Ensuring Quality in Online Education Instruction: What Instructors Should Know?

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Abstract

With a growing number of courses offered online and degrees offered through the Internet, there is a considerable interest in online education, particularly as it relates to the quality of online learning instruction. The major concerns are centering on the following questions: What will be the new role for instructor in online education? How will students' learning outcomes be assured and improved in online learning environment? How will effective communication and interaction be established with students in the absence of face-to-face instruction? and How will instructors motivate students to learn in the online learning environment? This paper will examine new challenges and barriers for online instructors, highlight major themes prevalent in the literature related to "quality control or assurance" in online education, and provide strategies for instructors to design and deliver effective online instruction. Recommendations will be made on how to ensure quality in online instruction, and the role of administrators in ensuring quality online learning will also be described.

With a growing number of courses offered online and degrees offered through the Internet, there is a considerable interest in concerns and problems associated with online education, particularly as it relates to the quality of online education instruction (Allen & Seaman, 2003). According to Twigg (2001) many problems that arise from online education as it relates to quality include, but is not limited to: (a) the requirement of separate quality assurance standards, (b) programs having low (or no) quality standards, and (c) there being no consensus on what constitutes learning quality.

Online education, according to Harasim (1989), is a new domain of learning that combines distance education with the practice of face-to-face instruction utilizing computer-mediated communication. Volery (2000) concluded that online delivery is a form of distributed learning enabled by the Internet. Ascough (2002) suggested that online education has the following features: (a) it provides a learning experience different than in the traditional classroom because learners are different, (b) the communication is via computer and World Wide Web, (c) participation in classroom by learners are different, (d) the social dynamic of the learning environment is changed, and (e) discrimination and prejudice is minimized. More recently, Allen and Seaman (2003) in conducting a survey on online education delivered by higher education institutions in the United States defined an online course as one that had at least 80 % of the course content delivered online. Regardless of the definition, an early indication of the widespread popularity of online education courses can be found in a survey conducted by the U.S. Department of Education, which revealed that more than 54,000 online education courses were being offered in 1998, with over 1.6 million student's enrolled (cited in Lewis, et al., 1999). In this study, Allen and Seaman (2003) reported that: (a) over 1.6 million students took at least one online course during the Fall of 2002, (b) over one-third of these students (578,000) took all of their courses online, (c) among all U.S. higher education students in Fall 2002, 11 percent took at least one online course, and (d) among those students at institutions where online courses were offered, 13 percent took at least one online course (p.1).

Background of the problem

Controversies as to the quality of online education have not diminished over the past decades. Many people are suspicious of online education because courses are often offered by divisions of extended studies or continuing education (Husmann & Miller, 2003) and are taught by adjunct faculty or instructors who have not earned doctoral degrees. Therefore, many individuals have concluded that online education programs are left outside of formal faculty structures that have traditionally had oversight for instructional course quality. Both proponents and opponents have been concerned about online education quality. Opponents view online education as inferior, see it as a substitute for the traditional "brick and mortar" university, and conclude it is rather a profit making venue. This type of delivery is often viewed by "administrators as a "cash cow"-a means of delivering instruction to a large number of paying customers without the expense of providing things such as temperature controlled classrooms and

parking spaces" (Brown & Green, 2003, p. 148-149). Opponents have also suggested that online courses lower the quality of academic standards (Buck, 2001). Some opponents even question the quality of online courses when students do not actually attend a college, and have face-to-face interaction with instructors. Moreover, Weiger (1998) asserted that the quality of instructors who teach online courses cannot be guaranteed since anyone can put a course online.

Concerns regarding the quality of online education are also raised by both students and faculty. Arguments are made that as consumers of online education, students are unlikely to be able to find out information about the quality of the courses that are provided (Twigg, 2001). Schools or universities that offer online education courses typically do not provide comparative information for students e.g., how would a student know which online course meets his/her needs? Moreover, prerequisites that are essential for taking a particular online course are usually not clearly stated on websites for students, and "when students are encountering technical problems, whom they can ask for assistance is not available to them" (Twigg, 2001, p. 15).

From the faculty's perspective, if they haven't received the training for teaching online courses, using the technologies, evaluating and assessing online courses, how then can the quality of their online teaching be assured? Moreover, when teaching online, if a majority of the faculty member's time is spent corresponding with students, how then can faculty balance their traditional teaching, research, and service activities? When faculty are reluctant to teach online classes, how can school administrators to motivate them to do so?

Proponents are in support of online education. They suggest that the lack of face-to-face interaction can be substituted by online discussions in bulletin board systems, online video conferences or on listservs (Blake, 2000). Online education can also promote students' critical thinking skills, deep learning, collaborative learning, and problem-solving skills (Ascough, 2002; Rosie, 2000). Donlevy (2003) asserted that online education may help schools expand curricula offerings with less cost and can help graduates gain important technology skills to improve their marketability. Proponents also argue that online education can encourage non-discriminatory teaching and learning practices since the teachers and students, as well as students and their classmates typically do not meet face-to-face. Palloff and Pratt (1999) reported that because students cannot tell the race, gender, physical characteristics of each other and their teachers, online education presents a bias-free teaching and learning environment for instructors and students.

