

Analysis of essential skills and knowledge for teaching online

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Abstract

This study identifies and posits guidelines for assessing the skills and knowledge of online distance educators. Findings derived from Cooper's (1998) synthesis research method reveal sixteen skills that may be grouped into six areas that are thought to be essential for educators to teach successfully online. The study also shows that factors, like discipline, delivery mode, learning outcome, and instructional strategy, may affect the application of those skills. Moreover, the findings suggest that educators can greatly benefit from training, support, and faculty development to make the transition from teaching in a face-to-face setting to an online setting, even though most skills are thought to be similar and applicable across settings. The findings also indicate that further studies are needed to establish the validity and reliability of self-assessment instruments and to connect theory and practice.

Introduction

Online distance learning has become a very popular mode for learning in higher education during recent years. However, some online educators claim that they were forced to teach online (Cooper, 1998), or they lack the knowledge or skills to teach successfully online (Bailey & Chambers, 1996; Clark, 1993; Flottemesch, 2000; Inman & Kerwin, 1999; Karsenti, 2001; Wallace, 2003). Do distance educators need any special skills or knowledge to teach effectively online? If so, what are they? Moreover, is there any valid, reliable, and efficient way to determine whether an educator is suitable for teaching online?

The purposes of this study are to (a) determine whether online distance educators need special skills or knowledge to successfully teach online, and (b) determine whether any valid, reliable and efficient ways to assess the essential skills and knowledge of online distance educators.

This study synthesized the skills and knowledge for online distance educators from a review of literature and an analysis of existing self-assessment instruments. The research questions that guided the study were:

1. What are essential skills of a successful online distance educator in higher education?
2. Is there difference between teaching in face-to-face and online environment?
3. Is a self-assessment available for educators to determine their capability and suitability for teaching online?
4. What elements in existing self-assessment instruments were used in higher education?
5. Is there an alternative way to determine whether an educator in higher education is suitable for online teaching?

For the purposes of this study, Hirumi's (2002) definition for e-learning is used to describe online distance learning that, "... is facilitated predominately through the use of telecommunication technologies such as electronic mail, electronic bulletin board systems, inter-relay chat, desktop videoconferencing and the World-Wide-Web"(p.17). Online courses are increasing dramatically across higher education. According to the Statistics from U.S. Department of Education, National Center for Education, the percentage of all 2-year and 4-year institutions that provided distance education courses for any level or audience doubled from 1997-98 to 2000-2001 academic year (Lewis, Alexander, Farris, & Greene, 1997; Livingston & Wirt, 2004; Waits & Lewis, 2003). However, online distance learning also presents issues.

The problem is the overall quality of online courses is still questionable (Johnson, 2003). Even though many educators see the importance of online education, many still lack the experience or knowledge to teach online effectively (Bailey & Chambers, 1996; Clark, 1993; Flottemesch, 2000; Inman & Kerwin, 1999; Karsenti, 2001; Wallace, 2003). Do educators need any special skills or knowledge to successfully teach online? If so, are there any effective and efficient ways to measure or determine if an educator has the skills and knowledge necessary to teach effectively online?

Published studies use different techniques to delineate essential skills for distance educators. A number of studies use Delphi techniques to identify roles or skills that distance educators should possess (Thach, 1994; Williams, 2003). Some studies use quantitative methods to examine what educators face and feel about online

teaching (Clark, 1993; Inman & Kerwin, 1999). Others focus on the shift educators make from teaching in a face-to-face environment to that in an online environment (Conciecao-Runlee, 2001; Coppola, Hiltz, & Rotter, 2002; Easton, 2003; G. G. Smith, Ferguson, & Caris, 2002). Many authors expressed concern for terminology in the field (Easton, 2003; Flottemesch, 2000). To gain insights and a better understanding of the research results, it is helpful to look at the “big” picture by synthesizing findings from previous studies.

Method

This study used the research synthesis method developed by Cooper (1998) to identify fundamental skills and knowledge of successful online teachers in higher education. Cooper (1998) states that research syntheses emphasize “...empirical studies and seek[s] to summarize past research by drawing overall conclusions from many separate investigations that address related or identical hypotheses” (p.3). Compared to the meta-analysis method which is commonly used to synthesize research findings, Cooper’s method focuses more on the similarities and differences across research studies to enhance shared concepts and terminologies as well as to facilitate the transition from research to practice (Cooper, 1998; Hare & Noblit, 1983).

