Quality in Distance Education: A Preliminary Review of the Literature

Edna Q. Claus
Kim E.Dooley
Texas A&M University

With the increase use of the Internet, distance education will continue to provide a vehicle for instruction and/or training. Traditional methods for measuring quality instruction and training may need to be reviewed for their applicability and use with current technological methods of instructional delivery. This paper reviews literature on the current evaluation of quality in distance education and the implications for further research.

Keywords: Distance Education, Quality, Evaluation

Distance Education has been a form of instruction in the United States for over 110 years (Moore, 2003). Some of the first courses were delivered through correspondence to provide "collegiate instruction and to award diplomas and degrees" (Moore, 2003, p. 11) regardless of the separation between student and teacher. Since then distance education evolved and has utilized different delivery strategies and technologies. Technological advances provided modes of delivery such as public television, compressed digital media, and on-line courses. Entire programs of study are available at a distance. Academic institutions of higher learning use specialized software or course management systems to provide students courses and/or degree programs delivered on-line.

During 2000-2001 "56 percent of all postsecondary institutions (within the United States) offered distance education courses" (The Condition of Education, 2004, p. 85). According to UCLA's Internet report (2001) it found that 72.3 percent of Americans go online and that they are most satisfied with the Internet's ability to help them communicate with other people" (Meyer, 2002, p. 3) Additionally "87 percent of campuses provide college applications on-line, 55 percent provide course registration over the web and 56 percent offer fully on-line courses" (Meyer, 2002, p. 4) With increased need for new career skills and improvement in delivery technology, distance education students will demand evidence of quality and authenticity in distance courses" (Cavanaugh, 2002, p. 189). This paper will address the need to operationalize "quality" to help prospective learners, program planners, and designers ensure that distance programs, courses, or training adhere to appropriate standards.

Overview of Distance Education

The foundational purpose for distance education was to allow remote students to study at home. "From 1883 to 1891, academic degrees were authorized by the state of New York through the Chautauqua College of Liberal Arts to students who completed the required summer institutes and correspondence courses" (Simonson, Smaldino, Albright, Zavcek, 2000, p. 32) These pioneer efforts evolved to delivery methods and media that are the current status of technology-based instruction and training. A survey by the U.S. Department of Education's National Center for Educational Statistics (NCES) found that from 1994-95 to 1997-98 the number of distance education degree programs increased by 72%. Moreover, an additional 20 percent of the institutions surveyed plan to establish distance education programs within the next three years (The Institute for Higher Education Policy, 2000). This surge of distance education prompted the need for building a case for quality in the courses, degree and training programs offered by private and public institutions.

Formal educational institutions are not the only organizations that envision the potential for distance education. It is predicted that in the next 5 years, 95% of all workers will use some form of information technology in their jobs (Simonson, Smaldino, Albright, Zavcek, 2000). The Commission on Technology and Adult Learning foresees a future in which e-learning (distance education) will become a continuous process of inquiry and improvement that keeps pace with the speed of change in business and society. With e-learning, the learner has convenient, just-in-time access to needed knowledge and information, with small content objects assembled and delivered according to the learners specific needs (American Society for Training and Development, 2001). Organizations are looking to e-learning or distance education to provide training and development for their employees to get up to speed on new products and processes. Improvements in the quality of education and training are an equally important economic benefit of e-learning, which offers potentially universal access to best-in-class learning content as well as a wide variety of content available anywhere in the world (American Society for Training and Development, 2001).

While the Commission on Technology and Adult Learning realized the potential of distance education, it also realizes that assuring quality training is essential in the development of their employees. Corporations save between 50-70% when replacing instructor-led training with electronic content delivery. Opting for e-learning also means that courses can be pared into shorter days so that the business does not loose an employee for entire days at a time (American Society for Training and Development, 2001). The Commission realizes that this will only be possible if both pubic and private sectors engage in quality distance education training programs. But what is meant by quality and how can it be evaluated?

