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FEATURE

Designing Learning Modules for Online Courses: The 5-WH Approach

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Abstract. *More and more educators today are joining online teaching with little or no instructional design training. Challenges have been reported in in many regions around the world. In addition, time constraints present another challenge because of the many responsibilities that educators assume as regular faculty members. They need practical guidelines that can help them in designing their online courses, beginning with the module–the meaningful, self-contained, basic building block of the online course. This theoretical paper provides some practical guidelines for this purpose by applying the common 5-WH approach in designing a module for any online course. This approach helps the online educator to address the questions related to who, what, why, where, when, and how, expected from any complete online course module from a Christian perspective.*

People who have taught online can recall the first time they were asked t design a course for online delivery. With limited or no training in instructional design, the task looked monumental. Challenges such as institutional support, financial expenses and lack of training are common when someone is a novice online faculty member (Lloyd, Byrne, & McCoy, 2012). Yet, online instruction is growing fast around the world (Nyerere, Gravenir, & Mse, 2012; Okonkwo, 2012; Wright & Reju, 2012; Zawacki-Richter & Kourotchkina, 2012). Abundant literature is available today about how to teach online, how to design an online course syllabus, and how to use online course technology. However, little scholarly literature, if any, is available to guide online educators in designing a course module based on sound theory. A module is to a course what a chapter is to a book. In itself, it is not a complete course. However, a module is a manageable part of a course that focuses on a specific topic with complete learning and assessment activities. Modules provide structure that helps both

learners and teachers make sense of the entire course. Using practical steps to design a complete, theory-based module can save faculty time while guiding them in the design of learning modules that meet most fundamental principles of instructional design theories.

Who

From the various perspectives of who is involved in the instructional and learning process, there are three major categories of people that should be taken into consideration when designing any online course: the learner, the course facilitator, and the employer. The learner is the major recipient of knowledge from the educational setting. The course facilitator is the direct monitor of the learning student's process. The employer oversees teaching and learning. Keeping the three individuals in mind during the design of a course module must be taken into consideration.

In the twenty-first century, most educational practitioners and researchers have advocated learner-centered instruction (Brown, 2003; Cercone, 2008; Cifuentes & Ozel, 2006; Grant & Thornton, 2007; Knowlton, 2000; Land & Hannafin, 2000; Thomas, 2000). In designing any course module, the focus of instruction should switch from teacher-controlled to learner-centered approaches. With the undeniably rapid advances in technology, today's learners have greater access to information, and therefore may have already gained a great amount of knowledge outside the classroom setting. Learners are not blank slates. When designing a course module, it is important for a professor to consider what learners may already know and how their background knowledge may help in the learning process. Additionally, learners' interests, majors, and learning styles should be considered. From teaching the same course repeatedly, the course designer may already know the common interests of most students who take this course. This knowledge is important during the course design. However, if the professor is able to access potential learners of the course, he or she could conduct a needs analysis through face-to-face interviews or short online surveys with some of those potential students. As for the learning styles, it is important for the course designer to consider different learning styles and design instructional activities that vary accordingly. The more diverse the instructional activities, the more likely it is that the course designer will be able to meet students with different learning preferences.

The next person that should be considered in the design of a course module is the course facilitator (or the professor). Even though some people suggested that technology would replace educators at the beginning of the new century, the first decade of the twenty-first century has proven the opposite. Even in online courses, technology cannot replace the position of the course facilitator. For each module, the course designer needs to think clearly about the level of support and

guidance that the course facilitator will need to provide to students for successful completion of the learning activities in that module. Although it is common practice that the course designer ends up becoming the course facilitator, online courses should always be designed in such a way that that any content expert with online teaching experience could facilitate them. Not thinking carefully about this aspect may later cause burnout for the course facilitator or confusion to the students.

A professor who is designing an online course or its component parts (modules) must keep in mind that whatever is designed must be to help students spiritually. Online courses provide excellent opportunities for the integration of faith and learning (Jeffery, 2007). Just as professors in face-to-face classrooms begin their classes every day with a devotional, it is important for each course module to begin with an inspirational thought that is preferably connected to the main topic or topics of that specific course module. An online professor must never forget that "The fear of the Lord is the beginning of wisdom, and knowledge of the Holy One is understanding" (Proverbs 9:10, NIV). While beginning a course module with a devotional thought should be the general rule, it should not be the only place where the integration of faith happens. Integration of faith and learning must occur throughout the course.