Quality Assurance of Online Education

The quality of online education has prompted the attention of higher education accreditation associations. The report of the Council for Higher Education Accreditation (1998, as cited in Weiger, 1998) recommended that accreditators should "establish reliable and valid performance measurements, require evidence of contact between faculty and students, mandate evidence of effective instructional techniques, promote systematic efforts to select and train faculty, and assure that students, faculty, staff and administrators receive adequate training to use electronic resources" (p. 11). Therefore, the need of standards for ensuring quality of online education instruction is paramount.

Paulsen (2002) in defining online education indicated that it separates teachers and learners (which distinguishes it from face-to-face education), influences an educational organization (which distinguishes it from self-study and private tutoring), uses computer network to present or distribute some educational content, and provides two-way communication via a computer network so that students may benefit from communication with each other, teachers, and staff (p.1.). This definition clarifies the difference between online education and traditional education. Consequently, quality indicators should be different as it relates to online education and traditional education.

The higher education community has developed several quality indictors for traditional education that are well accepted by many institutional quality assurance programs (Twigg, 2001). Twigg (2001) has stated, "For traditional education, quality equals a tenured full-time faculty member with a doctoral degree teaching the course. Quality equals courses and degree programs offered by and on a residential campus. Quality equals "students learning by sitting with a professor face-to-face" (Twigg, 2001, p. 3). However, in online education, students will not know if the instructor has earned doctoral degree or not, because there is no way to gain the knowledge of the instructor's background unless the instructor him/herself indicated on the course website. Online education is usually regarded as time saving and cost effective education since students do not need to drive to a classroom. Face-to-face instruction is often not guaranteed in online class. Therefore, those common quality indictors do not and should not apply to online education.

In the early 1990s, the Western Cooperative for Educational Telecommunications (WECT)) developed "Principles of Good Practice for Electronically Offered Academic Degree and Certificate Programs" (Twigg, 2001). Since then, many other groups have developed similar principles and practices. For example, The American

Distance Education Consortium (ADEC) drafted "ADEC Guiding Principles for Distance Learning". A joint task force of the American Council of Education and the Alliance: An Association for Alternative Programs for Adults developed "Guiding Principles for Distance Learning in a Learning Society." The Instructional Telecommunications Council provided "Quality Enhancing Practices in Distance Education." The American Federation of Teachers (AFT) developed "Distance Education: Guidelines for Good Practice." The Council of Regional Accrediting Commissions updated and explained WECT's statement, and published "Guidelines for the Evaluation of Electronically Offered Degree and Certificate Programs" (Twigg, 2001).

In 2000, The Institute for Higher Education Policy (IHEP) first reviewed all of the existing principles or guidelines, and proposed 24 benchmarks for measuring quality Internet-based learning, which were grouped into seven categories: (a) institutional support, (b) course development, (c) teaching/learning, (d) course structure, (e) student support, (f) faculty support, and (g) evaluation and assessment (IHEP, 2000). Yeung (2001) also carried out a study among academic staff in Hong Kong higher education institutions on their perceptions of a quality assurance model. He concluded that the benchmarks for quality assurance of web-based learning were considered important. The institutions that participated in the study attempted to incorporate those benchmarks into their policies, practices, and procedures. Yeung (2001) further asserted that academic staff and students are the two key stakeholders in an educational setting. Therefore, to ensure the quality of online education, controlling the quality of academic faculty who teach online courses is vital.

The team approach has also been suggested by organizations and researchers as a method to ensure the quality of online education instruction. The Southern Regional Education Board (2001) encourages institutions and states to build an instructional design team for a quality online environment. Such a team might consist of the instructional designer, graphic/interface designer, technical support personnel, content expert, direct instructor, information resource personnel, mentors/tutors, and assessor. The instructor, however, remains at the center of the team to guarantee academic integrity, with the assistance from other partners. Levy (2003) suggested an organizational structure change in online educational program. This change should involve different people who do different jobs. For example, in this scenario, a content specialist would decide the teaching material, an instructional designer would be responsible for the visual presentation of this material, and a technical specialist would actually create the online course and the instructor then interacts with the online learners. Care and Scanlan (2001) have also advocated another team approach, which is the Interdisciplinary Team Model. In this model, various participants meet as a team on a regular basis to develop the course, solve problems, and discuss issues as course development unfolded. The participants are content specialist, instructional designer, student representative, media specialist, program director, and external faculty member.

Ensuring Effective Online Instruction

Challenges and Barriers for Online Education Instructors

Some of the challenges and barriers for online learning that have been identified by researchers are the change of roles and responsibilities for instructors (Zheng & Smaldino, 2003; Murihead, 2000), use of technology (Valentine, 2002; Palloff & Pratt, 2000; Berge, 1998; Volery, 2000), interaction with students and the changes in interpersonal relations (Bower 2001), and academic dishonesty of online learners (Muirhead, 2000). O'Quinn & Corry's (2002) in conducting a study on online education pointed out several factors that may deter faculty from teaching online. The factors the authors identified include a lack of professional prestige, delivery method used, change in faculty role, and lack of monetary support.

New roles of instructor.

