

Online Staff Development Module for E-learning and Pedagogy: Analysis, Design and Development

Dana Ruggiero & Jeffrey D. Boehm, *Bath Spa University*

In the following design case, Learning Technologists (LT's) charged with developing a program for distance and blended learning describe the creation of an online module for staff development that helps lecturers to develop their online teaching skills. Using the Community of Inquiry Framework, the LT's structured an environment in which staff learned fundamental ideas of online pedagogy and experienced common tools for the learning environment. They then applied those tools and information gained from the coursework to the design of their own online module. The lecturers-as-students are also asked to reflect upon their experiences as classroom lecturers and to incorporate that experiential knowledge into the course design process. This paper describes the development of the module, the elements of the module, and the lessons learned from the pilot run.

Dana Ruggiero is a senior lecturer in learning technology at Bath Spa University. Her research interests are focused on persuasive design, games for change, and emerging technologies.

Jeffrey D. Boehm is Learning Technologist and Lecturer for Music and Performing Arts at Bath Spa University. His research interests include mobile classroom technologies, creative use of VLE's, and music composition.

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INTRODUCTION

In order for academics to successfully make the transition from face-to-face lecturers to online learning facilitators, they must develop more than new technical skills. Online design and development require new pedagogical approaches and challenge previous conceptions and intuitions about program delivery. Redesigning lecture-style modules for online and blended learning provides opportunities for teaching staff to rethink assessment and feedback, instructor and student interaction, and development of student community. This paper describes the design and development of an online module aimed at systemic change in higher education practices within a small liberal arts institution in the United Kingdom.

LOCAL CONTEXT

Our university is a liberal arts institution with a modular scheme, meaning that classes run year long with a very limited number of assessments. Changes to the structure of classes can only be implemented during the interterm in September. Feedback for all assessments is summative, while formative feedback is provided during class meetings and/or in tutorial sessions. There has been little buy-in for the implementation of online teaching and learning from lecture staff. Misperceptions regarding the difficulty of creating online materials, technological barriers, changing of standard cultural practices (e.g., face-to-face teaching) and a lack of experience with online delivery have all contributed to these misperceptions. Additionally, those lecturers who are willing to implement blended learning strategies struggle to find the time to create appropriate learning materials.

In 2012, four new learning technologist (LT) positions were added to the university. The charge to the LTs was to use emerging technologies to create and optimize systems for improved student-teacher interaction, feedback and assessment, and to train lecturers to use those systems. The LT team was also given the directive to help lecturers develop online

modules, particularly at the graduate level. Those directives created a need for staff development aimed at an online environment. Due to the teaching staff's general lack of online teaching experience and/or motivation to use technology in teaching, the LT team decided that staff training should be delivered as an experiential approach, thereby developing a community of inquiry in online delivery.

A 10-week module was developed using Blackboard as the virtual learning environment (VLE). The emphasis of the module is twofold: developing student ability to critically reflect on teaching and learning practices using an e-learning lens, and staff learning to use online delivery tools to build a community of learning as students (Wenger, 1998). The module is designed so that lecturers experience the online delivery tools as students within a community of inquiry framework (Garrison, Anderson & Archer, 2010).

The community of inquiry (CoI) framework utilizes the social, cognitive and teaching presence to create a deep and meaningful learning experience, resulting in the development of community (Garrison, Anderson & Archer, 2010). The CoI framework is a dynamic model (Swan, Garrison, & Richardson, 2009) of core features required for both the development of community and the pursuit of inquiry in any educational environment. The three core features -- social, cognitive, and teaching presence -- are multidimensional and interdependent. The basis for these elements is John Dewey's legacy of constructivist learning. The CoI framework (see Figure 1a) provides a sustainable model for developing and implementing purposeful online education through principles and practice. Additionally, the framework has provided perspectives and guidance to important research of online education over the last fifteen years (Akyol & Garrison, 2014; Boston et. al, 2014; Shea et. al, 2010).

Social presence, the degree to which participants in computer-mediated communication feel connected to one another, is the longest researched area of the three core features in the CoI framework and predates the CoI model itself. It is also the aspect of online delivery that most differentiates online from face-to-face delivery because it not only creates discourse, but it also provides a way to assess the discourse. Using this perception of interpersonal communication, the LT team approached design of an online module

to model social presence in a CoI framework created with open communication, social cohesion, and affective expression (Swan, Garrison, & Richardson, 2009).

