THE CONSIRATIONS OF DESIGNING AN INQUIRY-BASED ONLINE COURSE

James E. HOLLENBECK

Indiana University Southeast, USA

Abstract. This paper was presented at the First Fulbright Digital +/- Virtual Conference in November 2020 in Sofia, Bulgaria in response to the changing dynamics of eLearning and online teaching. The demand for e-learning has emerged as a result of the COVID-19 Pandemic. The shift to online learning has created apprehension among educators. In this article, myths and applications of an inquiry-based course online learning are identified and analyzed. Suggestions are offered for curriculum developers how on to enhance the quality of course content and improve communication that will strengthen the learners' experience for success.

Keywords: e-pedagogy, e-learning, online instruction, inquiry-based learning, teacher preparation, designing learning environment, professional learning network, COVID-19

Introduction

I began my foray into online teaching full-time, like most readers suddenly in March 2020 with no warning when Indiana University converted overnight to an eLearning institution. Globally education will never be the same

again. My e-learning teaching before March 2020 was the static electronic course which was a reminiscence of the "correspondence course", I posted the readings, directed the written discussions, reading assignments, and graded the work. When our campus went with no warning to remote learning, I changed my teaching. I added synchronous online class meetings through Zoom it greatly enhanced student learning and participation. This academic year, I am teaching 100% of all classes as synchronous learning experiences. The result of the first semester has been successful with a > 95% attendance rate and the expected grade distribution going into final next week is as a normal teaching methodology.

The shift to online learning has created apprehension among academics throughout education at all levels. This new pedagogy is creating a myriad of myths about teaching online. Online learning or E-learning offered over the internet, is contrasted with traditional courses taken in a brick-and-mortar school building (McFarlane, 2011). Online learning environments provide a greater degree of flexibility than traditional classroom settings in presentation mode. They can be a hybrid model that combines face-to-face and online instruction, which has two modes: asynchronous and synchronous. (Giesbers et al., 2014).

Asynchronous learning environments are described as online spaces where work is supported with digital platforms in such a way that participants are not required to be online at the same time, (Hrastinski, 2008). Instruction is accomplished by threaded discussions, e-mail, and online message boards for student interaction (Lieblein, 2000). A benefit of asynchronous learning is the learner has more time to generate content-related responses to the instructor and peer postings, and can learn at their schedule, (Hrastinski, 2008). Asynchronous learning is viewed as less social in nature and can cause the learner to feel isolated. To counter the feeling of being isolated, students can interact with their instructor and peers through interactive message boards and discussions.

Synchronous learning environments most closely resemble face-to-face learning. Synchronous learning takes place through digital platforms where the

learners are utilizing online media at the same time. When compared to asynchronous learning, synchronous online environments provide a greater sense of feeling supported, as the exchange of text or voice is immediate and feels more like a conversation. If such learning platforms such as web conferencing or video chat are used, learners can participate in a real-time classroom to achieve a greater understanding of content, (Stewart et al., 2011). The synchronous environment creates with the real-time responses the feeling of being in a face-to-face classroom.

Before 2020, most instruction was in person or face-to-face. After the Covid-19 pandemic emerged in the spring of 2020 schools shifted their teaching models. The Chronicle for Higher Education reported in October 2020, over 65% of universities in the United States were teaching online or hybrid teaching. Instructors who had never thought of teaching online were faced with a new challenge. A recent study by Trust & Whalen (2020) reported that many participants in a medium-sized university in the mid-west United States had never tried the following models: online teaching (n=185; 66%), or blended teaching (n=155; 55%). Less than a third of the participants in their survey indicated that they had some experience with online teaching and or blended (hybrid) teaching. Participants in their study reported that they needed significant support with the shifting of their teaching and mainly relied on informal, self-directed learning with their professional learning networks for assistance. They felt overwhelmed and unprepared to use online or remote teaching strategies and tools, and they struggled to adapt their pedagogy to fluctuating situations, such as students' unreliable Internet access, changing personal needs, and unclear or shifting educational or governmental directives. A survey conducted by Miller (2008) and replicated by the author showed that faculty members questioned about online teaching before experiencing, developing, and teaching courses online responded that they were hesitant to teach online, and most believed that they did not think it was possible to teach their courses online, without face-to-

face interaction. After professional development courses and coaching on planning online delivery and experiencing teaching online, the same faculty members reported a new understanding of delivery methods and discussed how much learning took place in their online courses (Sekulich, 2020; Miller & Knuth, 2004).

