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E-Learning in the 21st Century: Multimedia, Differentiation and Diversity

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Abstract: Continuous quality improvement in the curriculum is a viable concern, especially for online and for-profit colleges that offer distance education. This research commenced with a conceptual framework that highlighted the relevance of integrating multimedia, differentiated learning activities, and culturally sensitive materials and activities in an online setting. The author reviewed the published literature to identify findings that support continuous quality improvement of online curricula through integration of these constructs.

Teaching and Learning in a Technological Age

Which model is best for student learning—on ground, hybrid, online? As Brunner (206, p. 230) wrote: “... *all things being equal*, hybrid courses potentially offer a more effective learning environment than either traditional face-to-face or online courses separately.” Rather than one venue being better than the other, individual learners may be better suited to one environment than the other. That being said, however, many adult learners prefer fully online instruction—whether by virtue of choice, necessity, or convenience—amid competing responsibilities of family, work and personal responsibilities.

The National Center for Education Statistics (NCES, 2011) summarized 2007-08 postsecondary enrollment data across four institutional types (public 2-year colleges, for-profit, public 4-year, and private nonprofit 4-year institutions). NCES reported more than 35 percent of all undergraduates enrolled in a distance education program were enrolled at a for-profit college. Many of these institutions remain concerned about the issue of quality for online educational programs, especially as compared to face-to-face delivery (Chao, Saj, & Tessier, 2006).

Online education, combined with effective pedagogy and reflective teaching, has transformed higher education. It offers an increasingly popular and alternative route to traditional classroom teaching (Evans, 2007). The proliferation of distance and online learning program in higher education is a direct consequence of an information-based, technologically integrated society. Online instruction can certainly be rigorous as on ground instruction, provided that the facilitator and students engage in active learning environments replete with quality curricula, vibrant discussion, and opportunities to scaffold learning.

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How we view teaching usually translates across medium, whether on ground, hybrid, or online. For example, Evans (2004) suggested:

Students are entitled to quality instruction in an active and stimulating learning environment. They should experience frequent and repeated opportunities to act, react, and interact with each other and the professor. Curriculum materials should be timely and relevant. Standards of excellence high, yet attainable should be used to facilitate optimal student learning. Finally, as teaching is a process, not an activity, my teaching philosophy advocates an invaluable reflective view on how to strive for instructional improvement.

And yet, information technology is promoting fundamental changes in how we teach and in how we learn. Per Garrison and Anderson (2003, p. 106), “E-learning is not an experiment. It has moved into the mainstream of higher education and is beginning to be recognized as a strategic asset.”

Conceptual Framework

Multimedia applications, such as video clips, flash presentations, and animations can enhance online courses, which are otherwise text-based. Schilling (2009) used qualitative content analyses and statistical comparison of quantitative data to demonstrate significant improvements in the level of students' engagement in course materials and with peers. Differentiation in learning activities through providing alternate forms of assessing learner mastery of content can also be helpful in online courses. While online work often involves writing, students should also be allowed to produce presentations (e.g., PowerPoint) and construct analyses, in addition to writing essays or narrative. In a similar vein, Haring, Titus, Stevens and Estrada highlight the importance of using assessments that have evidence-based validity in assessing the learning gains of various non-majority populations. Accordingly, the conceptual framework for this research posits that quality online curricula and related courses are comprised of dynamic and interactive learning elements that incorporate use of *multimedia, differentiated learning activities, and culturally sensitive learning activities* (See Figure 1).



Figure 1: Conceptual Framework for Quality Online Curricula

Three Areas of Interaction in Online Learning

Three areas of interaction are typically identified as meaningful in online and distance education courses: learner-content interaction; learner-instructor interaction and; learner-learner interaction (Kirby, 1999; Moore & Kearsley, 1996). First, regarding *learner-content interaction*, Hinson and LaPrairie (2005) reported findings from a meta-analysis of empirical studies revealing that the effects of distance education on student achievement were correlated significantly with how courses were designed and with whether or not creators employed interactive media and sound online pedagogical and instructional design strategies.

