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ALTERNATIVE DELIVERY SYSTEMS IN HIGHER EDUCATION AND THE SEARCH FOR QUALITY THROUGH DISTANCE EDUCATION

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Abstract

The potential of distance education is widely acknowledged. The same cannot be said about its quality. It is because of misgivings on the quality of distance education that this article attempts to answer critics of higher distance education by exploring its potential in delivering quality programmes. In this attempt, the article compiles a compendium of major factors which influence the quality of distance education programmes and demonstrates how these can contribute to the quality and effectiveness of higher distance education. The evidence presented in this article shows that distance education is as good as, and in several respects, better than conventional instructional delivery systems. It is the author's argument that higher distance education is not only now in competition with conventional higher education, but enjoys a competitive edge over the latter. The article, therefore, recommends that higher distance education should develop a culture of quality education which reflects its unique delivery system. Furthermore, distance education should strengthen those of its features which enhance its competitiveness in the delivery of higher education.

INTRODUCTION

QUANTITATIVE EXPANSION AT primary and secondary school levels in most developing countries has not only resulted in inevitable decline in the quality of education because of larger classes, advent of large numbers of untrained and less qualified teachers, inadequate supply of teaching and learning resources and poor infrastructure, but has also led to mounting pressure for university places. Most universities have, in turn, responded by increasing their enrolments without proportionate increase in funding needed to sustain quality university education. What this means is that on-campus university education has not only remained expensive, but it is of poor standard while it still fails to meet the demand for university places. As a result many countries are now increasingly turning to distance education to alleviate demand for university education and help meet the quest for this type of education by those unable to secure university places.

Many countries that introduce higher distance education normally do so because they perceive its effect as only that of increasing access to education at lower cost per student compared to similar on-campus face-to-face programmes. What these countries may not be aware of is that they are also getting as good if not better education per unit cost than comparable conventional programmes. The role of higher distance education in the provision of university education has grown significantly over the last 20 years. Higher distance education is no longer a second best system; it is gradually proving to be a viable and credible higher education delivery system that, in effect, is in competition with conventional university systems.

It is against this background of the increasing importance of higher distance education that this article examines it with a view to identifying variables that assist in improving and strengthening its quality and credibility. Sceptics of higher distance education, especially faculty members and senior administrators in conventional universities, continue to make an issue of the quality of distance education programmes. It is because of such misgivings that this article makes a case for university distance education by exploring its potential in the provision and delivery of quality distance programmes.

This article develops a compendium of major features of distance education for use in assessing and improving the quality and effectiveness of higher distance education delivery systems. The article begins by defining distance education in order to provide a context within which subsequent dialogue will be understood. Secondly, the author will give an overview of some generic distance education features which both distinguish it from conventional education and influence the provision of quality higher distance education. Most of these features will go into the analytical compendium for assessing the quality and effectiveness of distance education. Suggestions for the improvement of higher distance education will be discussed in the penultimate section. In conclusion the author will argue that higher distance education is as good as, and in several respects, can be better than conventional university education. It is also the author's contention that university distance education is now in competition with conventional university education which has, hitherto, enjoyed the monopoly in the provision of higher education. The article further suggests that higher distance education must necessarily develop its own culture of quality education and strive to strengthen those features which enhance its competitiveness in the delivery of higher education.

DEFINITION OF DISTANCE EDUCATION

What distance education is and is not has been the subject of considerable debate because of its recency in the literature (Holmberg, 1983) and also

because of the challenge it is increasingly offering to traditional forms of university education. Several plausible attempts have been made to define distance education, notably those by Keegan (1980), Moore (1977), Peters (1973) and Rumble (1983). Their contributions led to the conceptualisation of distance education as a technologically-based form of independent study involving directed and controlled self-instruction by the learner, and in which the learner does not receive continuous, immediate supervision from the teacher because the two are separated from each other by time and space.

OVERVIEW OF FACTORS AFFECTING QUALITY OF DISTANCE EDUCATION

Factors that generally affect the quality of distance education fall into three distinct classes, namely; student characteristics, didactic characteristics and the nature of distance education itself. Factors that fall under student characteristics are generally concerned with and attributable to the unique characteristics of distance education students. Typically, distance education students have very diverse characteristics, unlike the more homogeneous composition of conventional education students. Students who enter distance education programmes are of diverse age, academic and professional qualifications as well as social and civic commitments and economic status. This is because distance education systems have very flexible admission requirements which promote access to university level studies.

Didactic characteristics of distance education include high dependence on technology, highly interactive and self-instructional nature of learning materials, correspondence study and tuition and student support systems. Finally, the quality of distance education programmes also depends on factors that are to do with the nature of distance education itself. These include temporal and spatial separation of the teacher and the learner (which, in turn, results in lack of immediate feedback from the teacher and diminished opportunities for socialisation), the openness of distance education programmes (including entry requirements, entry points, assessment system, etc.) and acceptability of or attitudes towards distance education. These and other characteristics of distance education both distinguish it and influence the quality of distance education programmes.