Theoretical Framework

The earliest distance education comparison study that demonstrated that there was "no significant difference" in student achievement was that of L.T. Russell in 1999. "Russell reviewed 355 studies on distance education produced from 1928 to 1998 that included comparison studies of instruction using videotape, interactive video, satellite, telecourses, television with on-campus, and in-person courses" (Meyer, 2002, p. 13). His work demonstrated that it was not the technology that enhanced learning; it was the instructional method used through the media.

There have been additional comparative studies based on Russell's foundational work as well as several interpretations of his work. During the same year his research was criticized for its lack of "quality due to the lack of control groups, randomization of treatment groups, matching of student populations, statistical sophistication, and consistency in treatments" (Meyer, 2002, p. 16). Additionally he focused on "courses and not on programs, did not report on differences in students especially their learning styles, the interaction of multiple technologies, and not basing research on theoretical frameworks" (Meyer, 2002, p. 16).

During the same year, at a National Convention of the Association for Educational Communications and Technology (AECT) in Houston, Texas, Simonson presented the emergence of a new theory in distance education. The equivalence theory was stated as "distance education's appropriate application that should provide equivalent learning experiences for all students distant and local – in order for there to be expectations of equivalent outcomes of the educational experience" (Simonson, 1999, p. 209). The essence of this theory states that learners, both distant and local, do have different learning environments. The design of the instruction should provide learning experiences that are of the same value, although the experiences may differ slightly. This theory provides the base of "core values such as local control and personalized instruction that are held almost sacred in classical American education" (Simonson, 1999, p. 209). Simonson goes on to state that if the acceptance of distance education is to occur, it must be "high quality easily obtained, and familiar to those in need" (Simonson, 1999, p. 209). Although his presentation indicated that there is more than one foundational theory for distance education, he did indicate that the equivalency theory provided a framework for instruction that gives distant or local learners the equivalent learning experiences. The equivalency theory provides the understanding that while the environment is different; the learning experiences should be of equal value, hence equal in the quality of instruction through distance education.

Problem Statement

Currently there is no universal agreement on the definition of quality in distance education. While there is no standard definition there is a concern that "the focus on the quality of distance education has become an emotional and political issue, with opponents arguing that the new use of technology is, by definition, of poor quality and proponents arguing that on-line work can produce valuable student learning" (Meyer, 2002, p. 7).

Purpose of the Study

Distance education can be defined in many ways -- it can mean geographical distance, time distance, and even intellectual distance (Simonson, Smaldino, Albright, Zavcek, 2000). For the purpose of this paper, distance education will be defined as "institutional based, formal education where the learning group is separated geographically, and where interactive telecommunication systems are used to connect learners, resources and instructors" (Simonson, Smaldino, Albright, Zavcek, 2000, p. 8). Quality also has multiple meanings. "The meaning of quality differs depending upon the circumstances and perceptions; quality is also time based or situational" (Oakes & Wescott, 2001: p. 350). This study will reveal the meaning of quality in distance education based upon a review of the literature. The following research questions guided this study:
    1. How is quality evaluated in distance education?

2. What are the current definitions of quality in distance education programs?

Methodology, Methods and Scope

The method used to review the literature on distance education, evaluation and quality was to search scholarly electronic databases, journal publications, books and Internet sites for relevant information from 1986 to 2003. The information gathered was analyzed for its usefulness in answering the research questions concerning this study. The electronic databases accessed included: ABI Inform, ERIC, and ERIC Full Text Documents. Electronic journals accessed were the *American Journal of Distance Education, American Journal of Evaluation*, and the *Quarterly Review of Distance Education*. Internet sites reviewed for information concerning distance education were the United States Department of Education and the Texas Higher Education Coordinating Board. The combination of searches supplied a total of 387 articles and 87 articles were gleaned for their relevance to distance education and quality for review. After analyzing the sources for relevant information, the results provided a total of 23 articles of relevant information concerning distance education, quality, and evaluation.