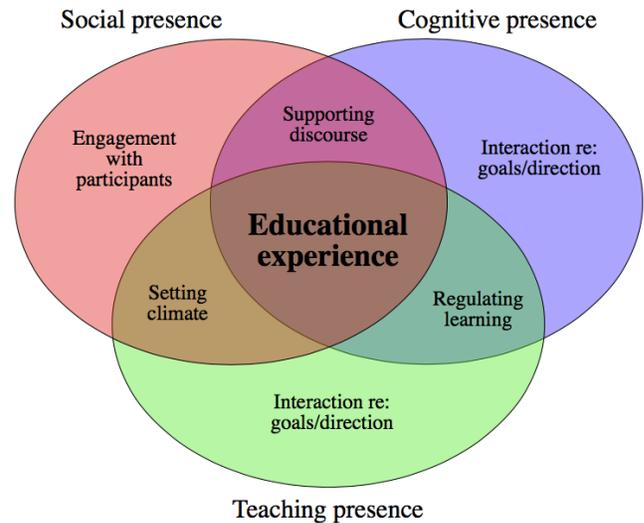


Figure 1a. COI Framework model ([COI Framework Model](#) by [Matbury](#) is licensed under [CC BY-SA 3.0](#))

In order to effectively design and develop a continuing professional development module aimed at experienced lecturers, the LT team had to determine how engagement in the cognitive processes would be addressed from both the learner and teacher perspective. Cognitive presence in an online environment means that learners are able to construct and confirm the meaning through sustained reflection and discourse (Garrison, Anderson, & Archer, 2010), whereas teaching presence in an online module begins as the module commences and occurs as the result of the instructional design process. Therefore, in order to incorporate cognitive processing from the participant perspective, the team created study and learning activities that included both individual engagement and community interaction each week. Teaching presence occurred in the module design because the instructor facilitates the discourse and provides direct instruction when required (Swan, Garrison & Richardson, 2009). Instructor feedback to student's participation also provided teaching presence. Furthermore, because staff participants are in the role of students while at the same time learning to restructure their teaching, the cognitive experience was deepened (see Figure 1b).

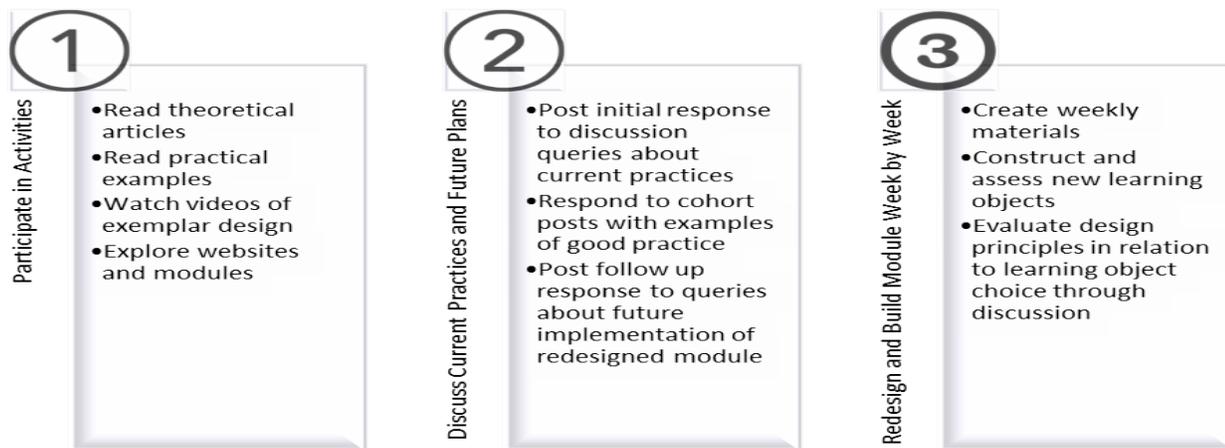


Figure 1b. Weekly structure requiring cognitive presence.

