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FEATURE

**Instructional Design Foundations
of Online Education**

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***Abstract.** It is becoming a common practice today for educational leaders to check job applicants' experience with online teaching as they consider names for a new faculty position. Conversely, less attention is placed on what type of online teaching training these job applicants received. Rarely are job applicants asked to present a demonstration of at least one online course that they have designed or taught. This deficit is probably due to the fact that there are not yet any fundamental principles to define what online education is and the principles that should guide its implementation. This paper introduces fundamental principles for online instruction. It synthesizes some important considerations to take into account in planning and implementing online education programs in Christian institutions.*

Keywords: instructional design, instructional delivery, online education, facilitator

Although online education has been in place for almost two decades, it is still misunderstood. A number of educators hold quite a number of misconceptions about what online education is all about. Many educational leaders and professors still believe that quality online education is not possible, not practical, too complex, impersonal, or even alienating. Some of these assumptions may have been true about a decade ago; however, improvement has become evident with the help of the field of instructional design, and as people develop new strategies and techniques to design and deliver instruction for online education. One of the reasons misconceptions have persisted is that many leaders of online programs have fairly depended on commonsense to develop online programs. Some institutions have embraced online education simply because it is thought to be a lucrative undertaking. In some Christian educational institutions, it is rare

to find well-established and well-defined standards and guidelines for online instructional design and delivery.

In an effort to add to the limited literature that is available on this topic in the Christian academic journals, this paper synthesizes some of the fundamental issues that must be carefully considered. It briefly introduces the importance of understanding the learning theories before discussing instructional design theories. It then moves into instructional delivery approaches, followed by issues related to instructional technology for online education. The paper ends with a few other issues that were raised during training sessions with professors in online teaching or at conference presentations on different issues of online education.

This article is primarily intended to give a general overview of the issues involved and lay the foundation of the big picture that educational leaders should focus on as they plan online programs. This knowledge has been intentionally written in fairly general terms to provide the basis for online programs in Christian higher education institutions; however, the general principles presented here can be easily implemented especially in institutions where online education is still in its infancy.

Online Learning Theories

The primary goal of any educational institution should be to promote and support student learning. An educational institution that ceases to focus on the enhancement of the learning experience of the students loses the true purpose of its existence. Online education in Christian institutions must therefore follow and be grounded in good learning theories. For that to happen, current and prospective online faculty members must receive some training about learning theories that work in online learning settings. Historical analysis exposes three major branches of learning theories—behaviorism, cognitivism, and constructivism (Ertmer & Newby, 1993). For an elaborate discussion of learning theories, readers are referred to Schunk (2008).

Online learning seems to rely heavily on constructivism, a theory built on the assumption that learners construct knowledge based on their background knowledge and in connection to the real world (Chen, 2007; Gordon, 2009; Liu & Matthews, 2005). Based on the constructivist theory, professors who design online courses develop their instruction in such a way that it requires and guides students to take an active role in understanding and applying new knowledge learned from the course.

Given exponential advances in technology, knowledge is no longer an exclusive asset of the teacher. Knowledge is accessible to both teachers and learners. This new development has significantly affected education and has placed the teacher in the position of a course facilitator rather than that of

an instructor, that is, moving from “sage on the stage to guide on the side” (King, 1993, p. 30). Online faculty members need to learn and consider constructivism as they design their online courses. While the use of constructivism cannot exclude the use of the other two major learning theories (behaviorism and cognitivism), it must certainly take the lead in instructional design and instructional delivery for quality online education because constructivism allows the learner the ownership of the learning process. In this paper, constructivism is used for both learning and instructional theory perspectives.

Instructional Design Theories

Instructional design refers to all activities that involve an online professor in designing and developing an online course. With the rapid growth of online instruction (or online teaching), the field of instructional design has also expanded. Designing online courses must follow some specific instructional design theories. Different instructional design experts have suggested different instructional design theories and models (see for instance, Baturay, 2008; Dick, Carey, & Carey, 2008; Dicks & Ives, 2008; Jonassen, 2004; Keppell, 2007; Koszalka & Ganesan, 2004; Morrison, Ross, & Kemp, 2007; Power, 2009; Reigeluth & Carr-Chellman, 2009; Reiser & Dempsey, 2007; Rothwell & Kazanas, 2008; Silber, 2007; Sims, Dobbs, & Hand, 2002); however, none of these instructional design theories and models is presented from the Christian perspective. To use any of them, online faculty members are highly encouraged to make modifications for the integration of faith and learning. The Five-WH approach (Wa-Mbaleka, 2012) is perhaps one of the rare models that have recently been made available for Christian education in online settings. It gives practical steps for designing an online course module from the Christian perspective. This is especially important because a module is the fundamental unit in an online course.