Instructors have many concerns about online education. Their primary concern is how online education changes their roles and responsibilities, and how they can adapt to this change. Online education is widely accepted as student-centered education, and the traditional education is regarded as professor-centered education. Due to a shift to online education, the instructor's role has become more of a facilitator than a traditional lecturer. Therefore, the traditional professor-centered educational environment and student-centered online educational environment will have many differences. Besides the role shifting, the role of the virtual instructor is to select and filter information for student consideration, to provide thought-provoking questions, and to facilitate well-considered discussion (Kettner-Polley, 1999).

Wu & Hiltz (2004) conducted a study of 116 students enrolled in two undergraduate courses and one graduate course at the New Jersey Institute of Technology. Their study concluded that variations among instructors or courses are associated with differences in perceptions of student motivation, enjoyment and learning. Wu and Hiltz also found that in traditional professor-centered education, the roles of professor and student are regimented;

the professor disseminates knowledge, and the student reflects that information. However, as Knowton (2000) has argued, in the student-centered online education course, the professor and students are a community of learners. The professor serves as coach, counselor and mentor; the students become active participants in learning. During the processes of learning, in teacher-centered classroom, professor lectures while students take notes. In online student-centered education, the professor serves as facilitator, while students collaborate with each other and the professor to develop personal understanding of content.

Murihead (2000) indicated three areas considered to be changed when the education courses are put online: (a) the provision of instructional and emotional support to students, (b) the expectations associated with authoring online courses while maintaining a full teaching load, and (c) the requirement to provide ongoing technological support to students and parents (p. 322). According to Ascough (2002), the role of instructor in an online learning environment should be more of a facilitator or moderator due to less control of the class environment. He noted that because most instructors are more likely to have been trained in traditional instruction, it is a somewhat foreign practice for them to plan interactive strategies in course delivery, and adjusting their change in role from the leading speaker to that of a facilitator. Volery (2000) also suggested that the academic role of instructor should be shifted from intellect-on-stage and mentor towards a learning catalyst because the level of interaction has changed in online delivery. Therefore, besides being a facilitator, the instructor should also be an instructional designer (Zheng & Smaldino, 2003).

New roles of online learners.

Because the online environment is different from the traditional classroom, it is important for the instructor to motivate students to adjust their roles when becoming an online learner. In online education, the interaction between students and their instructors have been changed from synchronous in face to face (F2F) instruction to an asynchronous virtual community. Thus, a significant role adjustment for students may be required if they are to experience success. Students must move from being a more traditional passive classroom learner into a more active online inquirer. Hughes (2004) has suggested that online learners should ask themselves, "Am I ready for university (or college)?" "Am I ready for online learning?" "What is my preferred learning style?" "Do I have the skills to be successful in my chosen program?" (p. 369-370).

Garrison, Cleveland-Innes, and Fung (2004) conducted a study to validate an instrument regarding online students' role adjustment. Their findings suggest that students do see a difference in the learning process and a need for their role adjustment. The online learning should be viewed as more cognitive or internally oriented. Online learners must take more responsibility, adjust to a new climate, adjust to new context, synthesize ideas, know how to participate, synthesize ideas, apply ideas or concepts, and stimulate their own curiosity. In addition, Palloff & Pratt (2003) have suggested that online learners should be "open" about personal details of his or her life, work and other educational experiences; should be "flexible" and "humor" to create a warm, inviting course environment; should be "honest"; should be willing to take "responsibility" for online community formation; and should be willing to work "collaboratively" (p. 17-28).

New technologies

Technology, as the inter-medium for instructors to delivery courses becomes more important when the level of face-to-face communication is decreased in online education courses. Consequently, how to appropriately use technology to serve an instructional purpose tends to be another challenge for online education instructors. Muirhead (2000) reported teachers' frustration with the reliability of computer technology, working with multiple versions of a software package, providing technology support to students using multiple operating systems, and the absence of mature integrated content development tools. Palloff and Pratt (2000) also noted that the instructor must be trained "not only to use technology, but also to shift the way in which they organize and deliver material" (p. 3). Valentine (2002) indicated that misuse of technology could also be a problem for the instructor, although this problem may arise from lack of training, instructor's attitudes, or hardware problems. Faculty should leam how to use technology, but not completely rely on the technologies. Instead, they should be able to identify and recognize the strength and weakness of technologies, and select the most appropriate delivery mechanism for their lessons (Gunawardena, 1992, as cited in O'Quinn & Corry, 2002).

McGreal and Elliott (2004) summarized the technologies being used in today's online instructional environment as multimedia, streaming audio, streaming video, instant messaging, and web whiteboarding. The authors also indicated some of the new technologies may be used in tomorrow's online instruction are push technologies and data channels, audio chat and voice over Internet protocol, hand-held and wireless technologies, and peer-to-peer file sharing.

New interaction and communication with online learners

How to interact with online learners is always a challenge for instructors. Muirhead (2000) reported that the teachers he interviewed in his study regarding online education in schools noted their perplexity on how to initiate interactions with students to build relationship while doing their online teaching job. Because most faculty are trained in "hand to hand" teaching, they have to face the challenge of lack of direct interpersonal contact with students, and they have little contact or feedback to gauge the clarity of their communications (Bower, 2001). Also, because managing electronic course materials, student participation, student achievement, and course evaluations can be problematic (Schott et al., 2003), interaction with students appears to be more important for online education instructors on encouraging students self-directed, disciplined, and self-motivated. Moreover, because of the needs of different interaction methods to be employed, changes are also needed in the interpersonal relations between the instructor and students (Bower, 2001).

