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Instructional Design in Online Learning: Components of Quality

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Instructional Design in Online Learning:
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Although there are obvious differences between online instruction and face-to-face instruction, this paper focuses on their similarities. One of the challenges when designing a course that has been successfully taught in a face-to-face format is deciding what will stay the same versus what will be changed. How does one replace what happens in class with meaningful online content? In what ways can content be presented aside from reading text on one's computer screen? With these questions in mind, an instructor began collaborating with an instructional designer to develop her first online course, a graduate level course in pupil assessment and evaluation.

This paper describes the structure and components of that course. The instructor and instructional designer worked together to infuse three principles of instruction: a) developing a community of learners, (b) promoting critical thinking, and (c) defining clear expectations. Data from course evaluations indicated that overall, students perceived themselves as part of a community of learners, engaged in critical thinking, and found the course expectations to be clear. Applying the same principles of learning from a face-to-face course in an online course seems to have resulted in a successful course, at least from the students' perspective. The major problem identified is common to both face-to-face and online formats -- balancing the demands of the student workload in this challenging course with the expectations and life realities of students who maintain full time jobs and active family commitments.

Keywords: online learning

Introduction

It is always important to think about the factors affecting quality in a course, but when a course is modified from face-to-face to online delivery; the question of how to continue to improve the quality of instruction becomes

intermingled with the question of how to restructure the format in a way that retains the integrity of the course. This is especially felt by an instructor who has a limited technology background, but a strong commitment to quality instruction. This paper grew out of the collaboration between an instructor and an instructional designer as they approached this task by identifying and implementing three pedagogical principles (a) building a community of learners, (b) promoting critical thinking, and (c) defining clear expectations to guide the course design.

Quality in Online Instruction

Quality of instruction is understood, in today's paradigm, to be that which results in student learning. Principles of learning apply equally in face-to-face and online instruction, but the different format requires different implementation of these principles. Although it is technology that enables online instruction, Mien, Oust, Bui, Ramp, and Smith (2002) recommend that online instructors give even more attention to sound instructional principles than to the capabilities of technology.

As recommended by Yang and Cornelious (2004), it is advantageous for an online course to be developed collaboratively by a subject matter expert and an instructional designer. In this course, the subject matter expert was the course instructor who had previously taught the course in a face-to-face format. The instructional designer, knowing the capabilities and limitations of the instructional technology and the principles of instructional design, assisted the instructor in structuring the course and created interactive exercises to support content learning (Eastep, 2005). The instructional designer guided decisions on what multimedia to use and how best to visually present the information. The subject matter expert designed the content delivery to ensure that the online activities enhanced the learning objectives of the course.

In online courses, common pitfalls include unclear expectations, which may provoke a deluge of e-mail messages from students seeking clarification (Miller, 2005); little sense of community; and discussion boards that go flat (Toledo, 2006). The pervasiveness of these pitfalls informed the selection of the three pedagogical principles, through which the content goals would be addressed.

Community of Learners

Creating a community of learners requires a positive, student-centered learning climate in which students view themselves as sharing responsibility for both their own learning and that of their peers, serving as resources for one another, and contributing to the guidance and direction of the class (Ormrod,

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2006). In a face-to-face course, the climate is created mainly through interpersonal conversation, with non-verbal communication supplementing verbal messages. The instructor can encourage student participation through eye contact, smiling and nodding (Davis, 1993). Interactive learning exercises are not limited to class discussion, but may include such active-learning strategies as role-playing, panel discussions or jigsaw exercises (Aronson, Blaney, Sikes, Stephan, & Snapp, 1978).

In an online course, non-verbal communication is nonexistent. A sense of community must be created through online communications. Frequent and varied interactions through whole-group discussion boards, small-group discussion boards, announcements, and e-mails promote this sense of community. Positive language that encourages students in discussing the course topics will promote the feeling of community among students (Kiekel, 2006). In addition to content-based discussions, providing a discussion area that is designated as a "lounge" or "break room" provides a venue in which students may chat about non-course topics (Elbaum, McIntyre, & Smith, 2002). Getting to know one another through conversations that go beyond the topics of the course, such as those that normally occur during a break in a face-to-face course, can help to build a sense of community.

