Emerging Patterns in Transferring Assessment Practices from F2f to Online Environments

Ronald Beebe[1], Selma Vonderwell[2] and Marius Boboc[2]
[1]University of Houston-Downtown, USA
[2]Cleveland State University, USA
beeber@uhd.edu
s.vonderwell@csuohio.edu
m.boboc@csuohio.edu

Abstract: This study explores the transfer of assessment practices from f2f to online environments by college instructors, with a particular interest in the factors influencing assessment in online learning settings. Assessment is a critical aspect of the learning environment, and considerable research has suggested various methods of formative and summative assessment for the f2f classroom. However, there has been less research into the ways in which these traditional forms of assessment are being incorporated into the online learning environment, or whether they may even be appropriate. This study investigated the perceptions of seven higher education faculty, with experience teaching courses in both the f2f and online environments, regarding the transfer of assessment practices between the two delivery formats. Specifically, this study explored the transfer of assessment practices from f2f to online environments by college instructors in two higher education institutions: a four-year college and a two-year community college. The authors propose that an understanding of both assessment *for* learning and *of* learning is needed to support effective faculty practices and enhanced student learning in online courses. Consequently, it is important to study the impact of assessment strategies and techniques faculty employ to better understand various instructional practices that effectively centre on enhanced student learning. A phenomenological approach was employed for the analysis of data involving seven online course instructors at two higher education institutions, a four-year college and a two-year community college. Findings indicate several factors that influence the transfer of assessment practices from f2f to online environments. Data analysis points to several areas of interest related to the design of online assessment: time management, complexity of content, structure of online medium, student responsibility and initiative, and informal assessment. Authors suggest the incorporation of tradition classroom assessment techniques in the online learning environment should be considered in light of the factors described above. In particular, assessments for continuous and improved learning are important for the development of an engaged community of learners in the online environment. As technologies continue to evolve, a pedagogical framework that considers the learning environment differences between traditional and face to face classes becomes increasing imperative, both in terms of understanding the *delivery* and *mediation* of instruction. Such a framework will need to address both aspects of process and product in assessment. Consequently, future research needs to examine what strategies of techniques are effective in the assessment for learning in online instruction.

Keywords: online learning, online assessment, assessment for learning, assessment of learning, transfer of assessment practices, online faculty

1. Introduction

Online learning impacts current instructional practices and policies in universities across the country and the world, thus quickly changing the fabric of higher education (Rowley, Lujan, and Dolence, 1998). The rapid expansion of online instruction in K-16 education has been documented by the National Center for Education Statistics (NCES, 2003). A report from the Sloan Consortium found that over 1.6 million students were studying online in the fall of 2002 (Allen and Seaman, 2003). This report indicated an expectation of a substantial growth of online learning in the forthcoming years. In their 2006 study, Allen and Seaman report that nearly 3.2 million students took at least one online course during the fall 2005 term. They also note that about two-thirds of the very largest institutions have fully online programs, compared to only about one-sixth of the smallest institutions (Allen and Seaman, 2003: ¶ 7). Consequently, such a shift in the delivery of instruction relates to what Norton and Wiburg (2003: 4) call 'defining technology:' "a technology that results in fundamental changes in how people see themselves and their world". Traditional pedagogical understandings of learning and assessment are not immune to this paradigm shift.

Swan, Shen and Hiltz (2006) state that learning and assessment are not two distinct phases in an online course, as both directly influence student learning. Key issues emerge with respect to online assessment, some of which include identifying appropriate and effective assessment methods, distinguishing between barriers and facilitators to their implementation, and adequately selecting and

managing assessment activities (Australian National Training Authority, 2002). Speck (2002: 5) argues that "insufficient attention to pedagogical questions and concerns arising from the practice of online teaching […] raises questions about assessment of learners in online classrooms". It is important to understand current faculty practices of assessment as well as the factors that influence assessment in order to increase the quality of teaching and learning in the online environment.

This study explores the transfer of assessment practices from f2f to online environments by college instructors in two higher education institutions: a 4-year college and a 2-year community college. The authors propose that an understanding of both assessment *for* learning and *of* learning is needed to support effective faculty practices and enhanced student learning in online courses. The objective of the study was to identify specific factors that might assist instructors in moving f2f course assessment practices to the online environment to enhance pedagogical practice as well as student interaction and learning. Consequently, it is important to study the impact of assessment strategies and techniques faculty employ to better understand various instructional practices that effectively center on enhanced student learning.