New way of learning and testing

Since the face to face instruction is usually eliminated in online classes, instructors may lack sufficient information on how well learners actually perform. Thus, ensuring the academic honesty and integrity is another challenge for online instructors. Muirhead (2000) reported that all online teachers in his study worried if the completed assignments received through the Internet have been completed by students themselves. The concerns expressed by those teachers Murihead interviewed may also partially relate to other online educators' complaints, relative to the lack of direct teacher supervision of online learning and testing. McAlister, Rivera, & Hallam (2001) raised another concern about the difficulty of ascertaining the students' identity when communicating over the Internet. Cheating, plagiarism, and integrity in taking test are also other issues in ensuring quality online instruction (Hanson, 2001; Simonson et al, 2003). While many critics have suggested that there is no sure way to hold students accountable for academic dishonesty, Heberling (2002) concluded that while maintaining academic integrity in the online instructional setting may be a challenging, he asserts that many strategies may be employed to detect and prevent plagiarism, such as reversing an Internet search, tracking back to an original source.

Berge, Muilenburg, & Haneghan (2002) grouped identified barriers to quality online instruction into 10 clusters. Those are technical expertise, administrative structure, evaluation and effectiveness, organization change, social interaction and quality, student support services, threatened by technology, access to technology, faculty compensation and time, and legal issues. Understanding these challenges and barriers will help instructors know how their roles have been changed, what qualifications they need, and how to ensure the quality of online education instruction with the help of various strategies.

Facing the Challenge

As the primary key to ensuring the quality of online education instruction, instructors need to adjust their attitudes to teach online, understand what qualifications are needed, and know what they could do ensure the quality of online education instruction. As Deubel (2003) has argued an instructor's attitude, motivation, and true commitment affect much of the quality of online education instruction. High quality online education instruction encourages discovery, integration, application, and practices. Instructors need to discover students' learning preferences, integrate technology tools, apply appropriate instructional techniques, put them all into practices, and generate the most suitable method for individuals. Furthermore, Cooper (2000) stated:

> Online instruction can offer new challenges and opportunities to both students and instructors. Most students do not view online instruction as a replacement for traditional classroom instruction. However, with the right subject matter, with the right instructor and facilitator, and for the right student, Internet or online courses can provide an effective educational environment that is a viable alternative to traditional classroom instruction. (p. 54)

Since the role of instructors has been changed in online education courses to facilitator, mentor and coach, the instructors will need to adjust their attitudes towards technology and new teaching styles to meet the challenge. Attitudes towards technology, teaching styles, and control of technology are the three instructor characteristics that influence learning outcomes (Webster and Hackley, 1997 as cited in Volery, 2000). Therefore, students are likely to experience more positive learning outcomes when their instructors hold positive attitudes toward online delivery of course content (Volery, 2000). Contributing factors on faculty's positive attitudes are the instructor's prior experience of teaching online, intellectual change, monetary support or promotion/tenure, availability of online courseware, improved training and facilities, feedback from students, and flexibility of teaching schedule (Clay, 1999). To become an online teacher, Deubel (2003) suggested that instructors could read literature about online learning environments first, and then get trained to use required technology, and finally seek assistance from experienced instructors when needed.

In order to design and deliver effective online instruction, instructors should know what qualifications they must have. First, they need to upgrade their technical skills in order to keep abreast of technological developments (Volery, 2000). Second, instructors need to know how to design interactive activities and course syllabi, how to operate the learning platform, and troubleshoot with problems online learners may encounter (Cuellar, 2002). Therefore, faculty receiving training before actually delivering online education courses is crucial.

Many researchers have reported the importance of faculty training (McKenzie, Mims, Bennett & Waugh, 2000; Levy, 2003). The question is what training instructors should receive to qualify them to deliver online courses. The instructor must be trained in using the designated software, managing online course, integrating web sources, and interacting with students through the web (Ko & Rossen, 1998). Some online facilitation skills, such as giving negative feedback, encouraging students to become actively involve in online learning, and dealing with disruptive students, could be offered in training programs to prepare qualified online instructors (Hitch & Hirsch, 2001). This training is best offered online, since it provides the instructors the same learning experiences as their students (Ko & Rossen, 1998; Hitch & Hirsch, 2001).

Strategies for Designing and Delivering Effective Online Instruction

The promise for effective online instruction is not guaranteed when instructors adjust their attitudes to new teaching methods, nor when they receive training in the use of technology. The key is how to put theory into practice, and bring them both. Instructors should understand that online education is not merely uploading teaching materials, receiving and sending e-mail messages, and posting discussion topics onto the Internet. More importantly, it provides an arena for an interactive, deep, collaborative, and multidimensional thinking and learning environment (Ascough, 2002).

McAlister et al. (2001) suggested that a self-evaluation process in the online courses that instructor's teach should help them better prepare, design and deliver online courses. The self-evaluation questions might contain: what are the congruence between the web-curriculum and the institution's mission and strategy, how available is the administrative support, what are the chances of institutional obstacles, what are issues of intellectual property, will any compensation from institution be given, how to select the courses, how available is assistance of facilities and capabilities on preparation and delivery of the course material, what are the choices of instructional methods, how to asses student's progress, how to adopt a delivery platform, and maintain the class materials online.