Online learning is presenting a paradigm shift for instructors and learners alike. In 2003 only 20% of "world-class organizations" were delivering online education (Gill, 2003). With the advent of the Covid-19 crisis, learning institutions had to shift immediately to online learning. In some regions of the world up to 95% of learning is now online. Online learning is creating new opportunities for educators and learners with new unforeseen opportunities never imagined. To make the online learning experience successful for the instructor and student, some myths need to be confronted and dispelled for successful learning.

Myth one: good campus 'face to face' instructors make good instructors online

First, there is an assumption that faculty are pedagogically sound for all forms of teaching. However, teaching online requires a different mindset and delivery style. For successful online learning, there needs to be an emphasis on inquiry, problem-based learning with discovery and application of knowledge, students need to be engaged in the instruction (Cox, 2005; Loucks-Horsley et al., 1996). The learning should be "engaging in learning experiences that enhance understanding" of concepts. They suggest that students, learn best by learning in an inquiry approach, investigating, and constructing their understanding. Loucks-Horsley suggests that in developing online learning, instruction must include active modeling of effective learning environments.

Instruction in an online format requires that faculty re-think the usual methods they use to teach on-campus. Online delivery, sometimes calls ePeda-

gogy, does not provide instructors with instantaneous cues regarding their teaching and the students' learning. Online delivery must be well thought out in advance, as it is virtually impossible to 'shoot from the hip' and improvise online. Being void of visual cues, online teaching forces instruction to be more reflective and planned. Consequently, a weak on-campus teacher will quite likely make a weak online instructor. It can also be said that without appropriate e-pedagogical decisions, a good on-campus instructor will not necessarily make a good online instructor.

Myth two: online delivery is the same as correspondence coursework and is limited to content learning

Today's online course model evolved from the traditional correspondence course in which the student would respond to lessons sent from the university by mail, complete them, and return them for assessment. A modern electronic internet online course is certainly not the same as the mail delivered course of the past. In sharp contrast to some initial perceptions, online courses are designed to stimulate active teaching dynamic with an inquiry. An online course is developed to create in-depth feedback with peer-to-peer discussions in chatrooms and video conference rooms i.e.: Zoom, Microsoft Teams, Google Meets, etc.

Teaching online is different from teaching face-to-face, and instructors who teach online should receive training in online communications and course facilitation (Kleinman, 2004). "It is true that face-to-face pedagogy can and should be used to inform online pedagogy. However, this cannot be the driving force to designing online courses; one must consider ePedagogy to create a successful and meaningful course" (Li & Akins, 2005).

Using interactive programs like Google Classroom, Microsoft Teams, or Canvas, the instructor may establish discussion groups to facilitate content understanding. Assessment can be more individualized and can provide the instructor with a deeper understanding of the students, as seen in more interactive,

discussion-based, on-campus classrooms. Creating a community of learners within an online environment takes dedication and skill. The instructor needs to provide direction and support to maximize student learning and form the foundation for the learning community. Stevens (2013) identified five emergent themes important in designing an online course for learning success: (i) communication; (ii) commitment to quality online courses, (iii) commitment to building robust working relationships; (iv) mutual respect for one another's time and talents; (v) and satisfaction in working with online course development.

Communication was the most prevalent factor identified as having a positive effect on the development process. The use of proper questioning and invitation to all students will create a welcoming environment for interaction. Teachers need to practice and master the discussion and communications tools in the online learning environment, and know how to use those tools embedded in the technology available that will reach all learners.