2. Literature review

Assessment is an important aspect of teaching and learning systems (Benson, 2003). The appropriate integration of assessment processes improves teaching and learning. As such, it "[…] must be integrated into a holistic view of pedagogy. This means that any theory of assessment presumes and informs a theory of learning" (Speck, 2002: 6). While assessment practices have developed in f2f environments, "the principles of assessment do not change in an online environment" (Benson, 2003: 71). Nevertheless, there are differences between f2f and online enviroments which may present challenges to the effective implementation of both traditional and alternative forms of assessment.

Traditional assessment positions learners as recipients of knowledge where learning is measured and documented at the lowest levels of Bloom's taxonomy as knowledge and comprehension (Robles and Braathen, 2002). This type of assessment does not allow for higher-order thinking skills, such as synthesis, analysis, and evaluation (Speck, 2002). On the other hand, alternative assessment assumes the role of students as inquirers who are actively engaged in the learning process. In this case, assessment activates learning at higher-order thinking levels and embraces collaboration (Anderson, 1998). Instructional activities can be used diagnostically to alter teaching and learning (Black and William, 1998). Whether formative (i.e., during the cycle of instruction) or summative (i.e., upon completion of the cycle of instruction), assessment plays an important role in the learning process to inform progress and further learning.

The Quality Matters (2006: ¶ 3) rubric suggests using assessment instruments that are "sequenced, varied, and appropriate to the content being assessed". Assessment is important in guiding the design of online courses by using a variety of tools - such as self-assessment and peer-assessment methods – as well as tasks that encourage critical thinking and collaboration of students in their learning and assessment activities (Herron and Wright, 2006). Assessment strategies need to be diverse and provide multiple opportunities for learners and instructors to evaluate learning. Effective assessment techniques can improve an instructor's understanding of student needs and provide the development of a learner-centered classroom.

Assessment of and for learning

There is a distinction between assessment of learning and assessment for learning; the latter places student learning at the center of assessment (Elwood and Klenowski, 2002). This approach to assessment guides an understanding that learners and instructors share the ownership and responsibility for evaluating their own interconnected performance and learning outcomes. Under these circumstances, comparing assessment of learning and for learning reveals the following (Elwood and Klenowski, 2002: 243):

> *Assessment of learning (assessment for the purposes of grading and reporting with its own established procedures) and assessment for learning (assessment whose purpose is to enable students, through effective feedback, to fully understand their own learning and the goals they are aiming for).*

Online instructors can utilize assessment techniques and strategies to determine "what students are learning in the classroom and how well they are learning" (Angelo and Cross, 1993: 41). Classroom assessment provides instructors with immediate feedback on student learning and progress. Learners need regular practice in assessment to become self-monitoring and independent (Angelo, 1995). Classroom assessment techniques "require learners to engage in simple acts of metacognition to reflect on and assess their own understanding of the content they are learning" (Angelo and Cross, 1993: 120). Quality Matters (2006) suggests instructors provide self-check or practice types of assignments for timely student feedback.

Learner-centered assessment can encourage meaningful dialogue, increase collaboration, peer and self-evaluation, and a sense of community for a shared purpose (Morgan and O'Reilly, 2001). "Assessment should play a crucial role in helping students to develop as effective online collaborators" (Macdonald, 2003: 388). Online learners need to manage their own learning through self- and peer-assessment, discovery learning, reflection, and articulation (Australian National Training Authority, 2002). In order to manage their learning, students need to take an active role by planning, monitoring, and then reflecting and evaluating not only on the learning tasks, but on the processes of learning as well (McLoughlin and Luca, 2002). These processes require a learning environment that supports such an active student role. Assessment needs to be an ongoing and seamless process in order to address and scaffold properly the learning needs of all students.

As the role of students in online learning relies on self-monitoring and peer support, assessment should provide multiple avenues for both formal and informal assessment. Consequently, the instructor's role in the online environment requires rethinking and reconstructing assessment practices traditionally employed in f2f settings. A study on student satisfaction and learning in online courses found that interaction with the teacher is the most significant contributor to perceived student learning (Fredericksen et al., 2000). Instructors need to balance immediacy by providing students a reasonable amount of time and opportunity to respond (Rovai, 2001). Such immediacy behaviors, when coupled with student expectations, might be influential in facilitating learning and metacognitive processes. Given these circumstances, instructors can structure a feedback mechanism that will encourage student inquiry, collaboration (Vonderwell, 2003), and metacognitive feedback and self-assessment strategies. Qing and Akins (2005: 58) suggest that instructors use a variety of assessment techniques and provide "opportunities for students to develop their own learning goals and assessment tools".