Designing an Effective Online Learning Environment

To ensure the quality of online instruction, the online learning environment must be designed first before the instructor embarks on the online course delivery. Wu & Hiltz (2004) asserted in their study that examined students' learning from asynchronous online discussion that the instructor plays an important role in motivating effective online discussion. Therefore, more online guidance, more structured discussion topics and considerate time devotion are required for instructors.

The online learning environment also embraces pedagogical use of technology (Ascough, 2002; Yeung, 2001), integration of instructional design elements (Zheng & Smaldino, 2003), various types of medium and media (Deubel, 2003; Palloff & Pratt, 1999; McAlister et al., 2001), and diversified learning methods include deep learning, critical thinking, collaborative learning, and problem-based learning (Ronteltap & Eurelings, 2002; Rosie, 2000; Wheeler, Waite & Bromfield, 2002; Ascough, 2002).

Several researchers (Ascough, 2002; Ronteltap & Eurelings, 2002; Rosie, 2000) have reported that online education can encourage students' deep learning and critical thinking skills when learned collaboratively or under problem-based scenarios. Ronteltap and Eureling's (2002) experimental study revealed that when students are learning in a problem-based practical learning, more interaction of students were caused, and students learn more actively. Therefore, integrating deep learning, critical thinking, collaborative learning, and problem-based learning methods into instruction is critical to instructors in improving the quality of online education. How to promote students' deep learning via online education is a critical factor for online education instructors to consider. This requires the instructor to design collaborative and problem-based projects which will involve students to think critically, actively, and deeply.

To ensure the effectiveness of the online learning environment, a detailed course plan is required. The course plan should include doing an analysis on both students' and instructor needs, class objective, selecting course materials for students' knowledge construction, designing activities, discussion topics, projects, and tests, envisioning any potential problems technically or academically, and testing the feasibility of the online course.

In developing the course plan, instructors must analyze their own teaching styles first, and then analyze learner's characteristics (Ascough 2002). Who are the online learners and how fluently can they use computers and the Internet? The students' learning styles should also be examined. Are they visual, print, aural, interactive, haptic,

kinesthetic, or olfactory learners? It might not be possible to gather all the information before the online course begins, but a simple online survey or questionnaire can help the instructor know more about his students' learning styles. One type of questionnaire could be a course experience questionnaire, which not only can help the instructor to gain information about students, but can also improve the students' perception on the academic quality of the course (Richardson & Price, 2003). Paulsen (1995, as cited in Palloff & Pratt, 2003) have also suggested that incorporating various activities can successfully address all learning styles of the virtual student. Those activities could be one-alone, one-to-one, one-to-many, and many-to-many.

When organizing the content for online education courses, the learner's needs must be taken into account. The amount students learn, their ability to apply learned skills into practice, and their satisfaction with the learning experience should be considered. Evaluation is also an important component when implementing instructional design principles into online course design, because it is the way to gauge students' learning outcome and the quality of course instruction (Zheng & Smaldino, 2003).

Instructors should keep in mind that online learners need program orientation and course orientation before getting started. The program orientation should be offered by the institution, and the course orientation should be provided during the course, as well as by the institution. Palloff & Pratt (2003) recommended that the program orientation should include orientation to the courseware, basics of Internet use, how and where to get help when needed, technology requirements for online courses and programs, and information about any course or program policies. The authors also contended that course orientation should provide course descriptions, syllabus, faculty bios, specific information on course expectations, course requirements, assignments, grades. A "Frequent Asked Questions" file about the course and how to complete it, as well as course or program policies should be made available.

Several strategies may be used by instructors to help them to build the effective learning environment. The strategies include, but are not limited to: (a) providing background information for the course, topics on the unit, key concepts and readings for the course; (b) incorporating PowerPoint presentations, video lectures and demonstrations (this is especially important for application classes); (c) designing some activities or discussion questions which can trigger students' interest to explore the answer, which will ultimately foster students' critical thinking and deep learning; (d) requiring students to play roles in certain scenarios in online discussion or virtual classroom. Successful implementation of those strategies should enormously improve the quality of online education instruction.

Allen et al. (cited in Allen, 2001) have also identified 10 keys to quality online learning. The authors suggested that online courses will be high quality when they are student-centered and when:

1. Knowledge is constructed, not transmitted.
2. Students can take full responsibility for their own learning.
3. Students are motivated to want to learn.
4. The course provides "mental white space" for reflection.
5. Learning activities appropriately match student learning styles.
6. Experiential, active learning augments the Web site learning environment,
7. Solitary and interpersonal learning activities are interspersed.
8. Inaccurate prior learning is identified and corrected.
9. "Spiral learning" provides for revisiting and expanding prior lessons,
10. The master teacher is able to guide the overall learning process. (¶1)

Developing an Interactive Online Teaching-Learning Community

To ensure the quality of online education, an interactive online teaching-learning community should be developed by the instructor. Unlike instruction in the traditional classroom, in online courses, greater attention must be paid to the development of a sense of community within the virtual classroom in order for students' learning to be successful (Palloff & Pratt, 2000). This online community will augment the interaction between instructor-to-student, student-to-student, and student-to-content. Brown (2001) concluded there are three levels of community from his qualitative study on a graduate educational administration offered by a midwestern university. The three levels are: (a) making on-line acquaintances or friends; (b) building community conferment, which is like a membership card for the community of learners. This level requires online learners to be part of a long, thoughtful, threaded discussion on a subject, (c) camaraderie, which was achieved after long-term and/or intense association with others involving personal communication (p. 24).