In an online course, physical distance is not the only impediment to a sense of community. Students vary in their experience and skills in using the technology. Some students may expect an online course to function like an independent study correspondence course, in which they interact only with the instructor, rather than participating in collaborative discussions with peers. Gaining a sense of the students' expectations coming into the course will help the instructor to anticipate student needs and provide appropriate direction and encouragement. Surveying students at the outset of the course about their experience with online learning, their comfort with technology, and their concerns, and then providing assistance, will communicate empathy and build student confidence.

As in any setting, using varied instructional strategies will enhance teaching effectiveness. According to Gardner (1993), students learn in different ways. Online learners are likely to vary in their learning styles as much as face-to-face learners. Incorporating multiple learning styles into course modules will enable students to access the course content via their preferred style. Thoughtful use of graphics, animation, audio and video can balance the heavy reliance on written communication and serve to vary the instructional mode. Interactive graphics will have more appeal for spatial and kinesthetic learners; whereas linguistic learners will gravitate toward traditional text. Offering content in alternative formats will also broaden accessibility for students with disabilities. For example, including written text to accompany video clips will help to

include a hearing impaired student as a full member of the community. Asking students to synthesize information presented in different formats may broaden and deepen all students' comprehension.

The importance of building a community of learners, in which students feel they are encouraged in their learning endeavors and supported by both the instructor and their peers, is underscored by Quitadamo and Brown's (2001) case study. They concluded that the quality of the human interaction in the course was the major factor in determining online learning success. Human interaction involves both peer interaction and instructor presence in the course. Both can be used not only to help build community but also to extend the level of critical thinking.

Critical Thinking

Promoting critical thinking requires posing thought provoking questions on the discussion boards. The instructor should facilitate the discussion to probe deeper understandings and to address possible misconceptions (Kiekel, 2006). Questions that are most likely to promote critical thinking are questions that are open-ended, do not have one particular right answer, and require students to think beyond the levels of knowledge and comprehension (Anderson & Krathwohl, 2001). Questions can also be used to engage students in analysis of arguments and synthesis of various readings. The timing and amount of instructor interaction on the discussion board must be balanced with the need to allow sufficient time for students to engage in thinking and challenging of one another's ideas (Tu & Corry, 2003). Discussion boards and course assignments should reinforce each module's learning objectives, and relate content to current issues in students' own professional practice (Bardzell, Bardzell, So, & Lee, 2004). The use of the various instructional strategies described above also support critical thinking by requiring students to synthesize the information presented in different formats.

Clear Expectations

It is important for students to have a clear understanding of what will be expected of them in the course and how their work will be evaluated. Expectations communicated through rubrics or scoring guides that are carefully constructed and available to students from the outset will increase clarity (Popham, 2005). Using a rubric to evaluate discussion board postings will clarify expectations, but discussion rubrics should focus on the quality, not just the quantity of postings (Tu & Corry, 2003). Extensive directions for assignments, including due dates, help students and may save the instructor from a deluge of e-mails (Miller, 2005). A course structure that is logical and easy to navigate will also contribute to students' perceptions that expectations are clear

(Mien, et al. 2002) and help students to be responsible for their own learning (Tu & Corry, 2003).

The Course

This three-credit graduate course titled Pupil Assessment and Evaluation addresses measurement theory and practice. It focuses on the various types of assessment tools used in classroom teaching settings, as well as interpretation and use of standardized test results. Learning objectives include development and selection of appropriate assessment and evaluation tools, alignment of assessments with learning objectives and state/national standards, using assessment data to improve the quality of teaching/learning, communicating assessment results to stakeholders, and understanding the influence of high-stakes testing on teaching/learning processes. The course is an elective in recently launched online Master's degree programs in both education and nursing. Therefore, enrollees may be pursuing advanced degrees in elementary, middle or secondary education, school counseling, nursing education, or educational leadership.

Structure of the Online Course

As the instructional designer and subject matter expert began construction of this course, they met weekly to plan the course design and to create course components. It quickly became obvious that a logical course structure would support the principle of clear expectations. They chose to set up fifteen modules to be completed sequentially. When the course is taught in the regular term, one module is due each week. When the course is taught in the five-week summer term, three modules are due each week.

Each module has four possible components: a reading assignment, discussion, additional content and an assignment. Each module opens with an index page formatted as shown in Figure 1, with a description of the activities within that module, and three folders titled *Content/Additional Readings*, *Discussion* and *Assignments*. In modules that have no assignment, the index page shows the *Assignment* folder but notes that the folder is empty. Including the same 4 components on the index page of all 15 Modules is intended to contribute to clarity of expectations. Structurally, all 15 Modules are identical, so students should not get lost in the course structure. All activities for the course are embedded into the course modules. If students work through the course as directed, module-by-module, it will be impossible for them to miss any course requirements.