Assessment of online learning differs from the strategies used in traditional, f2f classrooms. Instructor-student interactions in the virtual world are mediated by a computer interface rather than in a f2f setting structured by means of interpersonal exchange. The lack of visual cues, use of asynchronous conversations, and technical issues suggest assessment in online learning is not to be conducted as it has been in a traditional face-to-face classroom (Reeves, 2000). Promoting sustainable high levels of student performance depends not only on a thorough knowledge of pedagogical content, but also on a well-designed assessment process that concurrently informs teaching and promotes learning.

Addressing several misconceptions regarding online instruction, Qing and Akins (2005: 52) state: "face-to-face pedagogy can and should be used to inform online pedagogy. But this in itself cannot be the driving force to designing online courses; one must consider e-pedagogy to create a successful and meaningful course". Additionally, Qing and Akins (2005) note that equating the assessment of online learning and learner participation with counting the number of messages in discussion logs does not adequately address student learning. Vonderwell, Liang and Alderman (2007) found that assessment of online discussions is influenced by structure, learning community, self-regulatory cognitions, learner autonomy and student writing skills. They note that "assessment as a process requires that online learning activities facilitate self-assessment, peer-assessment, self-regulatory mechanisms, and learner autonomy" (Vonderwell et al., 2007: 323). Speck (2002: 15) also suggests that instructors "design assignments that allow for interplay between process and product, between formative and summative assessment".

This framework provides a lens through which to interpret the use of assessment practices in online environments, with a particular interest in instructors' perception of the degree to which those strategies provide accurate assessment data related to student learning. The literature suggests that traditional forms of assessment employed in the classroom may not be appropriate for online

instruction. Consequently, there is a need to examine instructor assessment practices and any relevant issues that impact them in online courses. Such research can help college instructors determine ways in which to improve assessment practices. Moreover, identifying a wide range of effective assessment strategies and activities can inform subsequent development of formative and summative evaluative tools for online environments.

Under these circumstances, this study explores the transfer of assessment practices from f2f to online environments by college instructors, with a particular interest in the factors influencing assessment in online learning settings. The research questions underlying this investigation were:

- 1) How do participating faculty transfer assessment practices from f2f to online environments?
- 2) What factors influence the assessment practices of participating faculty in their respective online environments?

3. Methodology

Participants

Researchers accessed a list of instructors scheduled to teach online courses at a two-year community college and a four-year university in a large Midwestern city. All these instructors were emailed an invitation to participate in the study. The course management systems operating at the two locations were Angel and WebCT, respectively. For both higher education institutions, the selection criteria focused on: a) a wide range of skills related to online teaching, learning, and assessment; and b) an interest in investigating one's own assessment practices designed to enhance student learning on a continuous basis. Seven faculty members agreed to participate, four females and three males. In terms of experience with online instruction, 5 considered themselves experienced by having taught online from two to seventeen years, with the remaining two professors self-identifying as first-time online instructors (see Table 1 for a further breakdown).

Table 1: Participant characteristics

Name (pseudonym)	Gender	Years overall teaching experience	Years experience teaching online	Content area taught	Type of Institution
1. Jane	Female	5	0	Educational psychology	4-year college
2. Jim	Male	18	0	Educational technology	4-year college
3. John	Male	40	16	Math	4-year college
4. Jill	Female	4	2	English	2-year college
5. Judy	Female	8	3	Pathology	2-year college
6. Joe	Male	4	4	History	4-year college
7. Joan	Female	7	3	Nursing	4-year college

Procedure

The research questions followed a protocol of interview sessions in a comparative, pre-/post- fashion using a series of semi-structured items. The initial set of questions – used at the beginning of the semester – were designed to prompt the interviewees to contextualize their understanding of assessment in the larger perspective of online environments. A particular emphasis was placed on their initial considerations related to the tranfer of assessment practices from f2f to online environments, based on which they were asked to elaborate on the design process for the latter.

Syllabi were collected from the participants as an additional source of information that allowed the researchers to get a generic picture of the different courses as a whole, both f2f and their online version. Whenever appropriate, follow-up questions were asked in relation to assessment practices included in syllabi, but not readily referenced by interviewees. In all instances, such questions prompted more thorough responses from the participants. This analysis indicated there were no discrepancies between the assessment plan documented by the syllabi and the actual set of strategies and tools used by these college instructors.

The second set of questions – used as a follow-up at the end of the same semester – was intended to focus on the analysis of perceived differences between the assessment strategies used in online environments compared to traditional, f2f settings. At the same, the participants were invited to

elaborate on the various factors they identified as being conducive to or restrictive in the effective use of assessment strategies in the online environment. Also, the participants were encouraged to reflect on reasons for which their initial plans for assessment of online learning may have differed from so-called "mid-semester course corrections," deemed necessary by their own analysis of student learning by using pre-set assessment strategies and tools. Overall, the researchers were able to engage their participants in conversations about emerging patterns of assessment practices during the complex process of tranfer from f2f to online learning environments.