ASSESSMENT OF THE QUALITY OF HIGHER DISTANCE EDUCATION

The criteria for the appraisal of the quality of distance education can be developed from a synthesis of the literature. The attempt made in this article to compile factors that go into the analytical compendium is by no

means exhaustive of all possible factors that can help illuminate the debate on the potential contribution of university distance education to quality of higher education. The author selected only those factors that were common to both distance and conventional delivery systems and/or had the greatest potential in improving the quality of university distance education programmes. The deliberate selection of quality indicators that are common to both systems is esential to sustain valid comparative analyses between the two systems while, on the other hand, quality factors unique to distance education illustrate the latent capacity for qualitative improvement of distance education programmes. The evaluative criteria used in this article is derived mainly from those suggested by Gooler (1979), Keegan and Rumble (1982) and Rumble (1986). These include access, equity, learner outcomes, instructional methods, instructional materials and dropout rates. To these the author has added the effectiveness of the management process since sound management and management leadership is important for effective and efficient delivery and provision of quality distance education programmes. Also added to the list is the integrity of student assessment procedures.

Access and equity

In assessing the quality and effectiveness of higher distance education programmes the issue of access and equity becomes preeminent. This is because the most commonly acceptable and least contentious rationale for introducing distance education is its potential for increasing access to higher education especially for disadvantaged sections of society. Reasons given by some people on why they choose the distance education option further underscore both the access and equity rationale for distance education. For example, some people choose distance education because they may feel psychologically and geographically distant from conventional institutions or they find conventional systems in conflict with their work, leisure, civic and social commitments (Verduin and Clark, 1991, 103). For these people and others, who were excluded from conventional systems for reasons beyond their control, access to and participation in university education has only become possible through distance learning. Accordingly, when assessing the effectiveness of distance education from an access and equity perspective, one should seek answers to questions such as 'How many students?', 'What is their composition?' Hence, one should not be satisfied with the overall enrolment figures, but should probe further and find out the extent to which distance education systems are meeting social and individual needs of adult learners and disadvantaged groups such as women.

In terms of the effectiveness of higher distance education in increasing overall access to education, its potential has been most impressive in

developing nations. A 1990 UNESCO report cites several success stories, especially in Asia. For example, the STOU of Thailand started in 1980 with an intake of 82 000 students which doubled to 150 000 by 1990. In India, Indira Gandhi National Open University's (IGNOU) postgraduate enrolment increased from 4 500 in 1987 to 30 000 two years later. The experience of the University of Zimbabwe's Centre for Distance Education (UZCDE) parallels that of Indonesia's Terbuka University which was forced to register 60 000 students instead of 25 000 because of pressure to accommodate 270 000 applicants. UZCDE was forced to start with 688 students instead of 200 because of the need to accommodate over 13 000 applicants. One year later, the enrolment had more than quadrupled to 3 066 students. In South Africa the single largest university is University of South Africa (UNISA) which is a correspondence university. According to SAIDE (1995, 4), in 1993 UNISA's enrolment of 122 586 students constituted 38% of all university enrolments in that country.

Distance education programmes are also widely acknowledged for their potential to reach out to the disadvantaged sections of society thereby increasing equity. Unlike conventional university systems, higher distance education has high female participation rates and also caters for adults of a wide age range who have generally missed the opportunity to enter conventional universities. For example, 30% of students enrolled with UZCDE's pioneering BEd (Educational Administration, Planning and Policy Studies) programme were female compared with 20% for the University of Zimbabwe's conventional programmes. In 1996, 54% of Fourth Intake students on the same programme were female. This compares favourably with 1993 figures for UNISA where 50,9% of registered students were female. Age-wise, the youngest student in the first cohort of the UZCDE programme was 23 years and the oldest 64 years.

In 1990 UNESCO reported that only 30% of students enrolled at Thailand's STOU and India's IGNOU came from Bangkok and Delhi while the remaining 70% came from rural and outlying areas. For Zimbabwe's UZCDE, those coming from outside the two main cities of Harare and Bulawayo (that is, from rural and outlying areas) constituted 78%. Distance education systems have wider geographical coverage which allows them to reach students in the remotest parts of the country. This is made possible due to a highly decentralised instructional delivery system which brings university education nearer to the learners. In this connection, the UZCDE established 10 regional learning centres throughout the country and is in the process of setting up 55 district learning centres. Library facilities are being established in each of the 10 regional centres, while district learning centres will act as resource centres from where tutorials will be conducted by field tutors.

Unlike UNISA where all academic matters are carried out and controlled by the central campus, the central office of UZCDE develops programmes, produces learning materials, monitors and controls academic matters, leaving programme delivery to regional and district learning centres. This arrangement further enhances the quality of programmes by bringing closer to the learners student support services such as guidance and counselling, provision of tuition, and face-to-face interaction.