Modules are open for overlapping time frames so that students who desire greater flexibility can work ahead. However, working behind is

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discouraged by imposing a penalty of 10% per day on late assignments. The index page includes all due dates for the module.

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Figure 1: Module Index Page

Getting off to a Good Start: Module 1

In the first module, the *Content/Additional Readings* folder includes an introductory video and four documents that may be used throughout the course. These include the course syllabus, a chart of modules, timetable, and introductory booklet, each described below. These documents remain available on the main course menu after the first module is closed. The discussion board in the first module requires students to visit the "lounge" and introduce themselves. The "lounge" remains open throughout the course as a venue for students to share personal stories, thereby contributing to the feeling of community. The assignment in the first

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	Turn On Date	Turn Off Date	Module	Discuss Chapter #	Whole-Group Discussion Due Dates	Chapter Title to Discuss	# of pages	Content	Assignment	Assignment Due Date	Points
	A	B	C	D	E	F	G	H	I	J	K
1											
2									Large grioup discussions	varied	120
3	21-Aug	28-Aug	1	Intro. Self	8/24 and 8/28		0	Opening Video, Powerpoint	Survey #1	28-Aug	2
4	25-Aug	5-Sep	2	P &1	8/31 and 9/5	Vision	20	NCREL Article	Student Info Form	5-Sep	3
5	5-Sep	11-Sep	3	2	N/A	Authentic Performance	21	Stds Websites	Small Group Discussion	9/7 and 9/11	10
6	11-Sep	18-Sep	4	5	9/14 and 9/18	Standards & Criteria	36	Quality Checklist Strengths & Limitations	Selected Response Quiz	18-Sep	25
7	18-Sep	25-Sep	5	6	9/21 and 9/25	Performance Tasks	13	PowerPoint on Constructed Response Items	Constructed Response Quiz	25-Sep	25
8	25-Sep	2-Oct	6	7	9/28 and 10/2	Scoring Rubrics	33	website Rubistar	Evaluate a Rubric	2-Oct	25
9	2-Oct	9-Oct	7	8	N/A	Portfolios	10	portfolio samples	Small Group Discussion	10/5 and 10/9	10
10	9-Oct	18-Oct	8	10	10/12 and 10/18	Grading & Reporting	47	none - (long chapter)	Grading philosophy	18-Oct	25
11	16-Oct	23-Oct	9	1 & 2	10/19 and 10/23	Authentic Performance	41	Millionairre game	Performance Assessment & Rubric	23-Oct	25
12	23-Oct	30-Oct	10	9	10/26 and 10/30	Curric & Instruction	18	KDE website -Open Response Guide	Open Response & Rubric	30-Oct	25
13	30-Oct	6-Nov	11	9	11/2 and 11/6	Curric & Instruction	18	TWS data	Reflect on Sample TWS data	6-Nov	25
14	6-Nov	13-Nov	12	3	11/9 and 11/13	Providing Feedback	26	Scanned in essays	feedback on scanned in essays	13-Nov	25
15	13-Nov	27-Nov	13	4	N/A	Student Understanding	26	Effective question ppt	Small Group Discussion	10/16 and 10/20	10
16					Thanksgiving breakis Nov 22-24						
17	20-Nov	4-Dec	14	11	11/30 and 12/1	Tchg & Accountability	20	CATS, test scores	Interpret Std. Test Scores	Dec 4th	25
18	4-Dec	11-Dec	15	12 & 13	12/7 and 12/11	Feasibility, Next Steps	26	Closing Video	Final Exam, Course Eval, Survey #3	Dec 11th	100

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Figure 2: Chart of Modules

module is a survey that asks about the student's prior experience with online courses and their comfort with the technology to be used in the course. The

survey alerts the instructor to any needed technological support or clarification of expectations.

The chart of modules, shown as Figure 2, was created to provide a module-by-module overview of the course with all of the course components on one page. The instructor thinks about the course module-by-module, but students are more likely to think about the course due-date by due-date. To help students keep track of expectations and due dates a timetable, shown in partial format as Figure 3, was provided with expectations listed in sequential order by due date. Course requirements, therefore, were provided in three different formats -- the syllabus, the chart of modules, and the timetable. This redundancy of information was intended to increase the clarity of expectations by using different formats so that each student could use the format that was most appealing to him/her.