DESIGN CONTEXT

The historical design of staff development modules for continuing professional development has been face-to-face sessions in which lecturers and trainers come together to discuss current practices and new ideas in the field (Roscoe, 2002). Over the course of the last ten years, online learning has increased its reach to staff development modules that use both synchronous and asynchronous designs to train traditionally face-to-face lecturers in e-learning pedagogy. The main points of emphasis in staff development training have been to create pedagogically sound instruction using the tools available for delivery of content and creation of an interactive student environment. However, there has not been adequate research concerning how learning design of staff development modules has created a sustainable learning and development opportunity. This design case discusses the design and development of an online staff development module aimed at training experienced lecturers in e-learning design and pedagogy, as well as attempting to create a sustainable learning and development environment among the participants.

THE DESIGN PROCESS

The Structure of the Process

Factors

The design of the staff development module was driven by two key factors: (a) that the participants were experienced classroom lecturers and (b) that they were to come to understand the online environment by participating as students. As experienced university lecturers, the participants would use one of their current face-to-face courses and materials that they wished to convert to blended or online environments. Because the module was designed with a train-the-trainer approach (Skeff et.

al, 1992), the lecturers would first work as students in order to build an understanding of the application of pedagogy in an e-learning environment. Participants would then use that knowledge and experience to create their own blended or online learning module.

Methodology

A design-based methodology (Barab & Squire, 2004) was employed to create specific topic areas that would be both theoretically and practically relevant across a number of subjects (see Figure 2). In order to ascertain the links between best practices in teaching and learning and e-learning pedagogy, the LT team members called upon their own experiences as learning technologists and lecturers. Thus, the subject areas developed organically from the intended learning outcomes, our own experiences as learning designers, and the requirement for participants to create a revised module as the final project. The result was a scaffolded curriculum with each unit building upon the previous one, the outcome of each unit being a building block towards the creation of a module.

Assessment of the Design

Assessment of the effectiveness of the design occurred in three ways: (a) benchmarking against similar programmes, (b) benchmarking against national standards, and (c) student and instructor feedback. The LT team benchmarked its design by investigating continuing professional development programmes in both the United Kingdom and United States. As part of the approval process, the Academic Services Office also benchmarked the proposed module against national quality assurance requirements and Higher Education Academy advice on good practices. The course will be monitored by the LT team and Academic Services Office (with student feedback) after each delivery year, and fully reviewed every three years. Evidence will be drawn

from peer, alumni and external sources. Both course monitoring and review processes are designed to afford opportunities to evaluate the effectiveness and impact of course delivery and to identify opportunities for continuous enhancement. Furthermore, feedback from the pilot iteration would provide real-time data.

The Structure of the Module

Overarching Structure

After deciding upon the learning outcomes we determined the overarching course schedule. Because some of our participants would be applying their module credits towards graduate degrees, we decided to align the dates with the calendar and assessment dates for the graduate school. This approach resulted in a 10-week course structure. The progression was then applied to this structure (see Figure 3). The students' final three weeks would consist of individualized time with mentors and the creation of their module content.

Weekly Unit Structure

Building upon the basis of theory to application was the most important consideration for the module as a whole. Figure 4a outlines the progression of a typical weekly unit. The weekly structure consists of four activities: Watch, Read, Explore and React. This structure is a modified version of the Garrison and Vaughn (2008) model that focuses on triggering events, exploration, integration, and resolution. An overview of a week's structure is presented to the

participants at the front end of the weekly unit (Figures 4a and 4b).

The weekly units guide students through theory and practical applications of learning design utilizing tools, structure and methods that we cover throughout the module. The theoretical portion is covered through the watch and read activities. These activities model the media-rich online learning experiences that are covered in week 7. Practice, covered in week 3, is the explore portion and is an opportunity for the students to examine the theory applied to real-world situations. We concluded each unit with an online discussion about student's own practices (react activity), which is covered in Week 2.

Visual Design

Once the weeks were populated, the team started working on the visual design of the module. One of the first decisions we had to make was the weekly layout. We considered two designs, using the pilot version (see Figure 4a) for the first cohort and then redesigned the layout based on learner feedback for the next cohort. The decision to move from Blackboard's lesson plan format where a progression is suggested but not enforced, to a learning module format using a two level layout where a progression is enforced, created a more streamlined learning experience. The redesign also allowed the weekly overview to be viewed on one screen, while the pilot version often caused the user to scroll, which is something many are reluctant to do.

