QUALITY ASSURANCE IN TECHNOLOGY MEDIATED DISTANCE EDUCATION

TAYO OMONIYI, Ph.D.

Department of Curriculum Studies and Instructional Technology
Faculty of Education
Olabisi Onabanjo University, Ago-Iwoye
Ogun State, Nigeria.
E-mail: tayomoniyi@yahoo.com

ABSTRACT

Distance education has been acknowledged as a viable strategy of reaching adult learner who has to contend with competing priorities of work, home and school. Indeed, it has been the major strategy of teacher education by the National Teachers Institute (NTI) Kaduna. The National Open University of Nigeria (NOUN) and many Universities in the country offer teacher education programmes via distance learning. Therefore, the thrust of this paper has been appraisal of the critical elements that constitute quality in distance education system such as staff competence and course Development, Delivery strategies, Assessment of learning/programmmes. Appropriate recommendations have been made, with the aim of establishing benchmark for assuring quality in the distance education system, and particularly because of its implication on the quality of teachers for the Nigerian School System. Practitioners and policy makers will find the article a useful guide in assuring quality delivery of distance education in Nigeria.

Introduction

The issue of quality in education has remained an elusive and exacting task. The prime reason being that an agreement is still to be reached on what is generally meant by quality when referring to education process and all that this involves. Admittedly, the number of elements at play in the education system will not permit a univocal specification of quality factors or allow for definite definition of the concept. The basic assumption as noted by Guglielino (2000), is that quality is not synonymous with excellence but rather indicates the management of a continuous process aimed at bridging the gap between the expected effect (what has to be learnt) and the actual effect (what has been learned).

A quality assurance system is therefore the means by which an institution ascertains that enabling conditions are in place for learners to achieve the standards the institution has set for itself. Consequently, this paper does not seek to define a framework that can be adopted for analyzing the quality of distance teacher education in Nigeria but rather offering opportunity for careful consideration of the many elements affecting quality in technology mediated distance education system.

Distance education is defined as institution-based, formal education where the interactive telecommunications systems are used to connect learners, resources and instructors (Schlosser & Simonson, 2002). This definition specifies interactive telecommunications systems as channels of delivering distance education, it must be noted that distance education predates advent of telecommunications systems and its delivering is not restricted to such technologies. But regardless of the medium, distance courses have common characteristics, including physical separation of teacher and learner, use of interactive technologies to deliver content and connect teachers and learners.

Distance education has certainly come of age. Most educators would agree that distance education can solve instructional delivery problems, particularly for adult learners like practicing and pre-service teachers who have competing priorities of work, home and school to contend with. It is attractive to adult learners because of the possible control over time, place and pace of education.

In Nigeria, distance education has become a viable alternative of teacher education. The National Open University of Nigeria (NOUN) offers several programmes in teacher education to sizeable number of pre-service teachers and those undergoing in-service education up to post-graduate levels. The National Teachers Institute, Kaduna offers distance education for different categories of teachers across the country. The NTI has 319 study centres designated for NCE and over 592 centres for Teachers Grade II (NTI, 2002).

Indeed many Universities in Nigeria operate distance education up to post-graduate level, particularly in teacher education. The astronomic rise in its patronage has no doubt created a number of challenges. To assure quality control, it has become expedient to recommend bench marks for quality assurance in technology – mediated distance education. The thrust of this paper therefore, is to provide benchmarks that represent a comprehensive list of recommendations for quality distance education, which can be a useful guide for practitioners and policy makers. The variety of issues to be examined fall into the areas of staff competence and course ware development, delivery strategies, learning support and assessment of learning/programmes.

Staff Competence and Course Development

Selection of academic staff and training: Most Institutions experience problems of staff incompetence in course development and use of technology. Not every staff or instructor has the skills for technology mediated learning. The use of computer-based technologies, video equipment, communication software, and the like, presents challenges and frustration to quality assurance in distance learning. In addition to a careful selection of academic staff to ascertain that only those who have the competence and are sufficiently motivated are recruited, training of staff, particularly in course development and trouble shooting is imperative to success in technology mediated distance learning. In view of the rapidly changing requirements of technology, training needs to be continuous. Furthermore, an integrated team, including computer service technicians, counsellors, administrative and support staff, and library resource personnel is needed to support the faculty members' efforts.

To assure quality in training of academic staff, institutions offering distance learning must:

- Provide Internet-based training on development of materials distance learning, support instructors through a peer monitoring train – the-trainer programme.
- A systematic training plan for the course team should be developed, implemented and continuously evaluated to ensure that the institution has qualified course designers and developers to meet the institution's needs.
- There should be training programmes on distance education for the course team members prior to development of the courses to ensure sufficient insights about distance education.

Course materials Development: Course materials serve as a major learning resource for distance learners. The design, development and production of learning materials should carefully take into account the systematic and scientific principles of instructional design. Distance education institutions should provide for a variety of media appropriate to the objectives and characteristics of each course to ensure that students have access to a variety that facilitate their learning process and accommodate different learning styles of individual students. The learning material must be designed to include, objective, scope, description of materials, examples, cases, exercises, summary, formative test, feedback and answer keys (Mutiara, Zuhairi & Kurnati, 2007).