Probing questions based on responses to questions in the first interview were employed to confirm transcripts and initial interpretations of the data. Additionally, interviewees commented on their planning and/or implementation needs for online teaching and learning.

Depending on the location of the participant, the semi-structured interviews, lasting approximately 45 minutes, were either conducted face-to-face or over the telephone. All interviews were recorded and transcribed by the researchers. Final transcripts were clarified with participants where difficulties of transcription or interpretation occurred.

Data Analysis

A phenomenological approach was selected in order to explore the experiences of the instructors as they reflected on their use and understanding of assessment because it requires the researcher to bracket out her/his personal perspectives (Lichtman, 2006). This seemed a plausible direction to take in order to eliminate any potential bias about assessment on the part of the researchers. In addition, this approach allowed for the exploration of categories within a wholistic framework recognizing the inherent differences participants may have regarding assessment strategies and outcomes.

Analysis of the data relied on the constant comparative method (Bogdan and Biklen, 2007; Glaser, 1978) which allows for examination of the data during both collection and the coding process. Moreover, this approach enables the identification of variations in the patterns to emerge and provides for the development of dimensions within the themes (Strauss and Corbin, 1998). Each interview transcript was analyzed independently by the three researchers to develop both open and in vivo codes that were organized into categories which were then compared for accuracy across the transcripts. Consensus among the researchers was used to select categories that appropriately reflected the data.

Generation of potential themes arose from analyzing and sorting patterns emerging from the categories as well as connections to theoretical understandings of assessment and conversations among the researchers. Analysis continued until each of the categories had been organized into a set of emerging patterns congruent with the data and agreed upon by the researchers. Based on the phenomenological approach, the emerging patterns and potential themes were analyzed and reduced to the essential foci related to the data as presented in the findings. Consequently, the analytic process was recursive as analysis informed further decisions on data exploration and data analysis, and grounded in the data as categories and themes developed based upon consensus agreement among the researchers. This process represented an ongoing process of meaning-making through the coding process, category generation, emerging patterns, and double-checking findings.

Because the focus of the investigation was on instructors' understanding of their role as an assessor and of their assessment practices, the data was not analyzed in terms of differences related to subject matter or course content. While the researchers acknowledge this is a significant factor in designing and implementing selected assessment practices, both the sample size and the nature of the interview questions did not lend themselves to a comparison of assessment practices relative to course subject matter. Therefore, the data was analyzed with a view toward understanding the assessment practices employed and factors impacting their use.

4. Findings

Findings indicate several aspects influenced the transfer of assessment practices from f2f to online enviroments by the participating online faculty. Understanding how instructors develop and adapt/adopt assessment practices within the online learning environment can inform subsequent development of formative and summative assessment strategies and tools. It may also provide insight into fundamental characteristics that may form a framework for opening a dialogue regarding

the nature of online pedagogy. Since the circumstances under which participating faculty employed their respective assessment practices are qualitatively different, it is important to analyze the factors identified by the participants as having impacted their implementation in the online environment. In all of these instances, the interviewees reflected on how they went about transferring assessment practices from f2f to online environments. Of special interest to the researchers was the analysis of factors that either facilitate or hinder online assessment. In this light, the interpretation of interview data suggests five major themes to be taken into account when designing effective assessment plans for online environments: time management, student responsibility and initiative, structure of the online medium, complexity of content, and informal assessment.

Time management

Time management was found to be an influence on assessment in the online learning environment. Participants reported that students expected immediate response and feedback to their questions or to their test results. This aspect of online teaching and learning had a direct impact on the instructors' time management process, as the medium of the online class heightened student expectations of much more frequent and immediate communication with the course instructor.

The degree to which time management is crucial to effective online teaching may be related to nature of individual access due to the instructor-student interface being mediated by email. John indicated that: "I have got to be there emailing them and be available more. It is probably more one-on-one instructor participation than in a face-to-face class." This aspect of accessibility impacts the time spent both in responding to students and in evaluating learning. This was a common theme, concisely expressed in the following quotes:

> *Instructor participation…it's daily… I put more work into this online class than I did for my on campus class. (Jane)*

> *Time – you are providing feedback to every single student […] and the feedback is unique and specific […] I was grading around the clock […]. (Judy)*

Issues of time management seem to provide a critical lens for the development and selection of the assessment practices employed by these instructors. This may be due to the need for instructors to compensate for fewer opportunities to use traditional informal assessment techniques. Also, due to the time-intensive nature of online interactions, the instructors realized that the structuring of content and related activities had to be maximized while using assessment strategies in appropriate ways for the online environment.