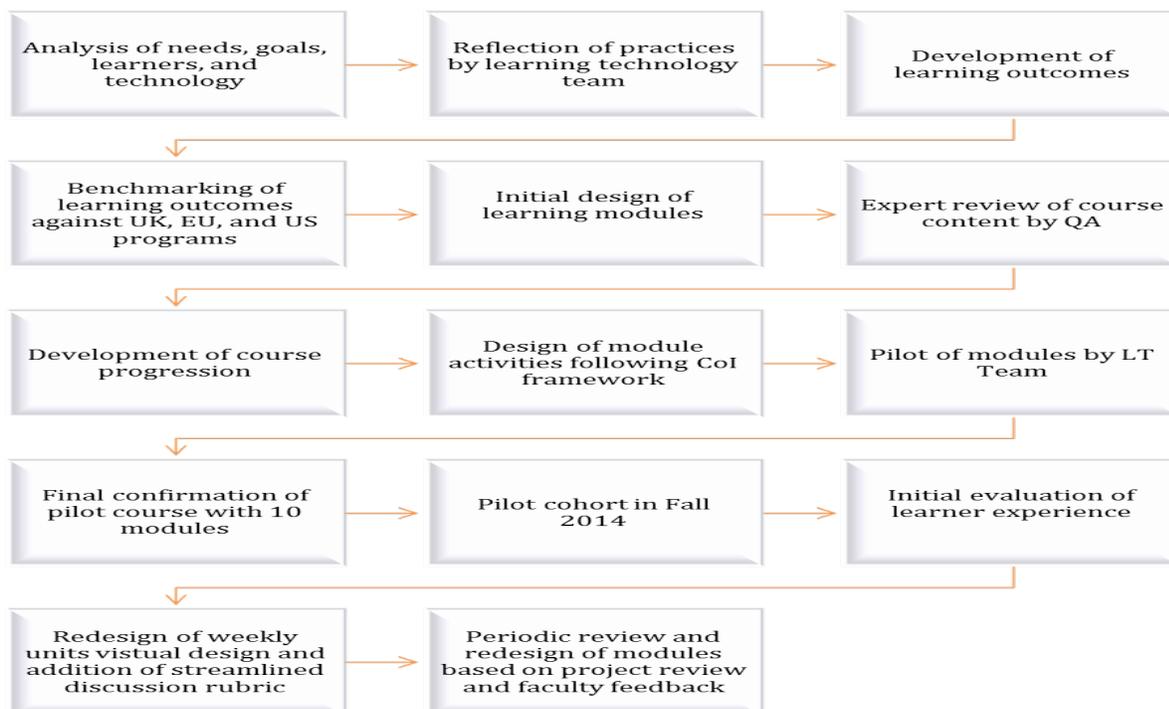


Figure 2. Design and development process.

Our utilization of icons serves as an example of the application of multimedia principles (Moreno and Mayer, 1999) covered in Week 6 – Virtual Design and Usability. The icons were designed to link each of the main activities to a visual that was culturally familiar for users. For example, the ‘Watch’ icon uses the YouTube play button encased in a video player. The ‘Read’ icon is a book. The most challenging icon to design was the ‘Explore’ icon. We started with a basic Google search for icons that matched the word ‘explore’ and found examples ranging from

spyglasses to hiking boots. We decided upon the compass rose after conducting a short faculty survey that asked which of four pictures (compass rose, map, magnifying glass, shoes) participants most associated with the word ‘explore’. Half of the faculty (n=26) chose the compass rose with the other three choices split across the remainder. Once the visual design of the course was completed the team conducted a short review to confirm that each module included the key skill sets necessary to complete the final project.

Course Schedule

Week	Subject
Week 1	Learning Technology/Psychological Aspects of Learning
Week 2	Online Communities and Virtual Classrooms
Week 3	Basics of E-Learning
Week 4	Project Management for E-Learning
Week 5	Cooperative and Collaborative E-Learning
Week 6	Virtual Design and Usability
Week 7	Multimedia Production
Week 8	Formal and Informal Assessment
Week 9	Evaluation of E-Learning
Week 10	**Presentation of Project Draft**

Figure 3. Module schedule overview.

Figure 4a. Sample screenshot of weekly overview (pilot version).