Regardless of the instructional design theory or model adopted or adapted, the course designer must complete a number of activities. Course designers must systematically analyze the instructional needs of the learners, design and develop the online course according to sound online learning and teaching theories. The course designer is involved in writing relevant learning objectives and selecting or developing relevant instructional materials and learning activities. He or she must design assessment activities that will help evaluate the learner acquisition, navigate the course to assess workability, make needed modifications, and continue updating the course as need arises over the semesters, quarters, or years (Dick et al., 2008; Gagné, Wager, Golas, & Keller, 2005; Morrison & Anglin, 2006; Morrison et al., 2007). In addition, and most importantly, the course designer must make clear provision for the integration of faith in learning in all the sections and activities of an online course (Jeffery, 2007).

The effective integration of faith and learning is what makes Christian education unique in both face-to-face and online classes. For specific illustrations about how to design an online course module from a Christian perspective, the reader is referred to the Five-WH approach (Wa-Mbaleka, 2012).

Instructional Delivery Approaches

In online courses, instructional delivery refers to teaching as known in general terms (Grant & Thornton, 2007; Shank, 2007; Wiesenberg & Stacey, 2005). An important relationship exists between instructional design and instructional delivery. Instructional delivery highly depends on instructional design. Instructional design affects instructional delivery to a great extent (Gagné et al., 2005). In online instruction, this relationship is even more important. If there are deficiencies in the instructional design, the delivery will undoubtedly be affected (Bender, 2003). For instance, if an online course is not well designed, it will bring great frustration to both the learners and the course facilitator. It will certainly affect the student learning negatively and thus hinder or defeat the purpose of education. This interdependence between instructional design and delivery is an important factor to consider in Christian institutions.

In essence, theories and models related to online instructional delivery focus on Gagné's (1985) events of learning. Based on this work, online faculty should design, develop, and deliver courses in such a way that they can, (a) gain learners' attention, (b) inform their learners about the main objectives of the lesson, (c) help learners recall their background knowledge and motivate them in preparation for the new lesson, (d) present the new content, (e) guide learning activities and provide practice opportunities, (f) provide feedback, (g) assess learning, and (h) help learners enhance their knowledge in order to transfer it to new learning opportunities. Instructional activities must focus on content that is relevant to the needs of the students; content that motivates students in playing an active role in their own learning process. The content must promote critical thinking while carefully leading students to think from a Christian perspective. Before the first day of an online class, the course designer must fully develop activities that will affect the events of learning. Throughout the period when the online course is facilitated (taught), the course facilitator (formerly known as instructor) must regularly evaluate him- or herself on the progress of these events of learning.

Additionally, instructional delivery strategies should focus on Chickering and Gamson's (1987) seven principles of good practice in education. They should encourage effective interaction between students and course facilitators, and students among themselves. They need to promote and emphasize cooperation, instead of isolation of online learners. Online learning must be based on the principles of a community (Batista, Forrey, & Stevenson, 2008; McElrath &

McDowell, 2008; Vesely, Bloom, & Sherlock, 2007), where students can really feel the sense of community, even if they are scattered around the globe. An online course must provide an opportunity for students to play an active role in their learning—it must be based on principles of active learning (Kleinman, 2005; Schrand, 2008) and constructivism. Learners must play an active role in the construction of their knowledge based on their background knowledge.

Online course facilitators in Christian institutions must provide prompt and constructive feedback (Boud & Falchikov, 2006; Rocco, 2007). Prompt feedback is effective because it is provided when the learner is still thinking about the topic. Feedback must not be only timely; it must be constructive. It must help students improve their learning. Promptness in online teaching is absolutely necessary. In a format where students post and interact on a topic for a week, there is a tendency for some to jump in on the last day of the week, which does not give them the opportunity to engage in the discussion during the week. It is up to the online course facilitator to require participation throughout the week for meaningful learning to take place on a regular basis. The same participation need applies to course facilitators. Through regular participation in the online course activities, online course facilitators should demonstrate online presence through daily and prompt replies to student questions or in reaction to their postings.

Constructive feedback provides learners with room for growth. It provides both positive and negative evaluation of the learner's work, while guiding the learner with specific strategies for improvement. Another principle is to emphasize time on task, which is a principle that is in line with the Christian philosophy that good Christians must be good stewards of the resources that the Creator has made available to them. If there is no reason for teaching some specific content, it should not be required to take precious time from students.