	A	B	C	D	E	F
1	Date	Assignment Due	Discussion Posting Due	Discussion Response to Peers Due	This Module Appears	This Module Disappears
2	18-Aug				Module 1	
3	24-Aug		Introduction			
4	25-Aug				Module 2	
5	28-Aug	Survey		Introduction		Module 1
6	31-Aug		Preface and Chapter 1			
7	1-Sep				Module 3	
8	5-Sep	Student Info Form		Preface and Chapter 1		Module 2
9	7-Sep		Chapter 2			
10	8-Sep				Module 4	
11	11-Sep			Chapter 2		Module 3
12	14-Sep		Chapter 5			
13	15-Sep				Module 5	
14	18-Sep	Selected Response Quiz		Chapter 5		Module 4
15	21-Sep		Chapter 6			
16	22-Sep				Module 6	
17	25-Sep	Constructed Response Quiz		Chapter 6		Module 5
18	28-Sep		Chapter 7			
19	29-Sep				Module 7	
20	2-Oct	Evaluate A Rubric		Chapter 7		Module 6
21	5-Oct		Chapter 8			
22	6-Oct				Module 8	
23	9-Oct			Chapter 8		Module 7
24	12-Oct		Chapter 10			
25	13-Oct				Module 9	
26	16-Oct	Grading Philosophy		Chapter 10		Module 8
27	19-Oct		Chapters 1 & 2			

Figure 3: Timetable

The introductory booklet shown as Figure 4 (Code & Eastep, 2006) was created in an effort to help students who may be new to online learning access technical support. The booklet was created for use by all college faculty members who teach online. The booklet includes tips for a successful online experience, hardware and software requirements, and working with Blackboard.

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Similar to the first meeting of a face-to-face course, Module 1 is largely introductory. It establishes the course structure and expectations, requires students to introduce themselves, and gives a reading assignment to be discussed in Module 2.
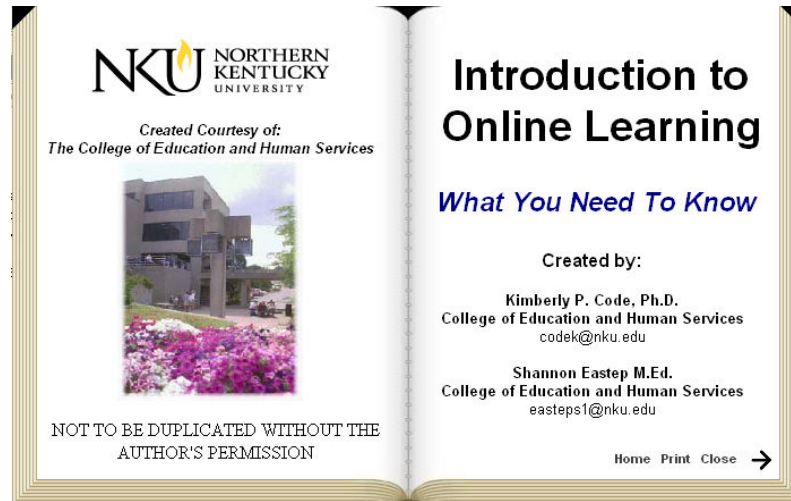
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Figure 4: Introductory Booklet
Note: Code & Eastep (2006). Reprinted with permission.

Subsequent Modules

Redundancy and variety are both necessary components of online learning. Redundancy built into the course structure eases navigation for students and thereby contributes to clarity of expectations. Each of the subsequent modules opens with an index page in the same format as Module 1, describing the requirements of that module, including all due dates and links for accessing the content of the module. The discussion board can be accessed within each module, or via the main course menu.

Variety keeps the course interesting. Variety is embedded into the course through the *Additional Content* portion of each module. The *Content/Additional Readings* folder contains the material and exercises that, together with the reading assignment for the module, constitute the module's content. For example, two modules contain short videos. Other modules include links to external websites, samples of student assessment products, game like

reviews of technical terminology, and interactive exercises such as the Quality Checklist shown in Figure 5. In the Quality Checklist, as the cursor is rolled over each type of assessment, the relevant guidelines appear. The instructional designer was instrumental in the creation of these various types of online content. Varied content formats promote community by appealing to different learning styles, and contributes to critical thinking, as students are expected to synthesize information presented in various formats in their discussion board responses.

