MODULE:	6e) ODL Example: Virtual University of Pakistan (VUP)
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This section contains one of a series of open and distance learning (ODL) institutions in Asia. The range of ways in which ODL is provided by these institutions provides useful models for other organisations to consider.

EXAMPLE/E: Virtual University of Pakistan (VUP)

Pakistan is populous country of nearly 160 million people, with almost half of this number below the age of 30. A 1998-9 study indicated that only 3.5% of the college-age cohort (18-25 years) was actually enrolled in tertiary education institutions. The majority (96% of this age group) were not enrolled and therefore not receiving higher education. The established universities were full to the brim and expressed their inability to cope with higher student numbers. Compounding the problem, the existing universities had an acute shortage of properly qualified faculty, leading to severe quality issues in the tiny segment of the population that actually had higher education access. Whereas the problem of capacity shortage could have been overcome by providing adequate financial resources, the issue of faculty shortage was not amenable to usual solutions and radical measures were required.

In 2000, a feasibility study organised and funded by the United Nations Development Programme (UNDP) assessed the possibility of using information and communication technology (ICT) to tackle this problem, with particular reference to the development of human resources for ICT, demand for which was at that time at a worldwide peak. Public discussion and debate on the Internet was organised by the Minister for Science & Technology to develop a coherent policy for ICT in Pakistan. The feasibility study, public discussion, and other factors indicated that a new university should be established that would use ICTs as force multipliers to overcome the capacity and faculty shortage problems. The establishment of a 'virtual' university became a part of the action plan drawn up by the government to fulfil its ICT policy. The plan was approved in 2001, and initial funding for the Virtual University of Pakistan (VUP) was released later in the year.

The new VUP opened its virtual doors to the public in a very short time. The first batch of students was inducted in March 2002 into a 4-year BS programme in Computer Science/ Information Technology. The University received a formal Charter in September 2002, which empowered it to establish different faculties and schools. The Charter was federal, allowing VUP to offer its programmes throughout Pakistan rather than being limited to any one province. The University was expected to provide world-class education at extremely affordable rates to aspiring students nationwide. VUP would supplement the capacity of the existing universities, and its main focus would be on formal education. While it would use ICTs to deliver education at a distance, it was not designed as an "open" university, because the Allama Iqbal Open University (AIOU) already served that market.

Organisational structure and infrastructure

The VUP is a public-sector not-for-profit autonomous university established by the Government of Pakistan. Its funding is provided by the Higher Education Commission (HEC), and its administrative division is the Ministry of Information Technology (MoIT). The Charter of the VUP defines its organisation structure. The President of Pakistan is the Chancellor, and a Board of Governors chaired by the Secretary of the MoIT is the apex body charged with running the University. The University's chief executive and chief academic officer is the Rector. Other principal officers include the Registrar, the Controller of Examinations, and the Director of Finance, with the same roles as those in conventional universities. Special divisions that distinguish and define VUP from other institutions include a Networking division, an Information Technology division, and a major TV production and broadcast division. These areas are headed by a Director of Technical Services. Statutory bodies of VUP include the Academic Council, the Finance & Planning Committee, the Selection Board, and the Executive Council. These bodies, chaired by the Rector, make recommendations to the Board of Governors.

VUP is based entirely on the imaginative and effective use of ICTs, and its technical divisions are therefore designed and equipped with a fault-tolerant and redundant infrastructure. The servers deployed for VUP's web site (www.vu.edu.pk), email system (mail.vu.edu.pk), and learning management system (vulms.vu.edu.pk) are all high-end state-of-the-art machines with redundant power supplies and RAID hard disks. The servers are located on a 155 Mbps fiber trunk that traverses only a few yards to get to Pakistan's main router located on the national backbone. As such, the servers offer a high-availability environment. The TV production and broadcast facilities are state-of-the-art and completely digital from end to end. VUP operates its own 4 free-to-air satellite channels, and more are being added according to the requirements of the various educational programmes. The channels utilise Pakistan's first communications satellite, PAKSAT-I. Although communication problems occasionally arise in the underlying infrastructure, the strategic placement of the servers on the national backbone and the use of the national satellite ensure that any breakdown in international links does not affect VUP's operations.

The instructional system

VUP's instructional system and course development process have been designed with the problems that led to the University's creation, especially the shortage of qualified faculty in the existing universities, held carefully in mind. From the outset, it was recognised that whereas access to the Internet was spreading rapidly across the country, it would take a considerable amount of time for broadband to become available nationwide. Content would therefore have to be delivered by means other than the Internet. An informal, psychological pilot study indicated that, regardless of the audience's intellectual sophistication and maturity, the majority still preferred video content. It was therefore decided to deliver content in the form of video lectures using broadcast television, and that all mentoring, tutoring and interaction between the students and teachers would take place on the Internet.