According to Edelstein & Edwards (2002), developing an effective system for students' ongoing interaction is one of the chief tenets for a successful and engaging online course. The characteristics of e-learning community are learner centered, active learning, instructor guided and greater participated by all students (Palloff & Pratt, 1999). Ascough (2002) suggested that the online interaction can be done through exploration, reflection, and

discussion, which ultimately should lead to students' deeper learning.

The e-mail, listserv, threaded discussion, and chat room provide an efficient communication tool to build an effective online community. Threaded discussions could be a means of generating or promoting interaction. Threaded discussions can be constructed and created a home-like atmosphere by instructor whereby students can visit and embrace the joy of learning (Edelstein & Edwards, 2002). In this environment, the interaction between instructor-to-students predominantly consists of email interactions about assignments, questions about a particular aspect of a lesson, and general messages about the lesson. The student-to-student interaction is mainly discussing the group project, or discussion questions posted by the instructor. Setting online office hours may be a good option for the instructor to bridge the gap between instructor and student interaction, since students can get immediate answers to questions when the teacher is online (Serwatka, 1999).

Brown (2002) presented several tips for instructors to improve the impact of their online discussions, including: (a) maintaining an informal tone in the online community built by online discussion, (b) relating online discussions to issues raised and happened in class, (c) structuring discussion topic, stay focused around a being solved problem, (d) defining roles for various discussants, such as "original proposer", "idea extender", "constructive critic", "responder to critic", or "consolidator", (e) providing incentive for active participant in discussion by enhancing grade, (f) requesting backup for the points student have raised, and (g) keeping the discussion board to be a open and free speech platform (p. 9.).

Establishing Performance Assessments

Reliable and valid performance assessments should be established by instructors for quality online education instruction. The assessment should be aligned with course objectives and subject aims, and should enhance students' vocational and disciplinary skills (Morgan & O'Reilly, 1999 as cited in Zheng & Smaldino, 2003). An assignment is one of the major assessment tools used to measure students' performance. To ensure the quality of assignments in the online learning environment, the instructor could design collaborative assignments, also include exemplary student work, permit revision of students' work, and encourage students to initiate course-related discussion topic (Deubel, 2003).

Testing is another assessment tool used in online education courses. However, due to the special features of online education, teacher and students might not meet face to face. Therefore, academic integrity of the testing process is a crucial issue. One way to ensure quality instruction is to require students come to school to take the test, or give an essay-type test alternatively (Serwaktak, 1999). Other ways to prevent the cheating in tests, according to Olt (2002), would be to disseminate a special username and password to students prior to the assessment being made available, make all assessments open-book, set time limits and number of permissible accesses, randomized questions from question pool, and use courseware, such as WebCT to track the time, duration, and number of attempts that a student accesses the tests. It is clear that the quality of online instruction can be ensured from the instructors' perceptive when they hold positive attitudes towards teaching online, design an effective learning environment, develop an interactive online teaching-learning community, and establish reliable and valid performance assessments.

Assisting Students to Achieve Learning Outcomes

To ensure the quality of online education, the instructor must ensure that the students' learning outcomes can be achieved. However, this does not seem as easy as the teaching in traditional face-to-face classroom. Several researchers have expressed their concern about how students' learning outcome could be achieved through online education (Wu & Hiltz, 2004; Koory, 2003). Does asynchronous online discussion improve students' perceived learning

(Wu & Hiltz, 2004)? Does online teaching and learning have particular strength in ensuring students' learning outcome (Simonson, Smaldino, Albright & Zvacek, 2000)?

As early as in 1997, Althaus examined 142 undergraduate students' learning outcomes through comparing the blended (face-to-face and computer-mediated) discussion and the traditional classroom discussion. The author found that this combination provides a superior learning environment compared to the traditional classroom alone. Koorey (2003) taught two years of "An introduction to Shakespeare" at the University of California Berkley. One course was offered online, and the other was in a traditional face to face (F2F) class. Through two years' teaching and observation, the author found that her online students achieved dramatic higher learning performance than her traditional lecture class. The author's conclusion was determined by whether course objectives have been fulfilled, and measures of course grade distribution. Koorey reported that fifty-eight percent (58%) of her online students received an A or A$^-$, as opposed to the more usual 15% of students making similar grades in the face to face course.

Learning outcomes should not be only measured through students' grades, but also through their deep

learning, higher order thinking, critical thinking, or problem-solving skills. Online discussion is usually regarded as the major communication tool between the online instructor and learners, and is regarded as the major vehicle to promote deep learning, and high quality learning outcomes. Larkin-Hein (2001, as cited in Wu & Hiltz, 2004) reported a research study addressing the role of students' understanding in physics using an online discussion group format. The author found that: (a) online discussion provided an additional learning and teaching vehicle, (b) online discussion facilitated the acquisition of higher-order thinking skills, and (c) students became more adept at transferring and applying information learned in class to novel situations (p.141).