In three modules, small group discussion boards replace the whole group discussion board because the content is applied differently in different settings. For example, although concepts of measurement theory like reliability, validity and fairness apply to all types of assessment; a kindergarten teacher, a nurse-educator, and a school principal will use different kinds of assessment tools in their respective settings.

Figure 5: Quality Checklist

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Small group discussions support critical thinking by enabling more focused discussion of applications of content and also serve to build community among students who are in similar professional roles.

Whether large-group or small-group, the discussion boards are viewed as the "backbone" of this course. In discussion threads thoughts are expressed, affirmed, challenged and clarified. The challenge for the instructor is to first create and post discussion questions that will lead students into critical thinking. The instructor must then monitor the discussion and intervene in ways that push student thinking even further, while allowing sufficient time for students to affirm and challenge one another. To provide structure, each discussion board has three threads. Two threads post questions asking students to analyze the textbook reading assignment and/or synthesize the textbook reading with the additional content for that module. The third thread is always titled "Your Reactions" and invites students to comment on whatever ideas presented in the module caught their attention. For example, in Module 8, the three threads are: (a) Grading: Purposes and Audiences: What is (or should be) the purpose(s) of giving grades and which audience is most critical when it comes to student grades? (b) Hiding the Truth: The textbook suggests that some teachers "hide the truth" about their students' academic achievement. Do you think this is so? Why might a teacher do this? and (c) Your Reactions: Which of the ideas in this chapter do you find most refreshing or most offensive, and why? Students are expected to respond to all three threads and to react to the postings of at least three peers.

It is important to emphasize the level of thought in scoring discussion board postings, because the discussion board is viewed as a primary vehicle for critical thinking. Postings are not scored individually, but holistically across the discussion forum in each module, using the rubric shown below as Figure 6. Holistic scoring allows students to reap the benefit of probing questions posed by the instructor or peers. For example, on the question above regarding hiding the truth about academic achievement, one respondent said: "I think teachers do this so that a student doesn't get discouraged." Another reacted: "Do you think this works? If I give a student a C when he only earned a D, will that make him work harder next time?" Had the original respondent picked up on this question and discussed it at some level of depth, it would have improved his/her forum score. This example also illustrates the importance of instructor presence on the discussion board. The instructor must be prepared to ask probing questions because peers may or may not do so.

9-10 points	7-8 points	5-6 points
Excellent quality postings contain well-supported by the text; answer the discussion questions effectively and thoughtfully, written in own words, and adding to the knowledge of the group, extending our thinking and application of the text to daily practice. Responses to peers are insightful and extend the discussion with examples, thought-provoking questions or additional information. Postings occur on at least 2 days.	**Average quality postings** adequately answer the discussion questions, responses are based on the assigned reading but are written in own words, not copied from textbook or website, but may refer to page #s or URLs. Responses to peers include more than "I agree" or "I disagree", but include explanations and/or examples to support the concepts discussed. Postings occur on 1 or 2 days.	**Poor quality postings** contain a few unsupported thoughts, or are statements or lists taken directly from the textbook without comment. Postings are entirely from own experiences, without integrating ideas from the reading, or do not adequately answer the discussion question. Responses to peers are limited or add little thought. Postings occur on only 1 day.

Figure 6: Discussion Board Rubric

First Course Evaluation

This course was first taught in a five-week summer session with three modules to be completed each week. As this course was the instructor's first online course, she was eager to learn how it was perceived by students. Course evaluation data from the summer course is summarized in Table 1.

Question 8 yielded the lowest mean rating; but this also had high variation in ratings. Some students found the work load overwhelming. This is partly due to the five-week time frame of the course and partly because some students were working long hours at their jobs.

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Question	Mean	S.D.
1. On average, how many hours per week did you dedicate to this online course?	14.2 hours	6.97
2. Syllabus accurately defined what took place in the course.	4.6	.60
3. Instructor's timely response to my questions.	4.8	.52
4. Quality of information and feedback communicated by instructor.	4.3	.86
5. Instructor stimulated critical and/or creative thinking about the subject.	4.5	.83
6. Instructor provided adequate feedback concerning my performance.	4.4	.82
7. Overall instructor rating.	4.2	.77
8. Course requirements are comparable to other courses at the same level.	3	1.52
9. Access to required course materials	4.6	.69
10. Overall course rating	3.9	.91

Table 1: Course Evaluations – Summer
Rating Scale: 1 (poor) to 5 (excellent) N = 24

For example, one student commented "During the third week of class I had to work 12 hours on Saturday and Sunday, and 8 Monday. I had 2 assignments to do, 2 chapters to read, and 10 discussions to do." This student perceived each module's discussion board as five discussions because it required responding to three threads and reacting to two peers. The fact that each of the two modules the student refers to had been open for six to nine days apparently did not provide enough flexibility for this student, and s/he apparently did not feel comfortable asking for an extension. Two students responded to this question with a five (excellent) rating. Their comments were "Did more 'real' work in this class than in most," and "There were more assignments, but this is balanced by not having to attend class".