Participating faculty reported that the online environment enabled students to have frequent access to the instructor. Individualized feedback reflects expectations of an increased accessibility to the instructor via email, as John noted: "If I don't keep up with them at least couple of times during the day, I've got 40 messages waiting for me. It does pile up quickly." Therefore, learning and assessment seems to have occurred more on an individual basis through one-on-one feedback, which would correspond to an increased time commitment. We should also note the importance of time management as a factor for students, as the characteristics of learning in the online environment has direct implications on the overall performance in class. The participants indicated a sense that students viewed assignments in the online environment differently, since "in the online class they [students] feel the pressure of assignments, which does not happen face to face, so their perception [of assessment] changes" (Judy).

Student responsibility and initiative

Related to the notion of time management, participants indicated that online learning requires greater initiative on the part of both instructor and students in the process of the assessment of learning. Student initiative was found to be an important element to inform the instructor of her/his learning and overall progress in class. If students do not ask questions, online instructors felt they did not have sufficient informal ways of understanding whether student learning is taking place or not. A common theme echoed among the participants:

> *If I don't hear from them and I can't understand what's going on … We can look at how many times the students logged in – but that doesn't mean that it's sunk in … We don't know the quality of the time that's spent … You can tell the A students seem to log in a*

lot more frequently than B and C students. The class is an afterthought for B and C students. They email me questions […] I can tell they haven't read the questions. (Jill)

Due to the fact that online learning requires higher degrees of self-discipline and self-monitoring of progress, metacognitive processes were found to be an important influence on student assessment. The participants reported that students who seemed to have higher metacognitive skills tended to more accurately assess their own learning and showed more initiative in terms of their own online learning. Student responsibility and initiative were viewed as significant factors to consider when designing effective online environments conducive for relevant teaching and learning because

Everything is pushed back on the student. [… in a face to face class] you can go in and sit down and let the lecturer tell me [sic] everything [...] Go and sit. Listen to the lecture [...] whereas an Internet class, it's on your own. […] I think the Internet class has put a lot more back on the student as far as their learning. (Jim)

From their comments, the participants appeared to struggle with the absence of the interpersonal interactions normally reflected in the f2f classroom, which often assist in the ability to gauge the quality of student learning. In addition, the lack of non-verbal or visual evidence of learning – typically collected by "scanning" the traditional classroom – influenced the balance of responsibility in terms of monitoring of progress between instructor and students by placing a heavier focus on the latter. While metacognitive skills and initiative are certainly important factors in any learning context, within the online environment it would seem that these along with motivation become increasingly critical across the electronic interface where traditional, nonverbal forms of assessment are not available.

Structure of the online medium

The online medium structure did seem to require a great amount of time spent on streamlining course requirements, online teaching resources, and so forth, often as a response to the concerns noted above. Participants indicated that all the information related to class requirements and due dates should be posted in a timely manner, thus allowing for more effective time management and immediacy of response to student inquiries. Derived from the fact that the online communication between instructors and students was done exclusively in writing, the medium influenced the way in which instructional planning and delivery of content took place in the online courses. For example, Jane said:

[…] It is very to easy […] to get feedback from them, but asking them to write it up while they're already writing their documentation, it's duplication for them … for them it's just busy work ... and ... so, it means that, if I ask them to do it, something else has to be dropped [...].

Consequently, assessment for learning and assessment of learning sometimes overlap, which students may view as unnecessary work.

An interesting juxtaposition created within the online environment stems from the fact that while it is "difficult to get to know the students in the online class" (Judy), such a setting thrives on subject matter content-based interaction that supports a wide range of assessment strategies and activities. On the one hand, the anonymity of the online environment may enhance the range of assessment strategies as it offers some students more opportunities for interaction with the instructor. Students may sense a certain freedom to engage in discussion and state viewpoints specifically as a result of the lack of face-to-face interaction with the instructor. According to John,

[…] that may be part of that anonymity, whereas the professor is getting in front of you a lot of students are afraid to challenge the professor. That is not my problem, but some students are very afraid because they think it's going to interfere [with] the grade they'd get if they challenge the professor. But on the internet side of it, I challenge them and they challenge me. I think that's [where] the best learning takes place […] where the Internet course I think has a little bit of the edge on the classroom because [of] that anonymity, you are not so intimated by the presence of the professor in the internet class.

On the other hand, anonymity may play a role in peer relationships that do not face the same constraints in the online environment as they do in the traditional classroom.