Chickering and Gamson (1987) also emphasized the importance of communicating high expectations. Christian education is and should always be about excellence. In fact, White (2010) emphasized the importance of high standards as she encouraged teachers to avoid delivering second-rate instruction in Christian schools. The last principle promotes the diversity of talents and ways of learning. Christian educators must acknowledge that God has created students with different gifts, talents, and intelligences (Fowler, 1997; Gardner, 1999). More than face-to-face learning, online learning should promote differentiated instruction and learning. Most online course management systems provide tools that can help reach different types of learners and various learning preferences. Different modules in an online course can use different types of assessment to ensure all the learning preferences have been met.

Last, it is important to emphasize the preeminent role that the online course must play in the learners' spiritual life. The mission of Christian education is a mission of redemption and restoration (Knight, 2010; White, 2010).

In online instructional delivery, the course facilitator must always think about how to enrich the spiritual life of the learners. Strategies used in teaching online must mirror the teaching methods of the Great Master who has set a good example for all Christian educators (White, 2010). For instance, starting each course module with a devotional thought, including the Christian perspectives in the discussion questions, and integrating a spiritual component into each of the assignments, projects, and papers of an online course are just some of the several successful approaches used in the integration of faith and learning.

Online Instructional Technology

Online education depends on devices that are connected to the Internet. Although primarily focused on computers, mobile devices such as mobile phones and tablet computers such as iPads are currently used for both the Internet and for online education. In planning online courses, educational leaders must make important decisions in relation to technology selection, maintenance, and usage (Ratliff, 2009). While financial considerations are important in this matter, serious thought must also be given to the usability of any device that is selected.

In planning for online programs, a team of instructional technology experts of an institution must discuss the most appropriate course learning management that fits the instructional needs of the institution, and select the one that meets the vision of the institution, the needs of the prospective online learners, and the complexity of the online programs to be developed. Many free online course management systems are available today for courses that are fully online, such as Canvas, Dokeos, Moodle, Sakai, and several others. These and other free course management systems have most of the features that commercial ones offer. Some of these are currently being used in large colleges and universities in the United States and Europe. Few colleges and universities develop their own course management systems and experience shows that this option is usually expensive. In the selection process, the team should also consider issues related to the maintenance of the course management system. Those that have passed the test of time generally have less technical glitches than newer ones.

If the target population of online learners is in places or countries where Internet accessibility might be a challenge, the course designer must consider technology features or options that can make course content easily accessible. If Internet access is significantly low, therefore affecting its reliability, educational leaders should reassess their plan of offering online courses. Other options that are available include teaching on interactive instructional television, where a professor broadcasts his or her course live to students gathered in different sites or the use of mobile learning (Livingston, 2009) or the delivery of online education through mobile phones or other mobile devices. Some strategies that have been found useful in enhancing online courses where students and/or

faculty have limited Internet connectivity include, but are not limited to, the use of text messaging on mobile phones, free Internet-based messaging services such as Skype or Yahoo Messenger, and even the connection through social media networks such as Facebook. These sets of free online software seem to work fairly well with low Internet connectivity. A few institutions use supplemental alternative of CDs, DVDs, among others. posted to students to make lecturers readily available to students.

Last, fully online courses could be enhanced with live video or audio lectures/discussions using online tools such as Elluminate, Adobe Connect, or even some free tools such as Skype. Although these tools can be useful in this capacity, they present two major challenges. Online course designers must keep in mind that most students want to study online because their schedules or circumstances do not allow them to attend courses that require live meetings, whether online or face-to-face. Additionally, students who have limited Internet connectivity can experience serious challenges that can amount to frustration when trying to access a live web-based class session. It is important to mention here that the use of email, Facebook, and even phone calls can enhance online courses and help remove the barrier that seems to exist between online course facilitators and online students.

Online education provides an unprecedented opportunity to reach students with special needs. Students who have mobility problems, the visually impaired, and even those with other learning disabilities can study online (Keeler & Horney, 2007). Christian education will not be complete until it has provided equal opportunity to all students without distinction of disability. Online education offers a very special opportunity for learners to access Christian education.

Other Important Considerations

As far as online instruction is concerned, it is necessary to understand learning theories and apply effective instructional design and delivery strategies as discussed above. In addition, there are several factors that must be considered in online instruction. Below is a short list of those that are directly connected to the previous discussion. This list is not exhaustive.