In addition to ensuring the online students' learning outcomes with effective online teaching, the instructor should be able to accommodate the students' learning styles. Koorey (2003) concluded from her two year field study that students who possess the following learning styles are more likely to be successful in online class: experienced, self-directive, task-oriented, independent, value composed, textual communication, less social, but values some give-and-take, interested in problem-solving and immediate application.

Clark (2002) pointed out that the online learner must be a constructivist learner. This suggests that the learner must be active in the process, cognitively complex and motivated. According to Clark, motivating factors in the learning process include self-reference, personal goals, control and autonomy. Howland & Moore's (2002) study examined 48 students' experiences in online environments. Their results confirmed that the students who were the most positive in their perceptions of online learning were those with attributes consistent with constructivist learners. The most positive students were more independent, proactive and responsible for their learning.

The Role of Administrators in Ensuring the Quality of Online Instruction

The administrator should be a planner, motivator, promoter, and supporter in the process to ensure quality online education. To ensure the quality of online education instruction, administrators should plan and manage online educational programs, and support faculty balance between their research and teaching of online classes. Moreover, Alley (2001) asserted that administrators have a distinctive role and obligation in facilitating quality learning. He encourages administrators to examine and evaluate online education programs using techniques that are aligned with quality online learning. According to Alley (2001) this review will ensure that faculty design web courses for construct knowledge, not just transmission of information; develop more detailed course syllabuses to include timetables, learning tasks, and learning outcomes; plan for online and remote assessment sites for formative and summative assessments; motivate students; accommodate learning and teaching styles in online environments; and promote social interaction. Levy (2003) also suggested six areas to consider when planning online program in higher education. The areas are: visions and plans; curriculum, staff training and support; student services; student training and support; and copyright and intellectual property.

The administrator should motivate faculty, especially senior faculty to teach online courses through intrinsic or personal rewards, such as tenure and promotion, workload adjustment, or reduction in duties and increase in pay (Giannoni & Tesone, 2003). Cuellar (2002) also suggested that faculty who are willing to teach online should be provided faculty development opportunities to order for them to learn not only the "technological know how's, but also education on how to develop courses on strategies to promote interactive online learning" (p. 11). The administrator should also provide and arrange administrative and technical support for instructors who teach online (Levy, 2003). In a study conducted by Giannoni and Tesone (2003) to determine motivational factors that might influence participation of senior faculty in online learning programs, they found that faculty rated release time, personal satisfaction, e-teaching development, technical support, and professional prestige as motivational factors that influenced their participation in an online learning program. A consideration of these factors should assist administrators in making decisions relative to the involvement of faculty in online education programs.

McKenzie et al. (2000) also surveyed faculty needs and concerns at State University of West Georgia. The authors found that faculty preferred receiving the assistance from the university and administrators in delivering online courses on more and varied training sessions (i.e., Authorware, online course development), technical support as needed by instructors and students, more time to design and deliver on-line class, more incentives (i.e., laptop, student assistants, merit pays), helpful support services, upgrading WebCT, limiting the online class enrollments, fixing WebCT problems in a timely manner, more detailed, understandable instructional material, respecting their wishes to teach online, making WebCT more user friendly, and mentoring for novice or less experienced online instructors, and more time to adapt using WebCT after training).

Husmann and Miller (2001) in a study of the perceptions of program administrators on improving distance learning found that administrators viewed their role as facilitators of program quality. The findings revealed that administrator's perception on the quality of an online program is based almost exclusively on the performance of faculty. Therefore, the recruitment of qualified faculty to teach online courses becomes extremely important. Rahman (2001) suggested a model that administrator may use in recruiting faculty to teach online courses. Within

the model, he recommends that administrators should convince the perspective candidate about the principles, practices, and values of the online education, and the online programs to be offered.

Providing supports (training, administrative, monetary, and promotional) and hiring qualified instructor is essential for administrators to ensure the quality of online education instruction (McKenzie et al, 2000; Husmann & Miller, 2001; Levy, 2003; Giannoni & Tesone, 2003). Berge (1998) has argued that online teaching and learning will definitely fail without the strong support of administrators on programs, trainings, concerns of faculty and students, and overcoming barriers. However, Bowers (2003) contended that in faculty perspectives must be considered in order for quality learning to occur in distance education technology programs. She states, "administrators must 'move beyond the build it and they will come mentality" (p. 4) in order to promote greater faculty participation in such programs. Therefore, administrators should recognize their roles in educational institutions and determine how they may motivate faculty to teach online courses and in the process help them to ensure the quality of these programs. After all, a 2003 Sloan Survey of Online Learning conducted by Allen & Seaman (2003) revealed that academic leaders (59.6%) from degree-granting institutions of higher education agreed that their faculty accepted the value and legitimacy of online education, while over 40% of those leaders in the institutions surveyed were either neutral or disagreed that faculty embraced online education as a delivery method. However, the findings of this survey also showed that the overall attitudes of faculty at all institutions surveyed remained more conservative with regard to the quality of online education and its ability to equal face-to-face learning.