The design and development of course materials should involve a course team approach to ensure quality of content design and delivery suitable for distance

learning. Checklists should be created to guide design, development and delivery of course materials. The courses should be designed and implemented through team approach comprised of instructors, subject matter experts, instructional designers, technical experts and evaluation specialists.

The use of technology offers the promise to improve the effectiveness of distance education, indeed, information and communication technology provides increased interactivity, more control for the learner, and even global learning network, on a highly cost-effective manner. The new technologies require significant investment in the infrastructure of telecommunication network and equipment provision. Most developing nations cannot afford the use of high technologies, such as interactive computer-based technologies. Studies have shown that there is nothing inherent in the technology that elicits improvement in learning, although, the process of redesigning a course to adapt the content to technology can improve the course and the outcomes (Russell, 1999).

In other words, learning is not caused by the technology, but by the instructional method 'embedded in the media" (Clark, 1994, p. 22). Technology, can thus be taken as merely a means of delivering instruction. Consequently, Russell concludes that "no matter how it is produced, how it is delivered, whether or not it is interactive, low or high-tech, students learn equally well (P. 14). The challenge to institutions offering distance education in developing countries therefore, is to assemble the appropriate variety technologies based on the requirements of the content, the needs of the learner, and the delivery constraints faced by the sponsoring institution. The end result is likely to be the incorporation of relatively low-technology teaching tools such as print, radio and telephone, audio tapes and television, and even face-to-face instruction.

Selection of quality media: Selection of media for distance education should begin with examination of course (or unit) objectives, which medium or media should be used to achieve the objectives and how will it be delivered? Ely (2003) recommends that each medium should pass certain tests before incorporating it into the distance learning scheme arrange the questions as done below. The tests should include questions such as:

- Will the learner have access to the medium at home, work or in a community setting?
- Can the cost of the material be justified, that is, is it cost effective for the instructor to produce and for the learners to acquire? - Is there an alternative that could achieve the same objectives? (For example, sometimes printed materials instead of audio-visual media will suffice).

- Will it be delivered as an integral part of a management system or as a separate item? (For example, do students have separate means to use CD-Rom, floppy·disc, video-tape, audiotape, slides or manipulative materials).
- Will interaction be handled by e-mail, online discussion groups, telephone (individual or conference calls), occasional face-to-face meetings or postal correspondence?

To assure quality, it is important for providers of distance education to ascertain availability and learner access to the media selected, ascertain that appropriate resources that fit the instructional objectives are selected or produced for use, consider alternative media that may be less expensive, yet potentially as effective as more expensive media. The challenge is to select and provide appropriate media that will accomplish learning objectives in the most cost-effective matter, hence, print, audio and video recordings, telephone and tele-video (a combination of video and telephone) should be considered in the selection process. Furthermore, printed materials must be such that are designed to motivate the students in self-directed learning. Hence, the content of the materials should be structured in ways that they stimulate independent learning activities, guide students' learning of the content, and direct students to be able to understand the concepts through a variety of exercises and self-assessment (Yunus and Pannen, 2004).

Delivery Strategies

Interactivity: There is a substantial body of evidence that a common element to student academic success is interactivity, the more interactive the instruction, the more effective the learning outcome is likely to be. The essential factor appears to be the availability of the instructor – whether through direct face-to-face contact or through electronic means – and the intellectual engagement of the student, regardless of the method of engagement.

Information technology and, more importantly, computer communication technology can play a vital role in fostering this interaction, even if use of these means is not in itself a guarantee of higher quality. Instructors may consider using e-mail study groups, electronic "chat rooms" and electronically planned/implemented group presentations to ensure that this critical component of effective instruction takes place (Willis, 1998). However, as observed by Guglielmo (2000) raising interactivity of this type involves investing in multi-media products which are very complex and expensive, or entails increasing the amount of online tutoring. Thus, higher interactivity in this process is undoubtedly synonymous with higher production and management costs, beyond the means of most developing countries. In our quest for quality interactivity, Willis (1998) opines that "since we are all first and foremost

"social" beings and no technology, regardless of its ability to mimic human interaction, will change that, distance education providers should consider adding face-to-face communication whenever appropriate and possible, in even the most technologically sophisticated course" (p. 59). Occasional group activities should therefore be organized on campus or in study centres to allow for quality interactivity, particularly among the learners, and between them and the Instructor/facilitator. To further assure quality interaction between students and learning materials, and between students and their tutors, students should be provided timely feedback to assignments and questions, expectations should be set for students on what minimum amount of time per week should be devoted to study and homework/assignments.

Modular learning: There is also considerable evidence that individualized instructional approaches contribute significantly to academic success. This is particularly true if the approach emphasizes small, modularized units of content, mastery of one unit before moving to the next. Immediate and frequent feedback to students on their progress, and active involvement in the learning process are consistently effective in enhancing subject matter learning. Therefore, material developers must separate learning activities into self-contained segments that address specific learning outcomes, which are mastered by students before moving forward, ensure that length of content module is partly determined by the complexity and depth of the expected learning outcome, and ensure that each module contains activities that require analysis, synthesis and evaluation.