The 'open-door' policy of systems of higher distance education makes it possible for even students registered in conventional university programmes to register for distance education courses or programmes. There are many conventional university students who take credit transfer courses with distance learning institutions especially in developed countries. This trend denotes the acceptance of the equivalence in the quality of distance education programmes. In Canada, more than 65% of Athabasca University students take credit transfer courses for conventional programmes, while nearly all students enrolled with Simon Fraser University's Centre for Distance Education are registered for conventional programmes with Simon Fraser and other universities in British Columbia.

Learner outcomes

In distance education, the question of access and equity is closely related to the issue of learner outcomes because learner outcomes are concerned with what happens to students after their enrolment. How well they perform and how many of them achieve their goals are issues that address learner outcomes. Student achievement, in turn, depends on the nature and quality of the instructional methods used in the delivery of distance learning programmes.

Instructional methods commonly used in distance learning include cooperative learning, audiotutorials, problem-based learning, mastery learning, guided self-study, correspondence teaching, computer-aided instruction, videodiscs, telecourse and resource-based teaching — to name only a few. All these approaches have the same objectives. The major objective is that they seek to shift the focus of instruction from teaching to learning. Accordingly, these approaches place themselves in the role of the learner in order to effectively analyse learning materials and identify inherent learning difficulties. Thereafter sequences of learning experiences are specially constructed so that learners can work through them, independently or in groups. The learning sequences are presented interactively so that learners can participate actively in their own learning and take control of it, but still have access to a tutor when they need help.

According to SAIDE (1995, 49), conventional universities are beginning to see the value of distance learning approaches and some have already

started exploring possibilities of using guided self-study approaches for residential students. Where guided self-study materials are used in conventional universities, the role of lectures as the dominant means of providing instruction is diminished. Students take fewer lectures as they assume greater control over their learning in much the same way as distance education learners.

In assessing the quality of higher distance education programmes by learner outcomes, this article focuses on three major skills areas, namely: cognitive, psychomotor and affective skills. However, other areas can be readily added to the list. These may include individual, instructional and institutional variables because these strongly influence learner outcomes in distance education (Chacón-Duque, 1985, 7).

Cognitive skills

This section presents evidence on the effectiveness of higher distance education instructional methods in contributing to cognitive achievement of learners compared with conventional on-campus classroom instruction. It is important to determine the extent to which self-instructional methods contribute to student academic performance in distance learning systems compared to traditional face-to-face methods. Self-instructional methods which will be considered in this section include audiotutorials, mastery learning, correspondence study and tuition, computers, videodiscs and telecourses.

Verduin and Clark (1991, 89) define audiotutorials as 'an instructional method in which audio cassette, print, and visual media are combined in self-instructional units'. Research on the effectiveness of audiotutorials shows that they are generally more effective in contributing to the development of student cognitive skills than conventional classroom methods. This is the conclusion reached by Kulik, Kulik and Cohen (1979) and Willett, Yamashita and Anderson (1983) following meta-analyses of findings from comparative studies on the effectiveness of conventional and audiotutorial instructional methods using college and K-12 students drawn from several United States educational institutions. Both analyses found the same effect size[1] of 0,17 indicating that the scores of the

[1] Effect size is defined by Cohen (1977) as a ratio which expresses the degree to which the distribution of scores in the experimental and control groups do not overlap, or the extent to which the null hypothesis (i.e. there is no effect) is wrong. It tells the researcher the extent to which the differences in the performance between two groups cannot be explained by the variability of scores in the two treatments. Thus, an effect size of 0,17 represents a shift in the average distribution of scores of the audiotutorial group 0,17 standard distribution rightward from the average distribution of scores of the group comprising of conventional classroom learners. Effect sizes are often expressed in percentiles or letter grades.

audiotutorial rose to 57th percentile compared with the conventional classroom group which scored at 50th percentile.

In distance education another instructional approach which produces superior cognitive attainment compared to conventional classroom instruction is *mastery learning*. This is predominantly a print-based individualised instructional method characterised by immediate feedback, remediation and repeated testing. According to Kulik, Jaska and Kulik (1978), the strength of mastery learning programmes, notably Keller's Personalized System of Instruction (PSI), lies in frequent quizzes, immediate feedback, adequate reviews and the requirement that the learner should master before progressing. Subsequent meta-analyses of several comparative studies conducted by Guskey and Gates (1985), Kulik (1983), Kulik and Kulik (1987) and Willett, Yamashita and Anderson (1983) confirmed the superiority of mastery learning over conventional classroom instruction. These studies produced high effect sizes among K-12 and college students, further indicating higher academic achievement for the experimental group using mastery learning over the control group. A similar finding was later reported by Verduin and Clark (1991, 90–91) who also found that print-based mastery learning systems produce the greatest comparative cognitive gains of all instructional systems.