Instructional Support

Faculty members cannot effectively design and teach online courses without adequate support. Working alone will either cause burnout, low quality online education, or failure for online faculty members, online learners, and/or online programs. While much support is needed, some types of support seem imperative for successful online course design and delivery. The first is the administrative support. Especially in the case of new endeavors, faculty members involved in

online education need encouragement and financial support such as the purchase of needed materials and services. Additionally, the workload of regular professors teaching face-to-face should be reduced when they are designing online courses. Furthermore, they certainly need training in online instructional design and delivery and incentives for their participation. Additional adjunct faculty may be hired to help teach some online courses, as long as they receive proper training and are willing to uphold the highest standards of the institution.

Additionally, course designers and facilitators need instructional design support. They need a mentor to guide them in applying theories and principles of online course design and delivery. Even if they have completed the training, they need continued guidance, especially in their first three to five online courses. They also need regular technical support. Last, they need support from the librarian and other staff members for any instructional resources needed in online courses.

Subjects to Be Taught Online

This question is one of the troublesome ones in online education today (Ess, 2003; Pérez, 2011). No one has an absolute answer on which courses should and which ones should not be taught online. In general, any course can be taught online; however, this depends on the expertise, financial, technological and instructional resources that are available to the institution. Some colleges and universities are offering science and math courses online, while others have no resources for such courses. Some courses may require face-to-face components. For instance, medical practitioners will require supervised practice exercises such as surgeries. In such cases, planning online education may be different and even more challenging, but not impossible.

One key piece of advice for institutions that are at the beginning stages of developing their online programs is to begin primarily with theoretical courses. Courses that focus primarily on theories seem to work best online if an institution has limited resources. Science courses and others that depend on complex calculations generally seem to require more than just general expertise and basic technology skills; however, it is possible to design these courses for online instructional delivery, once effective human, financial, and technical resources are in place.

Linguistic Barriers

It is evident that online education is not restricted by any geographic or political boundaries. This flexibility of online education presents the challenge of linguistic barriers. People who are interested in Christian online education want to know if the institution offers courses in a language that they know.

In the past, it was an automatic requirement for someone to learn English if he or she wanted to study in the United States of America, for instance, but with online education, it is important for educational leaders to think well beyond this limiting perspective.

If the primary goal for offering courses online is to make Christian education more accessible and more affordable, educational leaders should plan to offer online courses in more than one international language. Languages such as English, Spanish, Mandarin, Japanese, French, Portuguese, Hindi, and Arabic seem to be among the top languages that can reach a large number of online students.

Graduation Ceremonies

Even when courses and programs are offered fully online, institutions should, where possible, plan some face-to-face meetings with online students before graduation. Such meetings may be used for students to complete a comprehensive exam before being awarded a degree. This practice could help minimize the possibility of students who might be tempted to ask someone else to complete the coursework for them. Another meeting could be required for students to come to a physical location where they can participate in their own graduation. Such meetings present an opportunity for administrators and faculty members to meet their students face-to-face. In fact, leaders of higher education institutions may want to provide more opportunities for face-to-face meeting because one of the major reasons that have been given over the years for high dropout rates of online students is that they feel isolated and lack personal contact with the online course facilitators (Power & Gould-Morven, 2011). Planning face-to-face meetings with online students can add some missing personal touch.

Instructional Materials

Whenever possible, educational administrators and course designers need to work hard to locate and use textbooks written from the biblical perspectives since more and more textbooks and other instructional materials are adopting the evolutionist theory, which is in contradiction with the biblical truths. Special care must be taken in selecting instructional materials that will be included in the design of online courses of Christian institutions. If there are not enough instructional materials, this is a challenge; but this challenge is an opportunity for Christian church members to publish more materials in fields that have scarce resources. Additionally, more and more Christian literature should be made more and more accessible online for online course design.

Conclusion

Online instruction is to a great extent different from face-to-face instruction. It should not be done based solely on common sense. Some of the learning and instructional design theories that work for face-to-face settings may not necessarily work online. Moving from face-to-face to online instruction is and should be considered a complete paradigm shift. As in face-to-face instruction, however, there are two elements that need to be enhanced in the online learning setting. Instruction must be Christ-centered, because the integration of faith and learning is a distinctive trait of Christian education. Second, instruction must promote the learner's active participation in the learning process. This is possible only if professors design courses that promote active learning. Finally, for online courses to yield positive results, course designers and course facilitators must receive needed training, resources, and instructional and administrative support.

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