is an extremely serious issue and impacts all ICT interventions severely.}”

Dr. Naveed A. Malik, Rector Virtual University of Pakistan
Apprehension to move away from traditional teaching methods: Distance education is not considered to be at par with conventional education in Pakistan particularly because no teachers are physically present to address queries and students are not trained in Self-Regulated Learning which makes comprehension of concepts problematic (Siddiqui, 2007).

“The perception about DE has been a major issue and was also a serious impediment at the time VU was launched. However, by carefully nurturing the public exposure of the University and ensuring that all its offerings, especially video lectures, are made visible to a large population, VU has been able to establish a quality image for its graduates. VU graduates are now accepted without question by other universities into their graduate schools, and many have gone on to top tier international institutions for their doctoral studies. However, VU is still a very small University by DE standards (50,000 students) as compared to Allama Iqbal Open University (>1,000,000 students) and much more is needed to overcome the generally negative perception about DE in Pakistan.”

Dr. Naveed A. Malik, Rector Virtual University of Pakistan
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