The limitations of this study are that sources for quality in distance education were primarily in the United States with one source from international literature assessing for quality in distance education. The literature reviewed was based on *distance education, quality and evaluation* keyword searches, resulting in articles primarily concerned with quality in higher education. Additional keywords for distance education that could be used are e-learning, web-based learning and on-line learning to expand on this preliminary review. The incorporation of international sources from countries such as the United Kingdom and Australia could provide further insight.

Findings for Quality in Distance Education

The preliminary review of the literature revealed that evaluation of quality is being conducted at the institutional, course, program, instructor and student levels. The institutional level of evaluation is often aligned with state and federal accreditation.

Institutions offering courses or programs of study through distance education follow the traditional on-site classroom evaluation techniques; however, they are required to demonstrate additional efforts for quality by adhering to state and federal policies and regulations. These policies and regulations are provided by what has traditionally been called the "Triad, the parties to quality, which includes the states, the federal government and the accrediting community" (Southern Regional Education Board, 2002, p. 4). Educational institutions for higher learning are assessing quality based primarily on state policies developed in the early 1990's by the Western Cooperative for Educational Telecommunications in a publication entitled *Principles of Good Practice for Electronically Offered Academic Degree and Certificate Programs* which has been widely circulated and adopted by states, regional accrediting associations and others (Southern Regional Education Board, 2002). An example of this adoption is the *Texas Higher Education Coordinating Board Guide for Incorporating the Principles of Good Practice into Electronically-Based Courses*. It assesses quality in the areas of curriculum and instruction, institutional context and commitment, evaluation, and faculty and institutional commitment.

The most common forms of quality evaluation are formative and summative techniques, which are typically conducted towards the end of the development and delivery process (Sims, Dobbs & Hand, 2002). At the course and program level, post-evaluations gauge the student's evaluation of the course on-line, student achievement, and course effectiveness (based on student's perception). Faculty members and co-workers are to use the results to make necessary revisions or changes at regular internals. This post-evaluation aligns itself with traditional on-site classroom end of course evaluations. Other methods for determining quality within the course or degree program are student grades, student retention during the semester, and the number of students withdrawing from the course during the semester (attrition rate).

One source promoted the idea of proactive evaluation for enhancing quality in on-line learning (Sims, Dobbs & Hand, 2002). The authors contend that conventionally, evaluation has been positioned at the end of the instructional development cycle, to assess whether or not the creative effort achieved the original product goals and whether or not the desired learning outcomes were realized (Sims, Dobbs & Hand, 2002). This proactive evaluation advocates planning and design to ensure that all areas of learning are addressed and to provide for a more meaningful and directed post evaluation. "By focusing on the planning and design phase of the development cycle, proactive evaluation addresses the critical issues associated with the creation of learning resources and environments for delivery in an on-line context to ensure they will have a greater chance of achieving educational outcomes" (Sims, Dobbs, & Hand, 2002, p. 147). Table 1 below highlights the articles that were used to determine where quality was being evaluated and their dependent variables.

Table 1. *Areas Evaluated for Quality and Dependent Variables*

Year	Author	Areas Evaluated for Quality	Dependent Variable(s)
1987	Kember & Harper	Student	Student Learning and Learning Styles
1990	Kember	Student	Student Support
1990	Thompson	Student and Instructor	Interaction
1998	Zuniga	Accreditation	Academic Content Academic Resources Student Retention Technological Opportunities and Challenges
1999	Wentling & Johnson	Instruction	Student Demand Student Retention Student Satisfaction Faculty Satisfaction Student Achievement Financial Efficiency
2000	Institute for Higher Learning	Accreditation	Institutional Support Teaching/Learning Student Support
2001	Twigg	Accreditation	Institutional Support Course Development Teaching/Learning Course Structure Student Support
2001	ASTD	Program	Student/Employee Experience Student Centered
2002	Schoening	Student	Student Learning
2002	Roblyer & Wiencke	Course	Interaction
2002	Thurmond, Wamback, Conners & Frey	Course	Student Satisfaction Student Learning Student Pre and Post Evaluation of Knowledge and Skills
2002	Sims	Program	Pre-Evaluation of Program Planning and Design
2002	Howland & Moore	Student Instructor	Student Experiences Instructor Experiences
2002	CHEA	Institutional	Student Success Policies Standards Procedures
2002	Cavanaugh	Program	Program Design Resources Practices.
2002	Allen	Student	Student Satisfaction Interaction
2002	Bisciglia	Student	Student Attitudes
2002	Meyer	Courses	Interaction
2002	SREB	Accreditation	Federal Institutional Context and Commitment Curriculum and Instruction
2003	Benson	Accreditation	Institutional Context and Commitment Curriculum and Instruction Student Support Evaluation and Assessment