Question 3 yielded the highest rating, indicating timeliness of instructor response. This question also had the lowest variation in ratings. If this course had been face-to-face, the class would have met for two hours each day for the five week session; plus the time needed for preparation and grading of student assignments. Therefore, the instructor allotted two hours per day to the online instruction, facilitating the discussion boards, providing guidance and answering

student questions. The preparation had largely been done in advance of the course launching, and the grading was also done outside of the two hours per day online. The biggest surprise to the instructor was the number of e-mails from students – an average of less than five e-mail messages per week. This low number of e-mail messages may have resulted from course expectations being clear to students, or from the instructor's presence online.

Students varied greatly in how many hours per week they reported spending on the course. Responses to question 1 ranged from three hours per week to 35 hours per week. Given that students were to complete three course modules each week, it is difficult to comprehend how one could accomplish the readings, discussion boards, additional online content and assignments for three modules in only three hours. Some students may have reported only the time they actually spent online and not included the time they spent reading or preparing assignments; other students may have reported all of the hours they spent working on course requirements. Therefore, this data is difficult to interpret. If one assumes that a three-credit course delivered in the usual 15-week session will require six to nine hours of work per week outside of class sessions, then it would be reasonable during a five-week session, to expect students to spend 18-27 hours per week on the readings and assignment preparation in addition to approximately six hours per week in the online discussions. Only four of the 24 students enrolled in the course reported spending more than 18 hours per week on the course requirements.

Overall, students did report that the course required critical thinking. Three students commented that this was "especially true in the discussion boards." One student remarked that "Without a doubt. I have been thinking of things I would never have thought of." Expectations seemed to be clear, as noted by the few e-mails, and the ratings regarding the clarity of expectations in the course syllabus. Yet reflecting on the course evaluation data from the summer course left unanswered questions, particularly about the degree to which students felt a sense of community. Therefore, in the 15-week fall course, a mid-term course evaluation was administered to ask more directly about students' sense of community, clarity of expectations, and critical thinking

Second Course Evaluation

The results of the mid-term evaluation are summarized in Table 2. As shown by question #3, there is some sense of community, but there is also room for improvement. One student commented, "Great discussion on Bb but as this is a web class it is hard to get comfortable with peers". Another said, "Better than I had hoped for or anticipated given the makeup of the class". Two students noted components of the course as contributing to the sense of community. For example: "I found our first assignment on the discussion board helpful in getting

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to know peers – the assignment involved posting to the area designated as the "lounge" area…about our family, pets, and sports…." One gave a rating of four, and noted "This is partly my fault, because I haven't taken the time I need to or would like to 'get to know' my peers." One student, who gave a rating of nine, commented "I am currently taking an 'in-person' class as well and I feel I have as much connection, if not more, with my cyber-space classmates. I enjoy the personally directed responses."

Question	Mean	S.D.
1. How would you rate the instructor's "presence"?	6.92 *	1.31
2. How would you rate the instructor's availability and responsiveness?	9.75	.62
3. To what extent do you feel a sense of community with your peers in this class?	7.92	2.39
4. To what extent are you required to engage in critical thinking?	9.08	1.38
5. Are the instructor's expectations clear?	9.50	1.17
6. How would you rate the amount of work in this course?	8.00 **	.95
7. How would you rate the value of the work in this course?	8.08	1.78

Table 2: Course Mid-Term Evaluations – Fall
Rating Scale: 1 (poor) to 10 (excellent) N = 12

* Rating scale from 1 (not involved enough) to 10 (too involved)
** Rating scale from 1 (too little) to 10 (too much)

Because it was difficult for the instructor to know what level of instructor involvement students desired, question #1 was posed with a rating scale on which a five to six would represent the most appropriate level of presence. Finding that the students viewed the instructor as a bit too involved was a surprise, as the instructor had been feeling rather uninvolved in the fall course as compared with the intense level of the summer course.