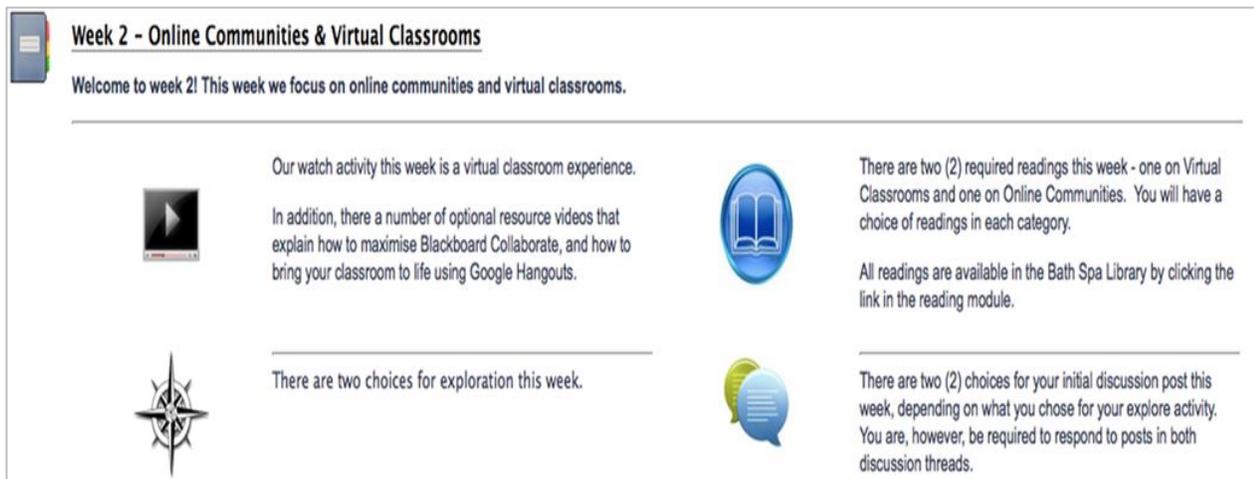


Figure 4b. Sample screenshot of weekly overview (redesign).

KEY SKILL SETS

The module focuses on three key skill sets: (a) technical skills, (b) pedagogical skills, and (c) skills for systemic change. In order to create a cohesive programme with achievable milestones, the participants were required to choose one of their existing face-to-face modules to be redesigned as a blended or online module, rather than use any other attempts they may have made at blended or online learning. This requirement allowed all participants to start the module at a similar place.

Technical Skills

The basic technical skills needed to use the university's VLE (post and send announcements, post the module handbook, and create assessments) are required by the university and taught by the information technology department at staff induction. One purpose of this module is to delve deeper into the link between pedagogy and technical skills that enhance student learning online. As a result, each week focuses on a specific technical skill that links the content of the week to an example of how to use that skill with an activity that would occur online. Other skills include the use of video technology, alternate assessment methods, and incorporation of outside apps such as Padlet.

The module is designed with the progression of theory to practice, so all readings and videos lead to a technical application exercise. For example, students view a video and read about creating a virtual classroom. Following that, they explore this model to develop a virtual classroom experience for their module. The development of these technical skills leads directly to development of new pedagogical skills. At the same time, participants develop their

skills with community building tools through participation in the discussion boards.

Pedagogical Skills

Each of the participants in the module is required to have a minimum (although unspecified) level of teaching experience. Given this prerequisite, the module design focuses mainly on how to translate good face-to-face practice into blended and online learning environments. Thus, the pedagogical underpinning of the curriculum is the development of student community, instructor/student interaction, assessment practices, and delivery practices.

Community

The development of student community is crucial to success in an online classroom (Richardson & Swan, 2003). Therefore the first two weeks of the module are dedicated to the psychology of learning and creating community in an online classroom. Additionally, participants experience community-building strategies by engaging with our VLE's community-building tools as students. Participants begin the module by posting to an introductory blog, introducing themselves to the other participants in the module. They are encouraged to post pictures and tell simple facts about themselves, such as hobbies and research interests. A private journal area provides a space to record their progress through the course or to privately ask questions of the moderating LT. There is also a forum for posting questions that may be answered by anybody in the module, another forum for sharing resource ideas, and a 'Student Lounge' where participants can contribute random ideas about course content and structure. Weekly discussion blogs relating to the materials are required. These discussion areas promote the development of a