I really think this is a way where some students who may not actually speak up in class for fear of being wrong like the anonymity of the discussion forum. The anonymity

provides them some sort of security. […] So I think the discussion forum gives them the anonymity from me and from others. […] Within this setting, they tend to disagree more with each other than they do in the land-based class. But they also get into why they disagree. That is something that doesn't always happen in a land-based class. (Jane)

This was the only area where the participants clearly indicated a potential advantage of the online environment for student learning. What remains at issue is the ability of instructors to develop appropriate frameworks that integrate this aspect in such a way to address their concerns with student responsibility and initiative. In addition, facilitating discussion, whether in a synchronous or asynchronous format, typically requires more time in the online setting due to the fact that communication is written. Given the concerns mentioned by our respondents, creating appropriate assessments that address these issues remains a difficult balancing act of appropriateness and time management.

Complexity of content

Findings indicated that the less complex or applied the course content, the easier it was to transfer assessments from the traditional, f2f learning environment to an online medium. In other words, introductory-level courses that provide students with foundational knowledge imply a sequence of subject matter content that can be easily accommodated by online environments. Course content and assessments focused on knowledge and comprehension seemed to provide instructors with a simpler transfer of traditional methods to the online setting. Thus, "if the class was focused on the acquisition of knowledge, it would be easier to collect individual responses or assignments from students in the online environment […]" (Judy).

As reported by the participants in this study, the more complex the content (thus requiring higher level thinking skills – such as analysis and synthesis), the more difficult student assessment seems to become. Under these circumstances, one interviewee brought up the issue of differentiating the content in an online class based on the distinction between undergraduate and graduate students taking the same (cross-listed) course. Consequently, the assessment strategies have to be reflective of the difference in question, whether it is content complexity or level.

The nature of the online environment requires re-thinking how certain assessments are conducted. For example, after reflecting on students' performances on exams in a Web-based course Judy noted:

They were the multiple choice questions. 100 question exams. I have them online for students. But I think it was last summer my class got all As. They did wonderful on these exams I have been using over and over. I knew they shouldn't have gotten all As. Now what I do is I make them to come to campus to take the exam here… Pathology is more memorizing.… I think what they'd do is sit with their books and answer the questions.

Not only does complexity of content determine the ease of transition of assessment strategies, but instructors must also consider how the method of delivery may impact the completion of those assessments. For example, collaborative learning tasks were more difficult to implement and assess in an online environment due to the nature and structure of the class.

Class presentations and discussions are different. Whether you do a power point presentation online or in person the presentation is the same but my ability to evaluate a student's ability to present in front of an audience which includes the ability to convey the information in a professional manner, answer spontaneous questions etc. is lost. (Joan)

Informal assessment

The study findings showed that it was difficult for the online faculty to determine student learning and progress in the online environment compared to a traditional, f2f classroom setting unless students took the initiative to ask questions or inform the instructor with respect to their learning and progress. If this occurs on a regular basis, the direct effect is improved communication, reduced confusion, and enhanced student participation and performance in the online class. To some extent, informal assessment is tied to the issue of how often communication occurs. "I monitor student progress every morning, Monday through Friday; but I collect evidence weekly; in traditional classroom classes, I tend to do it less often (usually only during class times). The online class is more structured to compensate for the loss of face to face interactions" (Jim). The participants in this study indicated a high rate of daily connection to the course, either to respond to emails or to provide feedback on

assessments. Consequently, this means that the instructor has to devote a lot more time to establishing such effective communication with and among students both during planning and implementing the online course:

> *[Collecting evidence of student learning in the online environment] was a real problem for me because of not being able to use informal assessment, which I do in the traditional classroom. […] in e-mails you get nothing but complaints, nothing seems to work […] after a while you learn what needs to be addressed immediately and what can wait […] I could interpret from their comments in online small groups who was involved and who wasn't. […] [In the traditional, face-to-face class] I am doing much more informal observations and timely questions in class based on what is happening in there – you intuitively know what to ask because you have taught the class several times before […] The only difference [between the online environment and the traditional classroom in terms of assessment of student learning] is to be able to make global assessment based on the performance in class as opposed to the individual feedback in the online class […] tied with the time-intensive factor. (Jill)*

Our participants indicated the difficulty of balancing the need to engage students in order to gauge the progress of learning with the demands of the amount of time needed to compensate for the lack of informal assessment cues provided in the face-to-face setting. Not only did this create questions of what assessments to employ, but also of how many assessments were needed.