Meanwhile, findings of a study by Pierre and Olsen (1991) on the effectiveness of another instructional method used in distance learning, correspondence study, revealed that this learning method appealed to both distance education and traditional students alike. Taking their cue from Leverenz's (1979) assertion that the best measure of student satisfaction with distance education was their willingness to take up another correspondence course, Pierre and Olsen found that 96% of students in their sample had taken some correspondence courses before. The study also found that feedback variables, communication variables, turnaround time, contact variables, experiential learning and the nature of course material were important predictors of student satisfaction with correspondence study. Another important variable associated with student satisfaction with correspondence study was the self-pacing nature of distance education study materials. Accordingly, distance education systems routinely train tutors on principles and practices of effective correspondence tuition so that they are better able to seek and utilise instructional and learning opportunities available through students' tutor-marked assignments (TMAs). Unlike conventional classroom instruction, correspondence study demands special skills from tutors if they are to engage students in meaningful discourse through their assignments.

Much of the literature on television instruction shows that telecourse learning produces equal or superior cognitive outcomes compared with conventional instructional methods (Chu and Schramm, 1975); Ellis and

Mathis (1985); Moore and Thompson (1990); Mount and Walters (1985); Purdy (1978); Whittington (1987); and Zigerell, (1984). Following an extensive review of literature on the effectiveness of television-based instruction compared with conventional classroom instruction, Zigerell concurred with Chu and Schramm that there was no significant difference in cognitive outcomes between distance education and classroom students taking equivalent courses. Where differences were observed, these were in favour of television-based instruction. Similar findings were also reported by Moore and Thompson who found that telecourse learning in higher education, military and business was as effective as conventional classroom instruction. This finding seems to indicate that telecourse learning is as effective as conventional traditional classroom instruction when used with adult learners because of the predominance of adult learners in these enterprises.

The above literature has primarily concerned itself with comparative studies on the effectiveness of instructional methods in conventional classroom and distance education on cognitive achievement of students in examinations and student assignments. However, little research has been carried out to assess the perceptions of students on the effectiveness of these two instructional delivery systems. This was addressed in a recent study by Egan, Welch, Page and Sebastian (1992) who found that distant learners rated the effectiveness of conventional delivery systems higher than telecourse instructional systems contrary to a preponderance of studies which found that telecourse produced equal or superior achievement. While the perceptions of students were largely subjective and at variance with comparison studies which used direct performance scores, the reasons cited in favour of conventional classroom instruction should, nevertheless, help distance educators and instructional designers in their efforts to improve the effectiveness of self-instructional methods in distance learning. According to Egan *et al.* (1992, 53), the strength of conventional classroom instruction was attributed to several factors which include

> Instructional 'intimacy' associated with face-to-face aspect of the conventional delivery system ... Specifically, such factors as accessibility to the instructor, immediacy of feedback, and the ability of the instructor to monitor student behavior (verbal and non-verbal) during session interactions.

Comparative studies on the effectiveness of computer versus conventional classroom lectures generally agree on the superiority of computers. Niemiec and Walberg (1987) who carried out an extensive literature search including three major reviews and 13 meta-analyses of computer-assisted instruction (CAI), concluded that CAI raised student

examination scores from 50th percentile to 66th percentile with an effect size of 0,42. Similar findings were reported by Kulik, Kulik and Schwalb (1985) who also reported an effect size of 0,42 for computer-based instruction (CBI). Another acknowledged strength of computers is that they make great savings on student time. According to Kulik, Kulik and Schwalb, students save an average of 30% on time needed for instruction. This means that students will have more time to revise and acquire mastery or embark on new work. Meanwhile, Verduin and Clark (1991) have reported that videodiscs yield similar cognitive outcomes and enjoy the same advantages as computers compared to classroom teaching.

Affective skills

The development of affective skills through distance education has received the most criticism because of the claim that socialisation and affective growth cannot take place at a distance. This argument is succinctly summarised by Keegan and Rumble (1982, 233).

Most criticism of distance education focuses on its effectiveness in the affective domain, which is concerned with values, attitudes and beliefs that are 'caught' rather than 'taught'. Many people argue that they can only be 'caught' in a social context, and that this element is not provided in distance teaching systems.

However, the introduction of communication technology in distance education has made possible the development of affective skills in distance learners. For example, television has clearly demonstrated the efficacy and affectiveness of distance education media in the affective domain. Television has graphically brought to the comfort of our homes the gruesome killings in Rwanda, Bosnia, Mozambique and Somalia or the devastating famine of Ethiopia and Afghanistan. These scenes have had strong appeal to the viewers' emotions, perhaps stronger than those 'caught' up in these tragedies. Similarly, television commercials have resulted in changes in consumer habits and attitudes, while violent movies have influenced some people to commit crime.