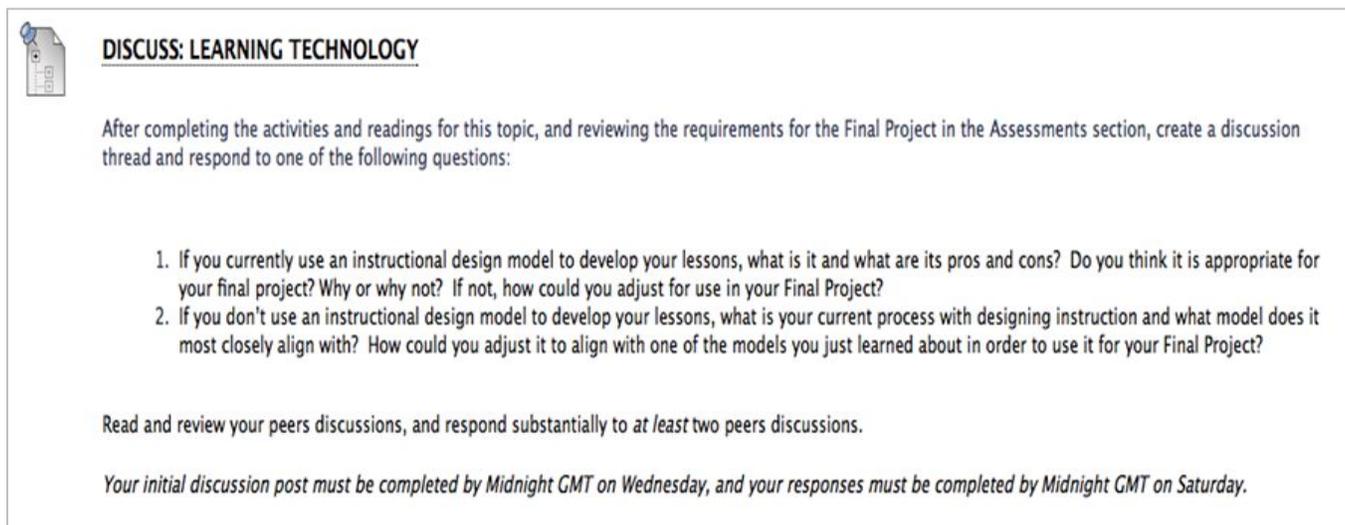
student community where learners can share experiences, create learning materials, and discuss their learning processes.

Community of Inquiry Framework

Following the community of inquiry framework in which the learner constructs a personal paradigm based upon experiential knowledge acquisition (old and new knowledge), the LT team constructed the module so that participants can apply their new knowledge to their own modules. For example, in Week 1 the participants are assigned readings and videos concerning psychological aspects of technology and learning. After completing these readings, the participants are instructed to examine a set of instructional design models and consider which models might be appropriate for use in their module. They then process their ideas in conjunction with the rest of the module participants via the discussion board (see Figure 5). The LT mentors model moderation processes by asking leading questions, responding to complete threads or individual responses, and posting additional resources for further participant growth. These postings are also marked according to a rubric delineating minimum word count, depth of thought, minimum number of

responses to other participant posts, and quality of responses. Participants are expected to utilize the tools sets and frameworks as they create their final projects.

The community of inquiry framework helps participants learn to expand their thinking about student assessment. The standard model for student assessment on our campus has been written essays with feedback provided during tutorials (formative) and then online (summative). Initially, staff will often transfer this model to online learning by replacing face-to-face lectures with videos of lectures, and then follow the same assessment procedures. The emphasis upon the use of discussion boards as a means of encouraging high-level reflection and interaction provides the participants experience with an alternative method of feedback. Asking participants to respond to questions on a discussion board does not in and of itself inspire higher order thinking skills and interactions (Polly & Hannafin, 2010). The module therefore examines different types of questions and the levels of response that they tend to elicit. Additionally, the LT team encourages participants to use formative assessment techniques while participating in peer-to-peer discussion.



DISCUSS: LEARNING TECHNOLOGY

After completing the activities and readings for this topic, and reviewing the requirements for the Final Project in the Assessments section, create a discussion thread and respond to one of the following questions:

1. If you currently use an instructional design model to develop your lessons, what is it and what are its pros and cons? Do you think it is appropriate for your final project? Why or why not? If not, how could you adjust for use in your Final Project?
2. If you don't use an instructional design model to develop your lessons, what is your current process with designing instruction and what model does it most closely align with? How could you adjust it to align with one of the models you just learned about in order to use it for your Final Project?

Read and review your peers discussions, and respond substantially to *at least two* peers discussions.