To enhance the quality of the physical design of the learning materials, attractive multi colour images and illustrations relevant to the content should be used on the front and back covers of printed learning materials. A team of experts, including a specialist in graphic design should evaluate the quality of the cover appearance prior to large-scale printing. The team should evaluated the cover of the printed learning materials using particular criteria in terms of lay-out, font size, colour, character composition, colour combination, relevance between illustration and content of the learning material. The team should also ensure that the module is designed in terms of readability (font size, types of font, legibility, space, lay out design) and quality of paper (preferably HVS 60 gram paper for printed materials).

Learning Resources: Libraries and learning resources are being transformed by technology. The rapid rate at which traditional libraries and resource centres are being replaced with computer networks and online retrieval systems requires that academic staff, learners, administrative and technical staff be provided with ongoing orientation and training sessions for accessing information. It has therefore become expedient that the virtual library project, as stated in the National Policy on Education (FGN, 2004) becomes a reality

to rejuvenate distance education system through provision of current books, journals and other information resources using digital technology.

There is also the urgent need to reactivate study centres and make them convenient centres where students can procure learning materials, (manually or through electronic databases), interlibrary loans, video recordings and new services. Assuring that distance learners do not experience interruptions or problems in communications, the institution's technological infrastructure needs to be monitored continuously and appropriately enhanced. To this extent, massive funds should be invested in the provision of infrastructural base for use of technology in the provision of quality distance education in Nigeria. It is pertinent to note that one of the major barriers to technology mediated distance education in Nigeria is the epileptic power supply. Concerted efforts must be geared towards ensuring stable power supply for quality distance teacher education.

Learner Support Services: Potter (1998), quoted in Yusuf and Englama (2004) defines learner support in distance education as "the many forms of assistance that are designed to remove barriers (situational, institutional and informational) and promote academic success. Examples of such services are pre-admission counseling, academic advising, financial aid, learning skills acquisition, childcare and much more" (p. 131). Student motivation has a powerful effect on attrition and completion rates, regardless of institutional setting. Knowles (1980), in explaining the advantages in knowing the learner, believes that learner behaviour is influenced by a combination of the learner's needs plus the learner's situation and personal characteristics. Knowing these personal characteristics is an important factor to participation and success in distance learning. To assure quality learning therefore, learners must be appropriately counselled to determine if they have the self-motivation and commitment to learn at a distance. Furthermore, written information regarding programme and admission requirements, tuition and other fees, books, technical requirements, programme supplies and other support services to learners should be made available in sufficient time. Provision of easily accessible technical assistance to learners, before and during the presentation of the course, including detailed instructions regarding the electronic media being used, practice sessions prior to the course being offered, and convenient access to technical support staff. Also vital to provision of quality distance education is the establishment of ombudsman system to address student complaints.

A major problem encountered by distance learners is the lack of training and competence to effectively participate in technology mediated distance learning. Many learners are not verse in the uses of technology such as computer and the internet.

These skills are required if computer-based technologies are to be used as being proposed in the Nigerian system. Using such devices will pose a problem to some learners. They must be taught how to operate and manage the learning materials, an intergral component of students' orientation programmes must be training on the fundamentals of operating the system of choice of the distance-taught course. If distance learning is to be successful, technical barriers must be made a non-issue.

Assessment of learning/Programmes

Evaluation plays a critical role in determining the effectiveness of distance education at both the course and programme levels. Such evaluation should include an assessment of student learning outcomes, student retention, student and faculty members' satisfaction, and technology used in delivering course content and communicating with students. Assessment and documentation of students achievement should occur in each course and at the completion of the programme where appropriate academic and administrative staff should have access to such data for its use in course improvements and general planning.

A major problem with distance education has been reluctance of academics and employers of labour in respecting its products. One way of earning respect for distance education is by making the courses go through the same quality-control mechanisms as on-campus courses. In 1994, Chon wrote that "by going through the same stringent approval process as on-campus courses, the acceptance among faculty is enhanced" (p. 25).

To assure quality in the assessment of outcomes in distance education, the providers must:

- evaluate the educational effectiveness through learning outcomes assessment and staff/learner evaluations of course content, management and delivery.
- Provide a written, explicit statement of learning outcomes for each course.
- develop standards to compare and improve end results and use such results to improve the teaching learning process.
- review instructional materials periodically to ensure they meet standards; and review intended learning outcomes regularly to assure utility and appropriateness.

Conclusion

This article has examined the elements that together determine the quality level of distance education process. The term quality has been used not as a synonym of excellence, but as the effort to bridge the gap between the actual effect of an

education process and what is expected by the course provider and the recipients. Achieving such a result demands interaction between all the components of the process.

There is no single path to assuring quality in distance education programmes. Understanding the unique characteristics and constraints of any particular programme or target audience is the first step in ensuring quality distance education. The challenge is for distance education providers to select appropriate technologies that will accomplish learning objectives in the most cost-effective manner without a compromise of standard. Course material development and evaluation should be undertaken through team approach, and the materials for distance education should be systematically and continuously evaluated for revision and further improvement.

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