The integration of faith and learning is important in all the course modules. Any educator or course designer should always keep in mind that the work of educating is also the work of saving souls, as White (1893) claims. During the design of any course module, the course designer should constantly think about how God would like them to design the course and how each course module can draw students closer to God on their spiritual journey.

What

When a professor is asked to teach a course, it is common practice in higher education to provide him or her with a course syllabus that contains the course goals and objectives (Anderson, 2008). In many instances, the syllabus also already contains the main topics of the course. It is thus important, when designing a course module, to carefully analyze the course goals, the time constraint to complete the course, and then decide on the information that needs to be the focus of a specific module. Five aspects must be considered in deciding on the content of a course module: the course goals associated with that module, the major topics of that module, the assessment activities (for instance, quizzes, discussions, projects, assignments), the learning objectives, and the integration of faith and learning. To avoid cognitive overload, which is the incapacity of the brain to handle new information because of its large size or disorganized structure, the course designer must balance the number of topics that one module can hold. This balance requires the educator's expertise in his/her field and

theoretical knowledge on how the brain functions and how human beings learn new knowledge. On the other hand, presenting fewer topics than needed can be a waste of students' precious time and resources (Chen, 2007; Gagné, Wager, Golas, & Keller, 2005; Morrison, Ross, & Kemp, 2007).

Designing effective learning objectives can be challenging. For the purposes of practicality and user-friendliness, Bloom's revised taxonomy is suggested here. Initially invented in the 1950's and revised about a decade ago, Bloom's taxonomy classifies the types of learning into six major categories, from the easiest to the most complex learning (Nasstrom, 2009). In order of complexity (from the least to the most complex), these include remembering, understanding, applying, analyzing, evaluating, and creating. In this taxonomy, the last three categories of knowledge are generally more valued than the first three, simply because they call for better mastery of the new learning (Morrison, et al., 2007). This taxonomy clearly presents the different levels of learning and the verbs that correspond with each level. These verbs from Bloom's Taxonomy are a good start to be used in writing learning objectives, although some other models might be available. Last, in each learning module, a course designer must make provision for specific activities that will allow students to integrate their new learning into their professional life, their spiritual reflection, life, and Christian service.

Why

For every instructional activity, there must be a specific goal. If there is no reason to learn some course content, then it is not worth the student's time and effort. In the introduction of the course module, the course designer should clearly state why the knowledge in the module is needed in relation to the learner, the course, the learners' field of expertise, and the learners' service to God and humanity. Tailoring instruction to meet real learning needs of the students strongly depends on a systematic needs analysis that is conducted as part of course design (Morrison, et al., 2007; Power, 2009; Rothwell & Kazanas, 2008). In academic settings, this important step is frequently left to a general analysis of students who are not even present. Course designers simply imagine what the needs of the students might be and design courses from that imagination. Interviewing potential learners or learners who have completed the course under design can help improve this common weakness.

Ellen White's (1893) counsel that "Many of the branches of study that consume the student's time are not essential to usefulness or happiness" (p. 216) should be heeded. No matter what pressures come from government accreditation agencies, school competition as defined by non-Christian agencies, and even the labor market, a course designer should not design learning activities that requires unnecessary time and effort from learners. More thought should be placed on

systematic needs analysis. Additionally, instructional activities should be designed in such a way that they will allow students to apply new theories and knowledge to their own lives, interests, and experience. This is one of the best ways for students to experience meaningful learning.

Where

In any module, information should be easy to find. The course designer needs to specifically consider at least three principles: structure, consistency, and clarity. Deciding on a specific structure for the different parts of a course module can save significant time and reduce learners' cognitive load. Without a specific structure, learners will certainly face challenges in completing their learning activities. Finding needed information for different learning activities becomes more effective and efficient when there is one clear and logical structure for all the course modules.