Although the distance learner may have more limited opportunities for student-student interaction than on-campus students, the former is also exposed to other socialising forces which are unavailable to the latter. This is because socialisation forces are both internal and external to the institution. Hence residential students tend to experience more internal socialising forces than distance learners. Students in higher distance education, on the other hand, are exposed more to off-campus socialisation forces such as the family, job, social and civic life, and experiential life. In addition, students in higher distance education also develop important life skills of strong affective dimensions which are difficult to inculcate in on-campus students. These skills are neither job

related nor intrinsically academic in nature. According to Valiga (1982), students in higher distance education develop the ability to work independently, persist at difficult tasks, manage time, and the ability to deal with competing social demands. These skills are integral to distance education in its aim to produce self-directed learners. In addition, periodic face-to-face student-student and student-tutor encounters also help foster affective skills in distance education students. Tutorial time for UZCDE courses is equivalent to one-third of the contact time allocated to the same courses offered conventionally. It is during these periodic tutorials (weekend schools), as well as during residential and revision sessions, that UZCDE students engage in intense student-student and student-tutor interactions and, for brief periods, situate themselves in social contexts typical of residential students.

Psychomotor skills

Technology has also made it possible to teach psychomotor skills and practical subjects at a distance. The introduction of videos, videodiscs, televisions, do-it-yourself books, kits and periodic travel to conventional institutions have resulted in effective development of psychomotor skills. In fact some of these technologies have resulted in superior cognitive performance over conventional instruction in areas such as college and university physics, biology and chemistry laboratory work (Stevens, 1984; Smith, Jones and Waugh, 1986; and Bunderson *et al.*, 1984).

Quality assurance in distance learning

Until recently the setting up of quality assurance systems and practices has been a major concern of profit-making enterprises, almost to the exclusion of most human service organisations such as educational institutions. But with the filtering of quality assurance into education, the practice has received greater consideration in distance teaching systems than in conventional education because of the complex, industrialised and highly technological nature of distance learning systems. The highly decentralised and industrialised operations of distance education systems, together with the fact that distance learning materials are open to public scrutiny, combine to create greater need for setting up reliable systems that make the parts of the distance education system work to produce high standards and win client confidence.

Cognisant of their complexities, distance teaching systems set up quality assurance systems to monitor and ensure that all units produce products and services of pre-specified quality. The activities of several seemingly disparate units require monitoring and harmonisation so that pre-specified products and services are produced by the distance education

system. Accordingly, quality control systems are routinely instituted in the development and production of learning materials, student assessment, delivery of instruction and management processes, to name a few.

Quality learning materials

Since instructional materials in the form of study guides or modules are the equivalent of lectures in conventional universities, quality control measures used in their design, development and production should be considered against parallel measures used by lecturers in the preparation of lectures and lecture notes in conventional universities. Unfortunately lecture notes are, by and large, personal, not open to public scrutiny, and have no known and readily monitored quality control measures.

Measures taken in the preparation of distance learning materials ensure that high quality products are made available to learners. Learning materials are produced by either in-house or consultant writers. In either case, quality is the hallmark. Where learning materials are written in-house, as is commonly practised at the Open University, United Kingdom (OUUK), the materials are produced by teams of writers instead of one writer. This requirement promotes quality products through collaborative work of several experts who negotiate and harmonise their expertise in a given discipline. Quality control processes are in-built in team work because team members vet each other's contribution for academic soundness, relevance, pedagogic and andragogic value and other quality indicators. The quality of such collaborative team work is usually superior to any lecture notes prepared by one content expert in conventional systems.

In cases where learning materials are produced by external consultants, these are often recruited from among the best professors in conventional universities. There is financial incentive for them to produce quality materials, unlike conventional lecturers, who do not receive additional emoluments for producing lecture notes. The curriculum is produced by some of the best subject experts while the materials are written following distance learning principles and guidelines provided by specialist instructional designers. Particular attention is taken in the design and production of learning materials because the quality of the educational process in distance education depends largely on the quality of learning materials.

To ensure that high quality instructional materials are produced by its consultant writers, UZCDE has developed rigorous quality control measures. Consultant writers are selected on the basis of the quality of their draft course outlines submitted in response to advertisements calling for course writers. The selected writers are required to attend an instructional designing workshop where they receive training on how to write for distance learners. The contracts for consultant writers specify

work schedules to be adhered to and stipulated fee payment modalities upon acceptance of the final draft module. Draft modules are edited by instructional designers and reviewed by content experts who vet the materials for relevance, suitability, academic soundness and quality before the modules are accepted. These processes are meant to ensure that the final product is of high pedagogic and academic quality.

The quality of distance learning materials can be judged using several indicators. They can be judged intuitively, that is, whether or not they 'feel right'. Secondly, they can be judged informally on the basis of their adoption for use by other institutions or students within conventional institutions. A more formalised way suggested by Rumble (1986, 208) requires the system to

> obtain feedback from those using the materials, both students and tutors, and on the utility of the materials and the difficulties which they encountered in using them. Routine feedback can obtain a great deal of information on, for example, the amount of time that students spent on the elements of the course, whether or not they are on schedule or behind schedule on paced courses, and on what they felt about the material. Tutors may report on any difficulties which students have in understanding the material.