Students did perceive themselves to be engaged in critical thinking. Two students noted the discussion boards as requiring critical thinking, and two additional students claimed that both the discussion board and the assignments required critical thinking. One student, who responded with a rating of ten, said, "I have truly been challenged way outside my comfort zone of knowledge by this course."

As in the summer course, the fall course expectations appear to be reasonably clear. All comments were consistent, saying that expectations were clearly communicated in the syllabus and the modules with clear expectations and clear due dates. This finding is again confirmed by a low volume of e-mails from students – an average of less than one per week.

Based on the feedback from summer course evaluations, the number of assignments was modified for the fall course. Although nine assignments were included in the fall course, each student selects five of them to turn in, allowing students to personalize their learning while simultaneously decreasing the work load. However, students still felt the amount of work to be heavy, though comments suggest that the workload is not as overwhelming as it was in the summer course. For example, one student commented, "I do feel that there is a lot of work in this class, between the reading, original postings, responses, and choice assignments, but not to the point that it is overwhelming." Two students who rated the amount of work as nine commented about their work and family obligations, one saying, "The amount of work is hard to get covered when you are teaching full time with a new curriculum, raising two sons who are in extra curricular activities, and somehow making time for a husband who feels he is raising the family by his self [*sic*]."

Discussion

Reviewing the three focal points of learning community, critical thinking, and clear expectations, the greatest continuing challenge for this class is the creation and maintenance of a learning community. It is important to remember that in a face-to-face discussion, every student may not participate vocally. In an online discussion in which everyone is required to participate, these quieter students may have a different comfort level. Discomfort with technology may hamper discussion for some, but the lack of face-to-face contact may create more freedom of expression for others. Affirmation and encouragement from the instructor may help to increase their comfort level and encourage their feelings of community. The instructor's presence on the discussion board will enable timely handling of any potentially disrespectful postings.

Students' sense of community may be increased by use of small group discussions instead of whole class discussions. This may stimulate the growth of smaller "communities" within the course, and peers may become closer acquainted and develop deeper levels of trust. In this course, the relative balance of elementary teachers, secondary teachers, administrators and nurse-educators changes each semester, so the size of small groups based on professional role will vary by semester. The advantage of using small groups is that the discussion

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board is less overwhelming; the disadvantage is that students miss out on some of their peers' thoughts. It may be useful, therefore to assign each student to a small group, but to also allow students have access to all groups, thereby allowing cross-group reading and posting.

A sense of community contributes to the level of critical thinking, because students who trust one another are more likely to challenge one another's thoughts. Respectful disagreement is a powerful tool to stimulate thought. The instructor's role on the discussion board is one of player/coach - observing, listing, encouraging, and challenging, expecting students to ask deep questions of one anther, but ready to step in with those questions as needed.

Ensuring clear expectations requires tedious attention to detail by the instructor, but demonstrates respect for students' time. Including due dates on every page of the module, presenting course requirements in multiple formats, and responding promptly to student questions gives students the message that their work in the course is important to the instructor.

Certainly the amount of work to require is an ongoing issue in this course. The online master's degree program is advertised as appropriate for working adults. This creates pressure to ensure that the workload is small enough that part-time students can balance the demands of the course with the demands of job and family. On the other hand, there is a need to maintain the integrity of learning in the course. This challenge affects online courses and face-to-face courses equally, but it would be helpful to find ways to inform those students who approach an online course with the expectation that it will be less work than a face-to-face course.

It is important to note that this study only measured students' perceptions, not actual student learning. One could argue that student learning was measured by the course assessments. The scores for both the summer and fall course were comparable to those from the most recent face-to-face course. However, modifications in the course assessments from term-to-term compromise the comparability of those assessments. Further research to identify a relationship between students' perceptions of being part of a community of learners, experiencing clear expectations and engaging in critical thinking and their perceived or actual level of learning from the course would strengthen the argument for attending to these pedagogical principles.

As for this course, although there are definite improvements to be made, as a first attempt at an online course, the instructor was pleasantly surprised with the results. Collaboration with the instructional designer was highly beneficial in thinking about the most effective strategies to implement. Both instructor and instructional designer agree that continued attention to

pedagogical principles should guide the development and improvement of online courses. Faculty who are contemplating modifying a course to an online format should be encouraged to know that the same pedagogical principles they have been using in their face-to-face courses will have value in an online format.

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