Table 1. *Areas Evaluated for Quality and Dependent Variables* Continued

Year	Author	Areas Evaluated for Quality	Dependent Variable(s)
2003	Williams	Programs	Roles and Competencies needed by DE Professionals
2003	Ciaverelli	Teachers Institutional	Instructional Student Success

While the information provided in the articles addressed specific areas for evaluation, each area had their own specific dependent variable or variables. During the course of this literature review it was determined that there was no common definition for quality in distance education. Quality is evaluated at different levels. The definition changes depending upon the level at which quality is being measured and/or addressed. The following themes for meanings of quality in distance education include:

- Quality is meeting accreditation standards (Benson, 2003).
- Quality is utilizing tools such as interaction, self-examination, and student evaluations (Hansen, 2003).
- Quality is effective and appropriate instruction (Cavanaugh, 2002).
- Quality is emphasis on the individual learner (Fenwick, 1992).

Many recommendations and statements concerning quality in distance education were also noted and are provided below:

- The Southern Regional Education Board through the Electronic Campus and Data Exchange initiatives should work to establish common definitions (SREB, 2002).
- Since we have not achieved a definitive answer on quality for more traditional classroom situations, perhaps it is unwise to expect such clarity for on-line learning. However, more understanding is always better, so the search for clarity will continue (Meyer, 2002).
- Assuring the future quality of adult learning must be a priority as government and business work together to build America's e-learning future (ASTD, 2001).

The following theories emerged from the literature during the review. Although these are not the only theories associated with distance education, these were found during the preliminary review of the literature.

Distance Education

Although the history of distance education extends over 100 years, it was not until 1986 that Borg Holemberg began to voice his concerns of the lack of theories explaining, and identifying distance education. His concern was due to his belief that distance education was not a "deviation of conventional education, he claimed that it was a distinct field of education, parallel and a complement of conventional education" (Schlosser & Anderson, 1994, p. 6).

Independent Study

Charles Wedemeyer proposed the concept of independent study based on the essence of the separation between student and teacher, teaching and learning, and student's pace in learning (Schlosser & Anderson, 1994). Michael Moore also noted the gap between student and instructor in distance education. This distance shifted the responsibility of learning to the student. Although students are still able to rely on their instructors for guidance, due to the distance between them the student takes on a more active role in learning than in a traditional classroom.

Interaction and Communication

The theories informing interaction and communication in distance education can be linked to several disciplines. The "most useful model of interactive qualities for distance learning provide two insights: (1) characteristics that define interaction in distance learning and (2) factors that influence it in distance learning settings" (Roblyer & Wienke, p. 79). The studies of Moore (1989) in the identification of the exchange between members, models of communication by Shannon and Weaver (1949) and interaction as a social and psychological connection by Zhang and Fulford (1994) are just some of the research that has been conducted concerning interaction and communication (Roblyer & Wienke, 2003).

Conclusion

This study provided a preliminary review of the literature concerning quality in distance education. This review provides some of the major themes and thoughts concerning the area of quality in distance education. Currently the areas of evaluation are at the institutional, program, course, instructor and student levels. Evaluation methods at the institutional level are more aligned with state and federal compliance for accreditation. Course and program evaluation are geared toward improving the design and/or delivery of on-line instruction. Faculty and student

evaluations model the traditional classroom evaluations, with some attempts to evaluate learning styles and interaction during on-line instruction.

The definition of quality varies and is often due to the area being evaluated and the nature of the study. Recommendations for the standardization of quality and the criteria used to determine quality in on-line instruction is noted along with the partnering of business and government to ensure quality in training America's future workforce.