Secondly, Evans (2007) suggested a variety of equivalence strategies empowering on-ground instructional faculty to support *learner-instructor interaction* and to achieve success in online learning environments. One key adjustment is that the effective instructor must become a co-learner with the students and a facilitator of knowledge. The ubiquitous Web expands the knowledge base of the learners and rails in the face of the instructor serving as a primary and sole arbiter of knowledge. In virtual settings, the online teacher's role is more of a facilitator than a lecturer (Stansfield, McLellan, & Connolly, 2004). In essence, then, a primary role of the online instructor is to offer a supportive presence in which virtual learners feel fully engaged and connected, thereby mitigating their anger and stress (Diekelmann & Mendias, 2005).

The online format also poses challenging demands on the instructor or facilitator, and the skills faculty need are not far removed from those that successful online students use. A cadre of core characteristics, qualities, and/or skills is also needed in the online classroom. Based on more than 22 years of integrating technology into Web-enhanced, hybrid, and/or fully online instruction, the author has compiled this non-exhaustive description of an effective online facilitator:

- Active learner (Tambouris, 2012);
- Conveyer of knowledge in specific content/discipline;
- Counselor and mentor;
- Critical thinker;
- Learning-centered educator (Estes, 2004);
- Organizer;
- Promoter and sustainer of multiple interactions—learner-learner; learner-instructor; learner-content;
- Proponent of information and technological literacy (Leonard, 2001);
- Reflective learner;
- Respector of diversity;
- Skilled mediator and conflict resolver; and,
- Student-centered educator.

The facilitator has a key role in helping to build and to sustain the learning community and the sense of community so that all members feel and are authentically included. This

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role, notwithstanding, learners have a requisite responsibility, as well, to practice inclusive discussion. Yet, the instructor must effectively model that discussion, as the learners tend to look to that individual for their primary cues. It can certainly be more challenging to establish these conditions and parameters in online settings in the absence of verbal expression and other cues derived from face-to-face communication.

Lastly, the literature is replete with studies (Beaudoin, Kurtz, & Eden, 2009; Seckel, 2007) in which researchers identify characteristics typically associated with successful e-learners. They are well-organized, disciplined and focused, self-directed, self-motivated, independent, and autonomous; able to think critically; able to manage time; have access to and the ability to master technological tools; and possess academic and social maturity. To support *learner-learner interaction*, online learning experiences should offer full equity and inclusion for all learners, including those of diverse cultural backgrounds (Smith & Ayers, 2006).

Methods

This study involved a review of the literature through examination of five questions common to discussions regarding quality matters in distance and/or online education:

1. What is an operational definition for quality online curricula?
2. What does a review of the literature reveal regarding the use of enhanced multimedia in online learning environments?
3. What does a review of the literature reveal regarding the use of differentiated and/or multiple learning activities in online learning environments?
4. What does a review of the literature reveal regarding the use of culturally sensitive activities in online learning environments?
5. What criteria appear to represent best practices in online curricula for enabling adult learners to learn best in a dynamic, engaging, and intellectually stimulating online learning community?

Results

Quality online curricula include dynamic and interactive teaching and learning materials that provide frequent and repeated opportunities for instructor-learner interaction, learner-content interaction, and meaningful learner-learner interaction (Kirby, 1999; Moore & Kearsley, 1996).

Enhanced multimedia

Enhanced multimedia integration within online courses supports student-centered instruction (Hinson & LaPrairie 2005). Multimedia integration may include incorporation of online video and audio files, PowerPoint presentations, podcasts/vodcasts, discussion boards and classroom E-newsletter. Schilling (2009) stressed the importance of educators continuing to take advantage of the wide variety of multimedia learning tools and online course to improve the quality of the educational experience.

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“When integrating online components such as video files and multimedia, such as PowerPoint, to supplement instruction and lecture notes, instruction becomes more student centered.” (Hinson and LaPrairie, p. 488). Internet technologies should be used to facilitate interpersonal exchanges that support learner-learner and learner-instructor interaction. Interaction should be facilitated and encouraged among learners, content, instructors, and external content experts, both individually and within groups.