Your initial discussion post must be completed by Midnight GMT on Wednesday, and your responses must be completed by Midnight GMT on Saturday.

Figure 5. Example of Weekly Discussion Board.

Delivery

Part of helping participants develop new ways of teaching is to help them discover new ways of delivery. The term delivery here does not necessarily refer to the physical construct, but to the philosophical construct. By modelling such constructs as scaffolding throughout a discussion, participants are able to reflect upon the way in which delivery of the module

impacts both the student experience and their own learning. Further, participants are able to recognize the learning theories used in the design of the module and appropriate them for their own use.

Systemic Change

The broad goal for the module is to showcase a process of systemic change of experienced face-to-

face lecturers as they move towards a blended and online learning methodology. The module serves as the first step for this process by putting the lecturer in the shoes of the student as they work through the online module. Experiential exercises and adaptation of online and blended learning skills are two methods we use to move the participants into new ways of teaching.

Scaffolded approaches are used to create a student-heavy experience in the module. Over the course of ten weeks the module moves from discussions based on participant's current practices (basic knowledge and response questions) to higher level questions requiring analysis and synthesis of the material. After week three, participants are given increased responsibility for constructing discussions pertaining to their processes of design. By week ten, participants are solely responsible for constructing discussions and implementing e-learning and online pedagogy into their module redesign. The final project, a redesigned version of the participant's face-to-face module, exemplifies their continuing professional development and the beginnings of personal systemic change.

Historically, our university has tried to adapt face-to-face skills to online and blended learning environments with mixed results. The LT team created this module to focus on creating a systemic programme that adapts traditionally online and blended skills to be more accessible in a face-to-face environment. Thus, as lecturers go through the module they are able to apply their new weekly module materials to their face-to-face sessions. This application allows them to reflect on the effectiveness of the new materials. By flipping the traditional model and then asking which aspects of online learning can be used in a face-to-face session, the lecturers are better able to see the practical benefits of using an online learning system.

EVALUATION OF THE DESIGN

During the planning phase of the module, an advisory group of academic staff raised concerns about the sustainability, appropriateness, and fit. We addressed each of those concerns in the initial design phase and during the expert evaluation of the pilot module. The advisory group was satisfied with our solutions.

Sustainability

Because of the relatively small number of staff at the university, the viability of offering an accredited module came into question; eventually the pool for participants would dissipate. We addressed the issue by accrediting the module with the Higher Education Association (HEA). The HEA accreditation allows staff from other institutions (including government) to

participate, thereby increasing the possibilities for enrolment. However, expanding the offering of the module to non-HE participants necessitated that the LT team also account for people who may not be using the same VLE. Because of the broad scope of the design, the only real consideration was that we modify the requirements of the final project so that it could be created in any VLE, the only stipulation being that we would have access to it for marking purposes.

Appropriateness

While one of the university's key performance indicators (KPIs) is to increase the number of undergraduate international students; the use of online distance learning modules to help facilitate this goal has not been successfully implemented. A major concern from the advisory staff was that this training would be for naught if the university could not adequately recruit for the online modules. The LT team addressed this concern by designing all activities and assessments to accommodate either a blended or fully online module. This design consideration meant that the learner could develop skills and materials to suit their needs without the concern whether their final project would be fully online or blended.

Institutional Fit

The structure of this module was different from other staff development course offerings where deadlines and timeframe for completion are flexible. Students in the pilot cohort struggled meeting our stringent weekly requirements of at least three posts, and complained of their struggles throughout the course. The initial post, due by Wednesday of each week, required students to reflect upon the weekly topic as it applied to their own practice. The other two posts, due by Saturday night, required that they respond to at least two other student's reflections. After reviewing the pilot, the LT team decided to keep the same deadlines and expectations, but to clarify the regimen in communications to students prior to confirming registration in the module. We would also highlight the requirements in the syllabus with underline and bold font, as well as send reminders via Announcements throughout the week.