An examination of the perceptions of distance education students o what constitutes quality in distance education materials shows tha students preferences are in complete agreement with the underlinin principles and guidelines used by instructional designers when preparin distance study materials. According to Viljoen, Holt and Petzall (1991, 12) distance education students on a Deakin University MBA programme reported that good in-text questions, accompanied as far as possible by suggested answers, materially enhances the quality of study guides. Such questions and answers enable students to test their understanding of the materials and serve as a substitute, to some extent, for the relative lack of face-to-face contact with lecturers.

According to Holmberg (1985), when distance education students interact with learning materials, they are engaged in simulated dialogue with their lecturers, hence quality distance education materials should be thought-provoking and challenging. The materials should be well written and easy to read. Well designed distance education learning materials should promote creative thinking and critical analysis rather than inhibit it. According to Viljoen, Holt and Petzall (1991, 13),

> Students not only value interaction with appropriately designed learning materials, but they also value the way in which the learning materials stimulate opportunities for further interaction outside the text itself (i.e. interaction with the workplace, the study group, and in residential schools, as well as ongoing interaction with teaching staff).

It is important periodically to evaluate the perceptions of students and teaching staff on learning materials in order that quality materials are produced. UZCDE has a research and evaluation unit as an integral part of the quality assurance system. This unit routinely evaluates learning materials as suggested by Rumble (1986).

Quality and integrity of student assessment

The separation of the learner from the lecturer, in time and space, which characterise distance education, calls for the design and implementation of sound assessment systems in order to guarantee the validity, reliability, credibility and quality of the assessment processes. In this respect, important decisions will have to be made concerning the purposes, structure, nature and quality of the assessment system. For example, it will be decided whether student assessment will comprise of continuous assessment of assignments, whether assignments should take the form of projects, group or individual work, or some combination of these forms and whether they should be marked by tutors or computers. The role of assignments also has to be clarified. Should completion of assignments act as a pre-requisite for a student to sit end-of-course examinations or should assignments' marks contribute towards the final mark for the programme? Should assignments serve a pedagogic or assessment function, or both? Similarly, is student assessment going to take the form of final examinations only and, if so, what type of examinations will they be: essay, multiple choice, true-false, etc? Whatever system is adopted, measures should be taken to secure quality assessments that are valid, reliable, secure and credible.

Under conventional systems some fallacies exist concerning processes surrounding the assessment system. For example, conventional systems assume that when a lecturer has sufficient subject content, he or she necessarily has the right skills to mark students assignments and provide useful feedback of instructional value without further training. Similarly, many conventional universities do not provide lecturers with training in teaching methods for the same reason. Furthermore, assignment and examination marking is generally left to the individual lecturer's competency and professionalism, while little or no moderation or standardisation of the assessment process is routinely practised. As a result, the reliability of the assessment procedures may be highly questionable.

In contrast, distance learning systems often depend on stringent measures which secure the quality of the assessment system. Assessment practices employed at UZCDE illustrate the rigour in the measures taken to protect the integrity of student assessments. The assessment system used is continuous assessment which comprises of TMAs and end-of-course examinations. Subject coordinators draw examination questions

from a pool of questions generated by course writers and field tutors. A board of examiners, which includes subject coordinators and other faculty members, convenes to moderate the examination questions sampled by subject coordinators. The moderated examination questions are then sent to an external examiner for final moderation. These measures ensure that high quality examination questions are produced without sacrificing the security and integrity of the process.

Students at UZCDE sit their examinations in regional centres from where examination answer scripts are taken to the National Centre. Team leaders collect them for distribution to markers. Team leaders are specially trained and usually experienced markers, who lead and moderate the work of their team members. All markers, upon recruitment, attend a standardisation and marking workshop where they receive training to bring their inter-marker reliability to acceptable levels. Marked scripts are subsequently sampled for moderation by an external examiner before the results are scrutinised by the board of examiners, after which they are tabled before several committees for further scrutiny pending the release of the results. Similarly, 10% of all tutor-marked assignments are sent to the National Centre for moderation and generation of tutor profiles. Data obtained from these profiles provide information on which decisions on tutor training, retention, etc. are based.

Management process

In distance education the teaching and learning processes are invariably separated in time and space. This necessitates sound management to accomplish effective student learning under conditions of virtual isolation. Because the success of learner-centred distance education programmes depends, to a large measure, on the effectiveness of loosely coupled and highly decentralised structures, activities and operations, the role of the teacher may be no more important than the management processes that underpin the educational process. Accordingly, the institution plays a crucial role in facilitating student learning by instituting sound administration and management of all the activities that enhance learning at a distance. For example, the processing of TMAs is more complex and takes longer compared to what obtains in conventional on-campus programmes. Depending on the quality of the administrative and management infrastructure of the distance education system, assignment topics may easily not reach the student, and if they do, they may get to the student late. On the other hand, the student may not receive feedback on the assignments or may get it late when it is of no pedagogic value to the learner.