Conclusion and Recommendations

The transition from the traditional face-to-face classroom to on line learning can be successfully achieved and quality can be ensured if several key factors closely examined. According to Palloff and Pratt (2000), those key areas are: ensuring the access to and familiarity with the technology used, establishing relatively loose and free-flowing guidelines and procedures, striving to active maximum participation of participants, promoting collaborative learning, and enabling online participants to reflect their learning. Levy (2003) also suggested that when planning, developing, and implementing online learning programs in higher education six factors should be considered, which are: visions and plans, curriculum, staff training and support, student training and support, and copyright and intellectual property (p. 1). Levy concluded that if institutions want to have effective online learning programs they must analyze all of these areas and make changes as necessary in order to successfully implement online learning programs.

What is considered a good online course? According to Keasley (2000) there are at least ten critical elements for a good quality online course: They are content, pedagogy, motivation, feedback, coordination/organization, usability, assistance, assessment, workload, and flexibility. The Institute for Higher Education Policy (IHEP 2000) has also proposed 24 benchmarks for measuring quality Internet-based learning which should be considered by institutions planning, developing, and assessing the quality of their online learning programs.

Some studies have suggested that a team approach be used as a method to ensure the quality of online education instruction (Care & Scanlan, 2001; Levy, 2003; Southern Regional Education Board, 2001). Such a team might consist of the instructional designer, graphic/interface designer, technical support personnel, content expert, direct instructor, information resource personnel, mentors/tutors, and assessor. The instructor, however, remains at the center of the team to guarantee academic integrity, with the assistance from other partners.

To ensure the quality of online education instruction, the qualification of instructors should be the first consideration for quality assurance. Instructors who conduct online education courses should understand what their roles are and adjust their attitudes for this role change. Second, it is important for instructors to master design and delivery strategies, techniques, and methods for teaching online courses. Third, the institution should provide technical and financial support for faculty. Fourth, school administrators should also realize what their role and responsibilities are in ensuring quality online instruction. Critical to this process, administrators should recruit qualified faculty or instructors for their online education programs. Moore (2001) also noted that to effectively deliver online courses, faculty must promote student to student interaction with minimal faculty intervention, engage students in regular assignments, promoting students' self-direct ability, and providing specialized attention to students who are lack of self-directedness.

The increasing diversity of the nation's student population and advancements in the development of educational technology has encouraged the popularity of online education instruction (Bi, 2000). However, academic institutions that offer courses online still face many challenges. Therefore, administrative support is crucial if programs are to be successful. Administrators must consider issues related to intellectual property, pedagogical rigor and methods, course management, and instructional compensation of faculty (McAlister, Rivera,

& Hallman, 2003). In essence, successful online education instruction does not happen by magic. It is a collaboration of instructors, administrators, students, and the community at large. The courseware development industries should also keep the instructors tuned in about their product updates and provide training and technical service support to instructors. The government, community, and parents should also help the school to ensure the quality of online education.

Moving from traditional methods of teaching to online methods of instruction often create dramatic shifts in the perspectives of instructors and their students (Dringus, 2000). Moreover, many issues have been raised about the quality of online education. To resolve some of the problems and concerns associated with online education instruction, Dringus (2000) suggested that administrators and faculty should prepare students for the online learning experience. Included in her considerations are:

1. Develop a valid and reliable pre-assessment process to determine the educational and technical skills background of the learners before allowing them to register for an online class.
2. Study learners' attitudes and perceptions about online learning. Determine the extent of learners' fears, anxieties, and the capacity for self-motivation as learners begin their online courses.
3. Determine the extensive stream of requirements, roles, and responsibilities that must be supported and maintained in online classes by faculty, students, and administrative staff.
4. Demonstrate to potential online learners how unique online learning is compared to traditional campus-based learning.
5. Devise learning or study strategies that students can adopt to maximize their online learning experience. (p. 194).

Based on findings in this review of the literature and conclusions in this paper, the following recommendations are made for ensuring quality online education instruction:

1. Administrators should not force faculty to teach online courses who do not wish to do so.
2. Training in WebCT should be made more user friendly.
3. Mentors should be available in each department or college who can answer questions that come up from faculty who have limited experience in teaching online courses.
4. Departments should limit the enrollment in online courses.
5. Teachers need to take courses to better understand technology; specific classes need to be taken in order to design websites for online courses.
6. Teachers must have the support of other teachers who have taught online courses before, as well as administrative and technical support.

Specific recommendations on course design and delivery (Bi, 2000, p. 42, Bower, 2003)

1. Limit the size of an online class because timeliness of online feedback and grading suffers when there are larger numbers.
2. Determine what kind of learning will online instruction assist and how that will shape student learning?
3. Consider carefully the type of instructional design to be used to increase student interaction for the objectives of the course.
4. Determine the influence of multimedia upon the instructional process, and the new roles of the professor, Web developer, site facilitator, and non-traditional students in the distance learning process.
5. Provide continuous and periodic student and program evaluation to assess quality indicators.
6. Faculty should be encouraged to explore the online environment and make well informed decisions regarding its appropriateness for they courses that they teach.
7. Faculty and students must learn how to use the online tools that ensure that teaching and learning is appropriate for academic success.

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