Coding sheets were generated to organize and compare research findings according to the following guidelines posited by Cooper (1998). The coding sheet should:

1. Include detailed information about each study that is related to the topic.
2. Include seven categories of information (i.e., report identification, study setting, subjects, methodology, treatment features, statistic outcomes or effect size, and the coding procedures).
3. Be standardized to contain the main comparison of study interests.
4. Provide space for descriptive note for each study in order to find the interaction between main effect and other variables.
5. Be pilot tested and revised to precisely define necessary categories and unveil further ambiguities.

This study used the studies by Thach (1994) and Williams’s (2003) to form initial coding columns (essential skills and outputs), then modified columns by using the other eight randomized studies. Since the topic of distance education skills can be viewed from different perspectives, researchers used the following criteria to select research for inclusion in the study:

1. Research studies should cover overall skills or outputs which educators can teach in online environment successfully.
2. Research studies should mainly focus on higher education.
3. Research studies should mainly be conducted in the English speaking countries.
4. Findings should be proved by half of the studies.

A total of twenty studies were used to create the coding sheet (see Appendix A for coding references), including thirteen empirical studies and seven position papers published between 1994-2004. This study focused on skills and knowledge mainly found in the higher education among English speaking countries. Therefore, the results may not represent findings from other areas. In addition, some studies do not specify the type of distance learning they conducted. Therefore, those findings may also be affected.

Findings

What are essential skills of a successful online distance educator in higher education?

Based on the synthesized results, there are six essential skills and sixteen outputs for performing those skills:

1. Interaction
 - Guide and maintain interactive discussion
 - Provide timely feedback
 - Encourage peer learning
 - Advise and counsel students
2. Management
 - Monitor and evaluate student performance
 - Facilitate presentation
 - Introduce support services to students
3. Organization/ instructional design
 - Provide clear learning outcomes, objectives, and expectation
 - Organize materials and activities clearly and well

- Identify students' learning styles/needs
 - Conduct instructional design effort
 - Present materials and activities
 - Provide a variety of learning activities
4. Technology
 - Utilize technology in a competent manner
 5. Content knowledge
 - Master in content area
 6. Teamwork skills
 - Collaborate with technical/support skills

The skill areas are ranked from 1-6 in order of importance. The outputs are grouped by area first, and then by importance. Not surprisingly, the ability to stimulate and facilitate interactions is the most important skill that online distance educators should possess. Even though many educators urged the competency of technology in online teaching, this ranking also presents a trend that online education is driven by pedagogical concerns instead of technological concerns. Another interesting finding is the relative importance of content knowledge. It seems that in an online environment, educators' mastery in the content area is important, but their ability to organize and present content information to students is more important.

From the review of literature, we also found factors that may affect the essential skills of successful online distance educators in higher education:

1. Supporting system of the institutions (Berge & Muilenburg, 2001; Dzuiban, Shea, & Arbaugh, 2004). The better supporting system is, the less essential skills those online educators need.
2. Delivery methods of the online courses. Some online courses also require partial classroom attendance; therefore, the essential skills and the outputs will be varied (Pyle & Dziuban, 2001).
3. Learning outcomes of online instruction. Essential skills and outputs for conducting online courses with higher thinking skills will be different from those with fundamental operation skills (Pyle & Dziuban, 2001; Southern association of college and schools, 2000 Dec.)
4. Instructional approach and epistemological beliefs. Different instructional approaches will affect online distance educators' teaching strategies, and different teaching strategies will affect what kind of skills they need to possess in order to teach online successfully. It also means that what educators' epistemological beliefs will direct them to choose different instructional approaches. Therefore, the skills or knowledge for teaching online successfully might be different (Gagne, Wager, Golas, & Keller, 2005; P. L. Smith & Ragan, 1999).

Is there difference between teaching in face-to-face and online environment?

To examine the difference between teaching online versus face-to-face classroom settings, we identified key competencies specified for conventional classroom educators and reviewed literature discussing the paradigm shift from traditional face-to-face classroom to online settings. Like others, we found that most skills are similar (c.f., Coppola et al., 2002; Easton, 2003; Palloff & Pratt, 1999). However, a number of studies also stated that skills, like content and activities' organization, interaction and communication, evaluation and assessment, office hour maintenance, and teamwork, need to be adapted to meet the requirements of an online environment (Berliner, 1988; Dzuiban et al., 2004; Easton, 2003; SACS, 2000). For example, in conventional classroom settings, the primary role of educators is to instruct, but in the online environment, the role changes to an instructor and instructional designer. Another shift has the educator's presentation style changing from a lecture orientation to a Socratic approach. It is important to note that many of the recommended adaptations for teaching online are also being adopted for teaching in conventional face-to-face classroom settings even though they might be less emphasized.