Similarly, the processing of examinations, including drafting of questions, provision of examinations in regional centres and other host

institutions which may even be in different time zones, the marking exercise and related processes, require sound management practices to coordinate these interdependent activities and safeguard the quality and integrity of the assessment function. It is because of such threats and challenges to the assessment process that UNESCO (1990, 52) recommends that institutions of distance education should function as a cohesive entity 'unlike most conventional universities where the phrase "participatory democracy of decision-making" is often a euphemism for 'loosely controlled anarchy". Management of distance learning requires strategic planning which is characterised by in-built quality assurance structures, cooperation, consultation and commitment of all personnel as the hallmarks of the management process. Because distance education is a complex and interdependent system, it requires a visionary leadership which operates on principles of team work.

Distance education administration should be efficient and sensitive if it is successfully to:

i) organise the thousands of students studying in different locations and separated from their lecturers by time and space,
ii) coordinate the timely preparation of learning materials,
iii) deliver promptly learning materials to scattered populations,
iv) provide students with timely feedback,
v) recruit and train the right calibre of staff,
vi) develop communication systems, information services and administrative procedures, and
vii) provide regional, district and tutorial services.

Dropout rates

If student outcomes and completion rates are used as performance indicators in distance education systems in the same way they are used in conventional systems, the quality of distance learning systems compares very unfavourably. Attempts have, therefore, been made to isolate factors that influence dropping out in higher distance institutions. Several recent studies including those by Holmberg (1989); Kember (1989); Billings (1988); Herrmann (1988); Chacón-Duque (1987) and Garrison (1987) cited by Verduin and Clark (1991) have identified some of the major factors which influence student dropout in higher distance education systems. These include course difficulty, level of learner motivation, persistence, agreement between personal interests and course or programme structure, open admission policies and large-scale expansion. According to Chacón-Duque (1987), perceived learner difficulty, level of learner motivation and persistence were important predictors of student dropout from Pennsylvania State University's Independent Learning courses, while

Holmberg (1989) reported that older, mature and better qualified students had strong motivation necessary to succeed at a distance.

What does research inform us on open door policy vis-à-vis dropout rates? A UNESCO report in 1990 on Developments in Distance Education in Asia cites open entry policies as contributing to dropouts in higher distance education. According to the report, 'open doors generally imply admitting students with less than "normal" entry qualifications or if they have them, they may have been obtained many years before'. The result is that many may find it difficult to cope with course demands. Similarly, large-scale expanding systems may stand to lose more students since student support services will be overstretched and may not reach out to every student. As a result, students will be left with feelings of isolation, neglect and frustration. Students in distance education require more support during the first year because this period represents the greatest obstacle psychologically and academically.

Unfortunately, making comparisons of dropout rates between conventional and distance education systems is often misleading because of the flexible nature of higher distance education. For example, under higher distance education, some students may register but decide to delay joining the programme for various reasons or they may postpone taking an exam because they feel they are not yet ready. In some cases students may register for one semester and not the next, or may belong to conventional universities where they eventually graduate although they register for several credit transfers through distance education. Therefore, it is often spurious to compare dropout rates between distance education and conventional universities because statistics may be imprecise since what constitutes dropout under distance education is debatable.

Improving the quality of distance education

The issue of quality in distance education should be seen as an integral part of the academic process as well as a competitive weapon that determines the credibility and acceptance of distance education as a competing delivery system for higher education. The search for quality in distance education has resulted in a compendium of major quality indicators which include learner outcomes, instructional materials, dropout rates, access and equity, management process, integrity of student assessment and effectiveness. Whilst this list is not exhaustive, it provides an important initial framework for focussing distance educators' attempts to improve the quality of distance education. Other factors which should be considered include staff recruitment and training, and evaluation and research on distance education programmes and processes.

Evidence presented in this article concerning the effectiveness of distance education instructional methods show that students in distance

education can produce the same, or even better, results compared with their counterparts in conventional systems. This favourable attainment on the part of distance learners is attributable to the efficacy of distance education instructional media such as audiotutorial, telecourses, mastery learning, computers, correspondence study and tuition. While some of these technologies are readily available to distance education learners, some are out of the reach of many. For example, the effectiveness of television and video instruction is limited because not all learners can afford these instructional tools, especially in developing countries. Similarly, computer-assisted instruction, videodiscs and other computer related instructional approaches, which are readily available to learners in affluent societies where prices are significantly low, remain out of reach of most learners in developing countries. In addition, poor infrastructure, such as lack of electricity and poor telecommunication systems, may continue to deny many rural learners access to these new instructional technologies for a long time.