Each module within a course, and preferably within each department, should follow one specific structure. Consistency in the structure of each module in a course makes information easy to find (Lim, 2003), thus helping students maximize their learning time. For instance, consistency of number of course modules across all the courses of a department, or better yet of an institution, can help learners manage their time and effort better when taking more than one course concurrently. Learners may be concurrently taking courses made up of 5, 8, or 15 modules. Working with assignments for such courses with different numbers of modules can easily confuse learners, thus causing them to waste valuable time and sometimes miss important deadlines. Consistency of the major parts of each course module across a department or even an institution could be equally important for the learners because as they take different courses from different professors, they will know general expectations of all the courses. Of course, this consistency may not always be possible for all departments of an institution, unless the instructional design guidelines are set in place.

Last, clarity is vital in designing a course module and in specifying where to place different learning materials, assignments and relevant instructions. One of the signs that indicate a lack of clarity about instructions is when online learners send messages expressing confusion and frustration to the course facilitator. Lack of clarity will negatively affect students' learning experience and increase the workload of a course facilitator as he or she tries to address the issue while the course is going on. In designing a module, a course designer should use numbered or bulleted lists of instruction for assignments, use specific language, and clearly indicate how and where to submit the assignments, where and how to participate in the class discussions, where and how to handle all other learning activities in the module.

When

A course designer might have innovative ideas for a module. However, the words of the wise king still ring true today, "There is a time for everything, and a season for every activity under the heavens" (Ecclesiastes 3:1, NIV). Timing is crucial in delivering different instructional activities. For each module, the course designer must decide the appropriate time in the course to deliver specific course content, depending on its complexity, the learners' background knowledge, the time period of the semester or quarter, and the assessment activities that are involved in completing that specific course module. For instance, foundational and easier information should be introduced earlier than more complex information. Topics that may rely on the same prerequisite knowledge may be introduced either at the same the time or one right after the other. All necessary knowledge should be learned before related assignments are completed. Instead of offering only one large project in the last module, smaller chunks of that project should be completed throughout the course. The course designer should keep in mind that students are likely to take this course together with other classes. Giving manageable instructional activities is therefore important under these circumstances.

Timing remains critical in balancing learners' cognitive load, that is, managing effectively their short-term memory when involved in a learning process (Brunken, Plass, & Leutner, 2003; Kirschner, 2002; Valcke, 2002). Each module must clearly present the instructions about when all assignments, quizzes, tests, and projects are due (Lim, 2003). Course designers should never leave deadlines to the guessing game.

How

This last question in the Five-WH approach calls for practical application of everything that has been presented above. To learn and be able to practically design an online course module is quite challenging for novice online faculty members who are usually pressed for time. These two final sections propose the application of the Five-WH approach.

Before this instructional design approach is presented, course designers need to remember that each instructional activity must provide clear and complete instructions based on sound instructional design theory and learning theories. The Five-WH approach draws from several learning and instructional design theories and models. For instance, the progressive inquiry theory suggests six steps for its conceptual framework (Poldoja & Leinonen, 2006, p. 105): creating context, engaging in question-driven inquiry, generating one's own working theories, getting involved in critical evaluation of knowledge advancement, searching new scientific information, and engaging in deepening inquiry. While this model is

quite captivating, it may still not provide the practical guidelines for novice online faculty members to design effective and efficient course modules.

There are other factors that course designers need to take into consideration while designing a good course module. They must connect the module to the central theme of the course, to other modules; and clearly state the reason for this content in the course, the program, and the learners' lives. They must specify the types of learning and assessment activities (assignments, quizzes, readings, discussions, projects) and whether these will be done individually (e.g., papers, assignments, quizzes, readings, tests) or completed in teams (e.g., collaborative projects, class discussions).

Assessment activities must directly be tied together with the learning objectives, because learning objectives in a course module are directly linked to the course objectives; while the course objectives are the application of the goals, vision and mission of the department and the whole institution. Course designers must provide room for integration of faith in learning throughout the module. As already suggested, a related devotional thought can be introduced at the beginning of each module. The discussion questions can have a component that leads to spiritual reflection. Some spiritual application can be integrated in assignments. A discussion forum could be opened where students take turn to post inspirational messages. They can be encouraged to upload copyright-free audio and videos that may be relevant to the topics discussed in the module. Last, course designers must provide an opportunity for collaborative learning, because human beings were created as social beings. Collaborative learning is highly encouraged in online courses (Ho & Swan, 2007; Hutchinson, 2007; Yamarik, 2007).