USABILITY TESTING

Usability tests were carried out with four university-level lecturers. Each lecturer was given a prescribed list of tasks to complete in a draft version of the module. The lecturers stated their thoughts regarding the ease-of-use (or lack thereof) as they worked through the tasks, and an LT made record of their statements. This 'think aloud' method (Cotton & Gresty, 2006) of usability testing was chosen in order

to highlight the places where there were issues accessing the module materials, instructions were unclear, or navigation was not readily apparent. The usability tests were conducted in a university computer lab and lasted approximately thirty minutes followed by a debriefing session. After the conclusion of the usability testing, the LT team implemented the following minor changes:

- Icons. All four of the testers requested larger icons and that they be linked to each week's activities. Initially the icons were only used in the overarching schedule and not the weekly units. We increased the icons from 60x60 pixels to 150x150 pixels and added them to the weekly activities.
- Font. Deadlines in the initial design were in red and underlined. However, the testers had trouble finding the deadlines in the text. To address this issue, we changed the deadline font to bold black and also increased the spacing between the dates.
- Numbering. In the original design we displayed numbers as numeric characters (e.g. 1 or 2), but three of the four testers requested that the number be written out as well (e.g. one (1) or two (2)) to ensure no misunderstandings when students used screen readers.
- Layout. The testers were split on layout preferences, but we ultimately decided that the layout of the activities listing should be in two columns so that users would not have to scroll. This layout translates better to mobile devices as well.

IMPLEMENTATION

In the autumn of 2014, the LT team implemented a pilot of its module with four participants: two were lecturers from our university, one was a lecturer from the National Health Services, and one was a lecturer from another local university. One individual dropped out due to a work commitment but the other three finished the module.

The LT team learned three important lessons from the pilot:

1. **Weekly deadlines are problematic for full-time lecturers.** One of the goals of the module was to create a systematic process for designing modules using best practices in blended and online learning, particularly through discussion of the concepts and ideas. We saw this goal as being best achieved through synchronous weekly discussions and

activities. Because the pilot participants were used to a less-rigid system that did not include interaction, they found the weekly deadlines to be problematic. However, the LT team decided to leave the structure in place and to make a point of forewarning participants about the time requirements, as detailed above.

2. **Modelling good practice in asynchronous discussion threads is necessary in order to form a cohesive cohort.** Because the members of the LT team had worked with multiple lectures in the university, we assumed that each of the participants would be an experienced lecturer who was used to leading class discussions, asking leading questions, and providing examples of their own thought processes. The team therefore concluded that with one week of practice, the participants would easily understand the essence of discussions and activities. This assumption proved to be incorrect as the content of most of the participants' posts was knowledge sharing; they asked no leading questions nor did they provide examples of existing practice linking to the topics. Additionally, there was very little social engagement with the other participants. Future implementations of the module will incorporate a clearly defined discussion rubric and weekly feedback from the LT's.
3. **Working one-to-one with a mentor during the design process is a successful, yet unsustainable venture.** With only four participants, mentoring is a sustainable system where each participant meets weekly online with their LT mentor. However, as the module grows to capacity and includes 15 to 20 participants, the LT team will not be able to maintain this level of mentorship. The team plans to cap the participants of each cohort at 8 to 10 individuals each session starting with the next cohort. This should allow the team to create a sustainable mentorship programme and grow its programme successfully with future mentors being groomed during the module. This limitation on the number of participants will likely work in the short term until more mentors can be recruited from lecturer leaders trained in good e-learning practices. However, given university policies and the number of participants who would like to participate, this may not be a practical long-term solution.

CREATING ONLINE LEARNING ADVOCATES

One of the university's key strategies is to increase the number of its international students over the next five years by 15%. With limited space on campus, a sustainable approach to grow the student population is to create online learning opportunities for both British and international students. Since the design process is iterative, participants in each cohort will be able to mentor future participants as well as lecturers in their own schools who do not have the opportunity to participate in the LT-led module. By creating lecturer leaders in e-learning and online pedagogy, the university and the LT team look to a future in which there will be online learning advocates in each of the departments across the university. This strategy will create a saturation effect for online learning in the university that will sustain larger student numbers without straining the physical resources of the university.

BUILDING FOR THE FUTURE

The continued growth of the e-learning and online pedagogy module is focused on the refinement of current teaching methodologies and additions or deletions to core materials. This process occurs in a twice-yearly cycle when the learning technology team meets with the Quality Assurance Office at the university and benchmarks current programmes against the Higher Education Academy framework for effective practice. With consistent iteration of the module, in addition to input from external examiners, quality assurance professionals, and university participants, the LT team will ensure that the design of the module reflects the latest in e-learning and online pedagogy by the incorporation of lessons learned during the pilot programme and subsequent iterations.

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