Myth three: constructivist inquiry teaching strategies cannot be modeled online

Sekulich (2020) states that an online learning community needs to be developed in an interactive model that the responsibilities in the areas of collaboration and interaction, organization and communication, technology, learning-style differentiation, critical thinking, and feedback. This is best accomplished by the Constructivist Learning Model (CLM) described by Yager (1991). The CLM is preferred by students as they draw from their previous experiences and actively add to their learning experience (Miller, 2008). An online course can provide social role-modeling of appropriate online behavior, even assisting students in becoming better students. During this learning experience, instructors guide the students' learning to understanding. This is accomplished by probing questions to the students about their responses, having them summarize main themes, and linking them to assignments such as readings, written responses,

and independent and group projects in an interactive dialogue through technology (Carwile, 2007).

There are four important points to consider in developing an online/eLearning experience: (1) Encourage active learning. Communicate learning expectations to students. Keep the activities, and assignments relevant to all students. The online resources must be linked to the course, and appropriate assessment tools must be used. The course design should include clearly stated expectations about how long assignments may take to complete, the sequencing of assignments or modules, and a calendar or automated reminders about due dates; (2) Encourage teacher-to-student interaction. Online instructors become facilitators; the course is no longer teacher-centered. Teachers communicate learning goals with objectives or outcomes with clear opportunities for students to reach those goals. In virtual classrooms, the teacher can structure learning tasks, open discussions with provocative questions, invite student participation, facilitate group collaboration, provide electronic mentoring, point to additional online resources, and structure transitions between learning activities. Many times, the teacher's work is done through posts to discussion forums or via e-mail; (3) Encourage student-to-student interaction. Miller (2008) describes that virtual courses often require student cooperation and communication. Student interaction can vary from simple e-mail exchanges between two students in a study group to a series of messages. A significant task for teachers whose online courses requires student-to-student interaction is the maintenance of group activities, explicit directions to students about how to interact and cooperate asynchronously to achieve the specified learning goals. Most online learning environments have multiple communication structures available (i.e., public, private, topical grouping, forums, town halls, etc.) The discussion structure chosen should be simple and easy for students to navigate; (4) Encourage students to create and collect artifacts. Creating artifacts (representations of student knowledge and understanding) allows students to learn concepts, apply infor-

mation, and represent knowledge in a variety of ways. Artifacts represent students' understanding of the problem, their solutions, and the knowledge they gained. For example, in a Project-Based Learning Project, students use apps to manipulate and revise videos, audio, text, and graphics in the creation of their artifacts. These artifacts can then be collected in an electronic portfolio, a repository of artifacts representing student knowledge growth over time.

Myth four: interaction among peers is weak in online delivery formats

Students in an online format should not be allowed to sit back and let others discuss and lead discussions. The instructor must act as an active mediator guiding the flow and direction of the interaction. To encourage collaboration, it is important to value the discussions, and it should reflect in the course grade. Research by Nicaise & Crane (1999) and Sekulich (2020) show that many students tend to do only what is required. Students should be encouraged to show their images on the screen. When students show themselves course interaction is immediately improved, and the course becomes more personal. To assist students who are shy about their backgrounds, instruct students the first day how to develop and post virtual backgrounds. Currently, as of December 2020, there are no legal requirements for students to show their images on the screen. Local schools and universities' policies differ from school to school; therefore, it is important to know your school's policy. Many institutions encouraged instructors to respect the wishes of the student. Valuing collegial interaction with peers and the instructor will certainly enhance the discussions and the learning experience.

Concluding remarks

As the need for effective online education continues, higher education, K-12 education, and other education providers need to develop appropriate internet-based learning. There will be a demand for those who can design courses

and teach those courses. It appears that the quality of a course content and design, and the nature of the interactions with the instructor, are more important determinants of learning than whether the course is taught face-to-face, online, or some other blend of both (Miller, 2008).

As faculty members and schools continue to convert their traditional teaching to online learning, there will be other myths to dispel. The application of eLearning/online learning has become a permanent and accepted fixture of education. The advantages to present online learning to remote, distant locations and student convenience will persist long after the pandemic.

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⊠ Professor James E. Hollenbeck
School of Education
Indiana University Southeast
New Albany, IN, USA
E-Mail: jehollen@ius.edu