Application of the Five-WH Model

Represented in Table 1 is an illustration of the Five-WH approach to instructional design. As the field of instructional design grows, this model is subject to improvements. It should provide a good start for novice online faculty members and novice online course designers in Christian colleges and universities. Additionally, it should be a catalyst for the development of other models for the design of a module.

Table 2 is a synopsis of milestones required in a module, using the 5-WH approach. It was taken from a graduate school course entitled Foundations of Christian Education. In just a small table like this, students are able to see a snapshot of what is expected of them and how they will work on each graded assignment. It tells them whether it is individual or group work and where to submit each assignment.

Table 1

A Sample Module Structure in the 5-WH Approach

Module	Possible Parts	Notes
Title	Module + number: Descriptive title	The module title must capture the essence of the module (e.g., Module 3: Creation vs. Evolution)
Devotional	A Bible-based inspirational thought	It can be a Bible verse, quotes from Bible-based writings, or a faith-building story from someone else. It should preferably be related to the central theme of the module.
Introduction	- Introduction - Learning objectives	The introduction should begin with a brief synthesis of the knowledge gained in the previous module and/or learners' background knowledge. Then, it must focus on presenting the central theme and the major topics of the module. The introduction will preferably highlight how this content can help the spiritual life of the learners (for instance, how this knowledge can help learners in their personal spiritual life, their service to God and humanity). It should also introduce the course objective that this module is going to reach. Based on the course objective and any results of the needs analysis of the learners, the course designer must write three to six learning objectives that students will reach by completing this module.
Instructional Activities	- Reading activities - Lecture notes - Media - Scaffolding	Reading activities could be from textbooks, journal articles, and other peer-reviewed materials, in addition to lecture notes. Depending on the plan of the university, some lectures may be recorded. After clearing all the copyright issues, videos, audios, and PowerPoint presentations should be used to help reach a broader range of learners. Practice quizzes that are presented in a form of online games can be an opportunity to scaffold instruction.

(*Table continues*)

Table 1 (*Cont.*)

Module	Possible Parts	Notes
		The Internet provides several resources (some of them free) to help with scaffolding activities such as practice quizzes.
Assessment	- Class discussions - Quizzes - Tests - Projects	Two or three questions per module provide enough time for breadth and depth of class discussions. Whether or not quizzes are used depends on the course designer, the course content or the course level. Tests and quizzes must focus on the most important knowledge of the module. Course projects should be based on the application of what students learn in the current and previous modules.
To-do List	Assessment activities that are due in a module	To help learners in remembering all the assignments that are due in a module, it is a recommended strategy to synthesize them in a short list. A calendar can be used in some course management systems for this purpose.
Closure	- Conclusion of the module - Integration of faith - Module transition	The conclusion can be one to a few paragraphs synthesizing the module and presenting a transition to the next.
Further Exploration	Websites, books, articles	Students should be provided an optional opportunity for further study. Some of the readings may create some extra cognitive load, if included in the required instructional materials. Placing them in a separate location in a course module helps students prioritize their time and better plan their learning activities.

Table 2

A Sample a Synthesis of Assessment Deliverables Using the 5-WH Approach

What?	Discussion questions	Class particip-ation	Weekly reflection	Practice Quiz 4	Paper
Who?	Individual	Class	Individual	Individual	Individual
Why?	Synthesi-zing reading materials	Synthesi-zing reading materials	Synthesi-zing new knowledge	Practicing new knowledge	Applying & creating new knowledge
When?	By Thurs. 7:59am	By Thurs 7:59am	By Thurs. 7:59am	By Thurs. 7:59am	By Thurs. 7:59am
How?	20 points	10 points	10 points	10 points	30 points

Table 2 shows the level of information process involved, the day and time when each assignment is due. The due date is kept the same so that students can just keep one time in mind, instead of having to remember several times. The recurring activities such as quizzes, discussion questions, class participation, and weekly reflections are due on the same day every week for the sake of consistency. Students can actually use this weekly guide as a checklist to make sure they have done all their assignments.

Conclusion

Designing a course module for an online course must follow a specific structure that is consistent, systematic, and based on sound instructional design theories, teaching theories, learning theories, and integration of faith in learning. The Five-WH approach is only one of many possible models that can be used in online courses offered in Christian institutions. In the absence of a strong Christian model, it is proposed that the Five WH approach may be a tool to stimulate scholarly discussion of best practices in online course module design.

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