Despite the fact that students in the online classes had frequent and direct access to the instructor, the participants in the study struggled with the process of transferring typical informal assessment practices from the face to face classroom to the online environment. The lack of visual cues in combination with the focus on student initiative seemed to present a dilemma to these instructors when considering how to best assess student learning in the online setting. Perhaps this is because many of the assessment practices employed by these instructors focused on the evaluation of a product without considering appropriate ways to evaluate the process, which represents an assessment practice often using informal techniques derived from interpersonal cues.

5. Discussion

Currently, there is a strong impetus for appropriate use of a wide range of instructional technologies designed to maximize student learning and participation. In light of such "expansion of technology," both higher education faculty and students have to become apt users (Sahin and Thompson, 2006). The findings of this study may help educators identify ways to improve their assessment practices as they transfer from traditional, f2f settings to online environments. Analyzing the factors that influence the design and implementation of appropriate online assessment strategies can inform subsequent development of formative and summative assessment activities and tools.

One particularly difficult issue to address in an online setting is replicating informal student feedback that in the traditional classroom is visual and based on physical, interpersonal cues. Rather than developing assessment contexts that are diverse, responsive and involve a process in order to tap into informal feedback strategies, the majority of assessment practices described by the participants suggest a product outcome. For example, while participants implemented online asynchronous discussions, typically they were used as a way to quantitatively measure student participation (i.e., as assessment *of* learning) rather than as a qualitative measurement of student growth and learning (i.e., as assessment *for* learning). Encouraging student reflection on learning as suggested by Angelo and Cross (1993) may help instructors develop strategies that employ *process* assessments that provide the sort of information typically obtained through traditional informal techniques. Assessment procedures, especially in the online environment, need to find a balance between formative (process) and summative (product) outcomes, which require increased instructor and student interaction within the online interface.

Bi-directional feedback between students and teachers is more individualized in the online environment. Feedback to and from the student was found to be based on writing, through which instructors tried to negotiate and manage content, instruction, an environment of a community of learners, as well as assessment expectations and requirements. Instructors described this process as time consuming and significantly influenced how informal assessment took place. The notion of a community of learners is often discussed as a constructivist approach to knowledge-building in the context of online learning. Although expressing a commitment to the idea of a community of learners,

instructors structured their courses toward a more independent and individual style of learning. Nevertheless, online learning and technologies have the potential to encourage and enhance interdependent learning which is collaborative and constructive. Tapping into such a potential requires the design and implementation of assessment practices appropriate for the online environment.

Factors impacting effective assessment practices in the online environment are not solely technological, but also managerial and pedagogical. Since online learning is delivered through computer technology and mediated by a computer interface, there may be a perception of online learning as occurring in an environment defined by technological tools. Perhaps, there needs to be a distinction made between the *delivery* of online learning and *mediation and facilitation* of online learning. However, these two concepts require clarification before any attempt to better understand the pedagogical potential of this new learning environment evolves. In order to shift from what Reeves (2000) describes as an instructor-dominated environment, the conversation regarding online pedagogy will need to move toward consideration of those factors which facilitate a more constructivist interaction across the computer interface of the virtual classroom. Developing a "responsive and responsible online" pedagogy (Boboc, Beebe, and Vonderwell, 2006: 261) implies conceptualizing online teaching and learning in a way that generates sets of interrelated characteristics influencing effective assessment strategies and tools. Consequently, the use of this particular type of instructional technology will be enhanced by the "result of the teacher's analysis" (Zhao and Frank, 2003: 817).

6. Recommendations for practice and research

There is a need to construct an appropriate pedagogy of online learning and assessment within the environment of the virtual/online classroom. As traditional assessment strategies approaches differ from those employed in online settings (Reeves, 2000), there should not be a mechanistic transfer from one environment to the other without due consideration of their intended purpose and outcome. Future research should provide educators with tools and strategies in developing online-specific, pedagogically sound and appropriate learning opportunities that address assessment both as an outcome and as a process. That also means that both summative and formative assessment systems need to focus on creating and maintaining sustainable student learning in an online community of learners (Macdonald, 2003). The latter's characteristics – dialogue, collaboration, and a common goal – support assessment *for* learning which, in turn, promotes high level thinking skills and better retention of relevant information.