In designing the instructional system, several other factors were considered. It was decided that the educational experience offered by VUP to students in the smaller towns and remote areas should be no different from that of their peers in the major cities. Furthermore, it was decided that system should be completely scalable and able to handle large student cohorts. Finally, it was felt that students from remote areas lacked exposure to the world-class talent that existed, albeit in short supply, in the traditional universities across the country and that this situation should be addressed. The VUP has therefore evolved its own content development and delivery methodology. Renowned professors and domain experts are invited to develop the video lectures for the courses, and the associated handouts and lecture notes. Since these professors usually belong to other institutions, the VUP requests their services for a defined period of time that does not disturb their parent institutions. These world-class resource persons handcraft the lectures and deliver them personally in the VUP's studios. The lectures are then embellished with slides and animations by the graphics department, and a broadcast-quality lecture is produced. The lectures are broadcast on the University's free-to-air public channels, and other than VUP students, their counterparts

from other universities can and do benefit from them. The accompanying lecture notes and handouts are disseminated through the VUP learning management system and are also distributed in print form.

VUP students follow the lectures in one of three ways: according to a defined timetable on campus; at defined broadcast times from home; and at convenient times via CD versions of the lectures. This flexibility is maintained for a 24-hour period only, so that assignments, quizzes, and discussions based on the lecture contents can be initiated by the teachers on the following day. Assignments are an integral part of the course work, and are handed out and submitted through the learning management system. Tutors grade the assignments and the graded work is made available to the students for review. Examinations are conducted in a conventional, proctored environment. Exam centres are established for that purpose across the country with invigilators appointed and examinations conducted in a strictly controlled environment. The course statistics presented in Table 1 are single-line numbers representing pure DE, and may be compared with the corresponding figures for other universities.

Table 1. VUP programmes, majors, courses, and students (2007).

Programmes	Majors offered	Courses offered	Students enrolled
4-year BS programmes	9	151	5,679
2-year BA programmes	5	105	996
2-year Masters programmes	3	66	10,339
2-year MS/MPhil programmes	1	12	70
1-year Diploma in CS/IT	1	11	151
1-Semester Certificate	-	60	144

The enrollment history (Figure 1) clearly shows the slightly wary reception accorded to the university in the first few years, rapidly ramping up with the introduction of new programs and acceptance by academia and the industry of the Virtual University's degrees.

Figure 1. New student enrollments at VUP (2002-07).
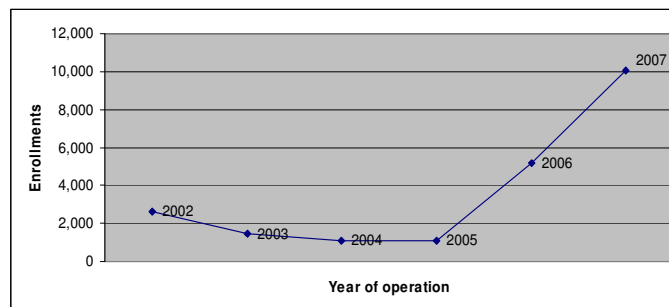
New student enrollments (2002-07)					
2002	2003	2004	2005	2006	2007
2,589	1,442	1,095	1,126	5,181	10,071

The use of celebrated professors and domain experts for content development, and the dissemination of their lectures on free-to-air TV channels, has gone far towards overcoming the public acceptability problems experienced by other DE institutions. In fact, the recent first batch of VUP graduates has been accepted by top-tier institutions within the country and in graduate schools abroad. This is a huge plus for the University. VUP graduates are being hired at top market salaries by extremely competitive and demanding technology companies. This acceptance by the industry has validated the quality of VUP's programmes and teaching methods. Management problems relate to plagiarism in assignments and

cheating during examinations. These also exist at other universities, of course, though at VUP the problem is compounded by the nationwide distribution of the University's activities. The evaluation system contains an elaborate set of checks and balances to detect any attempt to use unfair means. This effort is likely to remain a work in progress, given the ingenious methods some students use to break the system.

Conclusions

The VUP is one of the youngest universities in Pakistan, the proverbial "baby" of the higher education family. In a very short span of time, it has been able to establish its credentials as an institution providing high-quality higher education. The judicious combination of broadcast television with high production-value lectures, mentoring and support over the Internet, and student assessment conducted in conventional academic environments, has allowed the University to overcome many of the negative perceptions associated with DE programmes. Perhaps inevitably, a certain segment of traditional academics still does not accept DE as an acceptable means for delivering educational quality, but slowly they are being won over by the visibility and quality of the VUP's programmes and the eminence of the specialists associated with them. The University has so far avoided having to offer programmes that require the use of a physical setting (e.g. laboratory), but the time is fast approaching when the market will require such programmes. Collaborative efforts are already under way so that programmes can be offered in conjunction with conventional institutions that can provide the necessary physical plant facilities.