Implications for Research and Practice

Although the results of this preliminary literature review provided articles concerned with quality in higher education, current indicators state that "80 percent of Fortune 500 companies are using or intending to use, e-learning, and expect a significant ROI" (Macpherson, Elliot, Harris, & Homan, 2004, p. 297). Since trends indicate that distance education is on the rise and will continue to do so, further research on the development of applicable and effective evaluation instruments for measuring quality in on-line learning is essential. Evaluation has been studied by various entities, professionals and researchers (Wentling & Johnson, 1999). It is this foundational knowledge that can aid in producing new methods for pre-evaluation of quality centered on the student/employee. These instruments can then aid practitioners and students in obtaining quality on-line training, courses or programs that are beneficial in promoting learning and performance. This is particularly important since the American Society for Training and Development indicates that e-learning (distance education) usage is increasing with learning technologies delivering close to 10 percent of training programs (Gallaher, 2003).

Another area for research is determining a common definition and/or criteria for quality. The standardization of quality in distance education would assist in decreasing atheoretical practice. According to Swanson and Holton, (2001) "the improvement ideas of making positive change, attaining expertise, developing excellent quality, and making things better are central to HRD. This core goal of *improvement* is possibly the most important idea in the profession and the core motivator of HRD professionals" (p. 15). If this is truly a core goal, then it is essential for HRD to formulate a definition for quality and supply a tool to determine quality programs and training to guide practice.

Contributions to New Knowledge in HRD

Traditional evaluation methods have always been after a course and/or training. The concept of developing a pre-evaluation instrument for determining quality in a distance education training, course or program provides HRD practitioners and researchers a tool to continue to increase the learning and performance at the organizational, group and individual level. This joint effort could aid in bringing HRD academicians and scholarly practitioners into the forefront of knowledge creation relevant to the theory and practice for the field of HRD. "Without a systematic and comprehensive evaluation, it is hard to see how e-learning (distance education) as an HRD strategy can be developed to ensure the delivery of quality human resources so important to organizational strategy" (Macpherson, et al, 2004, p. 307).

Additionally HRD can assist in defining the criteria for quality in distance education, thus promoting it's stance on value and ethics for the benefit of the organization, group, and individual. HRD will need to retain its' core value of connecting with human beings and in connecting human beings in a meaningful way through the use of quality distance education for educational human resource development (Swanson & Holton, 2001).

References

Allen, M., Bourhis, J. Burrell, N. & Mabry, E. (2002) Comparing student satisfaction with distance education to traditional classrooms in higher education: A meta-analysis. *The American Journal of Distance Education, 16(*2), 83-97.

American Society for Training and Development, (2001). A vision of e-learning for America's workforce: Report of the Commission on Technology and Adult Learning. (ERIC Document Service No 455432)

Benson, A.D. (2003). Dimensions of quality in on-line degree programs. *The American Journal of Distance Education, 17*(3), 145-159.

Bisciglia, M.G. & Monk-Turner, E. (2002). Differences in attitudes between on-site and distance-site students in Group teleconference courses. *The American Journal of Distance Education (16)*1, 37-52.

Cavanaugh, C. (2002). Distance education quality: Success factors for resources practices and results. In R.

Discenza, C. Howard & K. Schenk, Design of effective distance learning programs. (pp. 173-191). Hershy, PA: Idea Group Publishing.

Ciavarelli, A. (2003). Assessing the quality of on-line instruction: Integrating instructional quality and web usability for teachers. (ERIC Document Service No. 480084)

Council for Higher Education Accreditation (2002) Specialized accreditation and assuring quality in distance learning. Washington D. C.: CHEA

Fenwick, J. (1992). A question of quality. *Paper presented at the ICDE 16th World Conference,* Bangkok, Thailand. (ERIC Document Service No. 356692)

Howland, J.L. & Moore, J.L. (2002). Student perceptions as distance learners in Internet-based courses. *Distance Education, 23*(2), 183-195.