Even though many of the skills are similar, research suggests that educators need training, support, and faculty development to make the transition from teaching in conventional classrooms to teaching online.. The training and support may or may not be housed in the educators' home institution. If an institution asks educators to teach online, but does not provide adequate training and support, the quality of online course materials and delivery may be jeopardized. Moreover, the institution may frustrate their educators without assisting them through the transition

Is a self-assessment available for educators to determine their capability and suitability for teaching online?

Several self-assessment instruments have been reported for determining whether educators in higher education are suitable or capable of teaching online. Some of them have an online version for educators to test by themselves. Reported self-assessment instruments include:

1. Are you ready to work online? (Salmon, 2000)
2. Is online teaching right for me? (University of Central Florida, 2003)
3. Is Online Teaching for Me? Self-evaluation Quiz. (Onlinelearning.net, n.d.)
4. Personality traits and teaching style preferences for online instructors (Fuller, Norby, Pearce, & Strand, 2000)
5. Self-assessment of Readiness for creating or teaching an online course (Gumness, n.d.)
6. Teaching Styles and Web Pages (Indiana State University, 2004)

What elements in existing self-assessment instruments were used in higher education?

Nitko (2004) points out that an authentic performance assessment should include two essential elements: (a) a performance task which learners can demonstrate by producing an extended written or spoken answer, and (b) a clear rubric or criteria for grading that performance. By examining the elements of the existing instruments, we found that most focus on specific perspectives, such as technical (necessary computer skills), psychological (personality traits) and pedagogical (teaching style). Even though some of the instruments provide other elements which are included in our list of essential skills and outputs (e.g., “Is online teaching right for me?” or “Is online teaching for me?”) such elements do not appear to be grounded in learning theories or supported by empirical studies. In addition, we did not find evidence for validity, reliability or follow up studies reported on most instruments. The review of literature did reveal several guidelines for generating self-assessments :

1. The instruments should be aligned with available training and support. For example, the faculty support center at the University of Central Florida provides several consultations for faculty members to assess their skills followed by training and support services to address identified areas of need (Dziuban et al., 2003).
2. Assessment items need to be aligned to learning objectives and cover cognitive (Bloom, Englehart, Furst, Hill, & Krathwohl, 1956) and affective (Krathwohl, Bloom, & Masia, 1964) domains.
3. The instruments should be treated as one sources of assessment data. Nitko (2004) states that assessments should be conducted from multiple perspectives to reduce potential bias.

Is there an alternative way to determine whether an educator in higher education is suitable for teaching online?

Our findings show that there are some alternative ways to determine whether educators are suitable and capable of teaching online:

1. Be evaluated by professional organizations: Some creditable organizations provide course or certificate evaluation services. For example, the National Board for Professional Teaching Standards (NBPTS) provides many services to assure the quality of education. Educators can submit their course materials, students' works, even videos of their class activities to NBPTS to get feedback for their teaching performance as well as their course content. This kind of service is not mandatory, and they evaluate the course as well as the certificate by using multiple resources. The advantage is that the evaluation result is relatively creditable, coming from an independent source. On the other hand, the process takes considerable time and effort from both ends and may not be practicable as standard practice, particularly for larger organizations.
2. Participate in assessment centers. Compared to the previous option, this is also a formal way to access educators' capability of teaching online. However, the assessment materials are from the center, not from educators themselves. Moreover, educators may need to go to performance assessment centers to complete simulated teaching activities like inferences, peer collaboration, or staff development. Therefore, this kind of performance assessment is creditable, but again, may not be practicable as standard practice.
3. Follow checklists, best practices, and benchmarks from creditable organizations. There are many checklists, best practices, and benchmarks from scholarly journals, books, or organizations developed by experienced online educators or experts. Even though those materials may not have been developed for your exact environment, they may still provide useful guidelines for general assessment purposes.

4. Have a good mentor in the same field. It is always a good idea to have a good mentor in the same field (Perreault, Waldman, Alexander, & Zhao, 2002). He or she can provide suggestions which match the environment you have, even though sometime his or her suggestions may be somewhat subjective. .

Recommendations

Based on our findings, we recommend that:

1. Researchers conduct additional studies to determine how specific disciplines, delivery modes, and learning outcomes/strategies affect the skills and knowledge necessary for distance educators to teach successfully online. Even though some speculate that skills and knowledge vary by domain, course delivery mode, and desired learning outcomes, there is little empirical evidence to support such claims .
2. Researcher and partitions determine and report the validity and reliability of self-assessment instruments. Even though we found many self-assessments to help distance educators determine if they are prepared and/or suitable to teach online, the validity and reliability of such instruments are rarely reported. Additional follow up studies are needed for the self-assessments.

Appendix A: References of the coding sheet

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