In view of these constraints, systems of distance education should explore ways of increasing student access to modern technologies so that learners are not excluded from the benefits of these multi-media instructional approaches. For example, the Open University (United Kingdom) negotiated a discount facility with some major manufacturers so that many students could afford computers. Similarly, distance education institutions in developing countries, such as UZCDE, can equip regional and district study centres with computer laboratories and television and video rooms so that their students can also benefit from these instructional technologies. These centres can be manned so that live programmes that are readily viewed by urban distance education learners can be recorded from rural study centres for student viewing at convenient times. If these technologies, including computers and videodiscs, are made available in study centres, it is possible to carry out interactive audio and video teleconferencing with students across the whole country.

Many distance education programmes depend on print-based instructional materials as the major teaching-learning resource for students. Constraints imposed on distance education students who study in isolation have led to the development of theories and principles of distance education which now guide instructional designers to produce highly interactive, student-centred and user-friendly learning materials. The content, structure and presentation of distance education courses are specially designed to guide, encourage and motivate learners. Hence, although course writers routinely receive training on how to write for distance learners, they should continue to collaborate with instructional designers, illustrators and graphic artists so that the resultant learning materials are of high pedagogic and andragogic value and quality. The

quality of the study materials will be greatly enhanced if it is subjected to a content reviewing process. Finally, the study materials should be regularly evaluated by both students and tutors and updated periodically to keep up with the growth of new knowledge.

The problem of student dropout is closely associated with the issue of open access and rapid expansion. Thus, the wider the door swings open, the greater the number of students with less than 'normal' entry qualifications who enter the system, and the more varied the entry qualifications for students entering the same programme. This leads to greater demand for individualised student support services especially during the first year of study. The problem of diverse entry qualifications for the same programme is made worse if there is large-scale expansion of the programme. Accordingly, the strategy should involve controlled open doors and expansion, relative homogeneity of entry requirements and a sound student support system. In addition, opportunities for formal student-tutor and student-student interaction should be improved. A study by Viljoen, Holt and Petzall (1991) revealed that students valued residential schools from a social perspective because of the social bond and group identity it creates among learners. Initiatives by the UZCDE to provide weekend schools for students in addition to residential sessions is a recognition of student need for social cohesion and group identity. Furthermore, UZCDE also introduced student study groups, T-shirts, blazers and other paraphernalia which promote group identity and societal recognition of distance education learners and systems. Finally, the training of field tutors for tuition (both correspondence and face-to-face) and student assessments are essential for the improvement of the quality of distance education programmes.

SUMMARY AND CONCLUSION

This article has explored the potential of distance education in providing quality education at university level. Using evaluation criteria built from a compendium developed from the literature on comparison studies, evidence has been presented which show that higher distance education systems can produce quality programmes which stand up to public scrutiny. The article concedes that the role of higher distance education in increasing access to education for the disadvantaged sections of society is widely acknowledged. What has been at issue from critics of distance education is its potential to provide quality education comparable to that provided through conventional classroom instruction. However, this article has demonstrated that the performance of higher distance education instructional methods can be as good as, and sometimes superior to, conventional teaching methods. In addition, the performance effectiveness

of delivery systems of higher distance education has the potential to improve in a number of ways. Such areas for improvement have been identified and suggestions for improvement offered.

In conclusion, the author asserts that the quality of higher distance education programmes is determined by the quality of its delivery and student support systems and instructional resources such as tutors, print and electronic-based learning materials. The evidence presented in this article on the main factors that influence the quality of distance education programmes suggest that over the last two decades higher distance education has gained a competitive edge over conventional university delivery systems. Part of this advantage comes from the fact that distance education is by nature a technology-based system which uses electronic media in delivering instruction. The advantages of electronic media include speed, increased access, equity and enhanced student performance. The use of instructional technology results in comparable, if not superior, student cognitive outcomes when compared with conventional traditional classroom instruction. Another source of advantage lies in the training given to tutors in the areas of tutor-counselling, provision of instruction and student assessment.

Higher distance education should maintain this competitive advantage over conventional university education and further develop a culture of quality education as a competitive tool. Trends in higher education seem to suggest that distance education is no longer an alternative delivery system to conventional higher education but a partner, albeit a competing one, in the provision of higher education. By routinely accepting transfer credits for courses taken through distance education, conventional universities have come to accept higher distance education on equal footing.

The potential for higher distance education in the coming decade suggests that it is going to be a major delivery system for higher education. Conventional university education which has hitherto monopolised the provision of higher education is increasingly being called upon to account for its costly operations as higher distance education gradually receives a large share of public funding at the expense of conventional universities. To the monopolist, competition is a significant threat because it brings with it measures that hitherto used to receive little or no attention such as efficiency and effectiveness. Thus, higher distance education should strive to consolidate its gains through improved quality, efficiency, effectiveness and enhanced credibility.

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