Kember, D. & Harper, G. (1987). Approaches to studying research and its implications for the quality of learning from distance education. *Journal of Distance Education, 2*(2). 1-12.

Kember, D., Lai, T., Murphy, D., Siaw, I., Wong, J., Yuen, K.S. (1990). Naturalistic evaluation of distance learning courses. *Journal of Distance Education, 5*(1), 1-11.

Lampikoski, K. (1995). Who determines quality in distance education? *Proceedings from the 17th World Conference of the International Council for Distance Education,*Vol 2. pp. 117-120, Birmingham, United Kingdom.

Macpherson, A., Elliot, M., Harris, I. & Homan, G. (2004). E-learning: Reflections and evaluation of corporate programs. *Human Resource Development International, 7*(3) 295-313.

Meyer, K.A. (2002). Quality in distance education. Washington, DC: ERIC Clearinghouse on Higher Education (ERIC Document Service No. 470542)

Moore, M. (2003). From Chautauqua to the virtual university: A century of distance education in the United States. Washington, DC: Office of Educational and Research Improvement, (ERIC Document Reproduction Service No. ED482357).

Oaks, D. & Westcott, R.T. (Eds.). (2001) *The certified quality manager handbook.* Milwaukee, Wisconsin: ASQ Press.

Phipps, R. & Merisotis, J. (2000). Quality on the line: Benchmarks for success in Internet-based distance education. (ERIC Document Service No. 444407)

Roblyer, M.D. & Wiencke, W.R. (2003). Design and use of a rubric to assess and encourage interactive qualities in distance courses. *The American Journal of Distance Education, 17*(2), 77-98.

Schlosser, C. & Anderson, M. L. (1994) Distance Education: A review of the literature. Washington, DC: The Department of Education. (ERIC Document Service No. ED382159)

Schoening, R. (2002). Creating lifelong learners through quality assurance. *Technology Education, 5(1),1-5.*

Sims, R., Dobbs, G. & Hand, T. (2002) Enhancing quality in on-line learning scaffolding planning, and design through proactive evaluation. *Distance Education, 23*(2), 135-148.

Simonson, M. (1999) Equivalency theory and distance education. *Proceedings of the National Convention of the Association for Educational Communications and Technology, USA, 207-210.*

Simonson, M., Smaldino, S., Albright, M., & Zvacek S. (2003). *Teaching and learning at a distance.* Upper Saddle River, NJ: Prentice Hall

Swanson, R. A. & Holton, E. F. (2001). *Foundations of human resource development.* San Francisco: Berrett-Koelher.

Southern Regional Education Board, (2002). The challenges of quality assurance in a distance learning environment. A report and recommendations in a series on distance education. (ERIC Document Service No. ED481759)

Texas Higher Education Coordinating Board Distance Education Committee, (2002). Guide for incorporating the principles of good practice into electronically-based courses. Retrieved July 18, 2004 from http://www.thecb.state.tx.us.reports/html/0206.htm

Thompson, G. (1990). How can correspondence-based distance education be improved? *Journal of Distance Education, 5*(1), 11-18.

Twigg, C. (2001). Quality assurance for whom? Providers and consumers in todays distributed learning environment. The Pew Learning and Technology Program. Retrieved July 18, 2004 from http://www.center.rpi.edu

Thurmond, A., Wambach, K. & Conners, H. R. (2002). Evaluation of student satisfaction: Determining the impact of a web-based environment by controlling for student characteristics. *The American Journal of Distance Education, 16*(3), 169-189.

433

Wentling, T.M. & Johnson, S.D. (1999). The design and development of an evaluation system for on-line instruction. *Proceedings of the Academy of Human Resource Development*. (ERIC Document Reproduction Service No. ED431950)

Williams, P.E. (2003). Roles and competencies for distance education programs in higher education institutions. *The American Journal of Distance Education, 17*(1), 45-57.

Wonacott, M.E. (2001). Implications of distance education for CTE. Columbus, OH: ERIC Clearinghouse on Adult, Career, and Vocational Education. (ERIC Document Service No. 452368)