Virtual learners should be encouraged to develop information literacy skills through using the Web to collect and analyze data. Recommended strategies include webquests, webliographies, annotated bibliography, and resource sharing. Using the constructivist approach, learners should actively identify new links to relevant, culturally appropriate websites. In this way, learners may enhance the learning experience by sharing culturally rich information with their instructor and peers (Smith & Ayers, 2006).

Differentiated instruction

To foster a sense of ownership among participants in a learning experience, educators must include a variety of tasks and projects designed to demonstrate achievement of learning objectives as well as authentic assessment of learning outcomes based on learner-selected criteria (Smith & Ayers, 2006). Multiple perspectives may also permeate the learning experience when leaders and experts in the learners’ immediate communities are invited to participate in course planning, design, implementation, and evaluation (Smith & Ayers, 2006).

Differentiated learning activities have the potential to support deep and authentic learning, whereby students attempt to understand what is presented and relate such instruction to the real world. Accordingly, increased use of Web searches, scholarly papers for critique and discussion, peer study groups, case studies, and real world examples helps to support student learning.

“Sanchez and Gunawardena (1998) recommend the following: In general, when trying to accommodate a variety of learning styles in the instructional design, it is always best to design alternative activities to reach the same objective and give the students the option of selecting from these alternative activities those which best meet their preferred learning style. (p. 59)” (as cited in Smith & Ayers, 2006). In online settings, differentiated instruction is nonnegotiable.

Culturally sensitive learning activities

A substantive case has been made for inclusion of culturally sensitive learning activities within the online environment. In particular, studies have been conducted that emphasize how those students considered members of non-western cultural groups prefer collaborative learning activities. Smith and Ayers (2006) reported that students from non-western backgrounds prefer academic work that emphasizes group collaboration—group projects, the continued integration of discussion boards, and peer study groups.

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Also, many non-Western learners may have a strong preference for feedback (Sanchez & Gunawardena, as cited in Smith & Ayers, 2006).

Clark (2000) identified the following as ways to stimulate collaborative learning in online teaching and learning environments:

- Public introduction and basic bio by the instructor/students
- The ongoing discussion
- The debate with students divided into groups and assigned opposite sides of an argument to defend.
- Group projects with small, manageable groups to collaborate on a project.
- A group paper where each student can be assigned to write a portion of the paper.
- Provide personal and group online workspaces that encourage both private reflection and cooperative support (Smith & Ayers, 2006).

Sanchez and Gunawardena (as cited in Smith & Ayers, 2006) provide guidelines for designing distance instruction and support for culturally diverse learners. They note that Hispanic/Latino adult learners often demonstrate a strong preference for feedback, often prefer activities that are collaborative rather than competitive (e.g., group projects), and also show a preference for reflectivity that is well-supported by asynchronous discussion boards. These technologies allow culturally diverse learners virtual 'wait time' to think about questions and then formulate appropriate answers.

Best practices in online curricula and instruction

Lewis (2006) reported the use of learning objects such as video clips and other digital resources as a common strategy among exemplary online faculty. Best practices in online instruction also include incorporation of differentiated learning activities: case studies; collaborative learning; discussion forums; projects; self-directed learning, and small group work (Illinois Online Network, 2007). In online environments, communities of inquiry facilitate the development of social support networks and learner-to-learner among learners that can be helpful for culturally diverse and adult learners (Smith & Ayers, 2006).

Conclusion

Continuous quality improvement in the curriculum is a viable concern. This research reviewed the published literature to identify findings that support continuous quality improvement of online curricula. The research commenced with a conceptual framework that highlighted the relevance of integrating multimedia, differentiated learning activities, and culturally sensitive materials and activities in an online setting.

Use of enhanced multimedia has the potential to more actively engage e-learners. Differentiated learning activities help to enhance deep learning whereby students attempt

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to understand what is presented and relate such instruction to the real world. Studies have been conducted that emphasize how those students considered members of non-western cultural groups prefer collaborative learning activities. Instruction, which encourages peer and group collaboration— group projects, the continued integration of discussion boards, and peer study groups—supports culturally sensitive learning activities for diverse learners.

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