Consequently, both students and instructors need to be informed about the effective implementation of assessment strategies in the online environment. This will also require further research regarding the necessary shift in the perception of roles in the assessment process. The high frequency and increased individualization of feedback in such learning settings will be associated with an emerging and increasing partnership between students and instructors. This was suggested by Joe's reflection on the benefits of teaching online:

> *I gave my students more responsibility, I was in closer touch with them … it seems to be a much more effective approach to teaching than the traditional stuff […] Much more student-centered and, on the other hand, it puts more responsibility on the teacher […] you have to go online in order to communicate effectively, and in an online course this is put upfront.*

In order to achieve such benefits, however, instructors (and students) will need to rethink traditional roles and patterns of interaction in order to allow for communication across the computer interface to create dynamic environments engaging a community of learners. Given the recent surge of technological advances, it is expected that as more learning technologies emerge, the more varied applications members of the online learning community will need to understand and incorporate in an attempt to identify the factors that maximize student participation and performance, as well as teacher effectiveness and overall instructional satisfaction. Joan captured the highly reflective process of sorting out ways in which to structure assessment and learning in online environments:

> *[…] it took a lot more work upfront than I knew it would take because you have   to think through everything … every assessment part of it […] when I make a point of it in the online class, I have to ask myself about how to make sure that they do it … or what I can do to make sure that they do it… Those are the things that took me a lot of time in*

> *the beginning, when I was planning the course … I had to go through everything and rethink all the things that I did informally in class [the traditional, face-to-face course].*

Faculty professional development programs on online learning need to emphasize assessment for learning as both *a process* and *an understanding*. Investigating appropriate, student-centered structures focused on assessment for learning can help produce accurate assessment data. Formative assessment techniques, such as the Minute Paper, the Muddiest Point (Angelo and Cross, 1995), online journaling, reflective blogging, and wikis can be utilized in online learning to check student learning and progress. As technologies continue to evolve, a pedagogical framework that considers the learning environment differences between traditional and face to face classes becomes increasing imperative, both in terms of understanding the *delivery* and *mediation* of instruction. Such a framework will need to address both aspects of process and product in assessment. Consequently, future research needs to examine what strategies of techniques are effective in the assessment for learning in online instruction. Understanding not only what practices are effective and in what contexts but also how instructors think about those practices in terms of assessment *of* and *for* learning will aid in the development of a framework leading to a pedagogy of e-learning.

References

Allen, E. I., and Seaman, J. (2006) 'Making the grade: Online education in the United States', *Report from the Sloan Consortium,* [Online], Available: http://www.sloan-c.org/publications/survey/index.asp [25 Apr 2007].

Allen, E. I., and Seaman, J. (2003) 'Seizing the opportunity: The quality and extent of online education', *Report from the Sloan Consortium,* [Online], Available: http://www.sloan-c.org/publications/survey/survey03.asp [30 Oct 2006].

Anderson, R. S. (1998) 'Why talk about different ways to grade? The shift from traditional assessment to alternative assessment', in Anderson, R. S. and Speck, B. W. (ed.) *Changing the way we grade student performance: Classroom assessment and the new learning paradigm.* New Directions for Teaching and Learning, No. 74. San Francisco: Jossey-Bass.

Angelo, T. A. (1995) 'Classroom assessment for critical thinking', *Teaching of Psychology*, vol. 22, no. 2, February, pp. 6-7.

Angelo, T. A., and Cross, K. P. (1993) *Classroom assessment techniques: A handbook for college teachers,* 2nd edition, San Francisco, CA: Jossey-Bass Publishers.

Australian National Training Authority (2002) *Assessment & Online Teaching,* Australian Flexible Learning Quick Guide Series, [Online], Available: http://www.flexiblelearning.net.au/guides/assessment.pdf [21 Aug 2006]

Benson, A. D. (2003) 'Assessing participant learning in online environments', *New Directions for Adult and Continuing Education,* vol. 100*,* pp. 69-78.

Black, P., and William, D. (1998) 'Inside the black box: Raising standards through classroom assessment', *Phi Delta Kappan*, vol. 80, pp. 139-148.

Boboc, M., Beebe, R. S., and Vonderwell, S. (2006) 'Assessment in online learning: Facilitators and hindrances', *Society for Information Technology and Teacher Education Proceedings,* Association for the Advancement of Computing in Education, Charlottesville, VA, pp. 257-261.

Bogdan, R. C., and Biklen, S. K. (2007) *Qualitative research for education: An introduction to theories and methods (5th ed).* Boston, MA: Pearson.

Elwood, J., and Klenowski, V. (2002) 'Creating communities of shared practice: The challenges of assessment use in learning and teaching', *Assessment & Evaluation in Higher Education*, vol. 27, no. 3, pp. 243-256.

Fredericksen, E., Pickett, A., Shea, P., Pelz, W., and Swan, K. (2000) 'Student satisfaction and perceived learning with online courses: Principles and examples from the SUNY learning network', [Online], *Journal of Asynchronous Learning Networks,* vol 4, no. 2, pp. 7-41 Available: http://www.aln.org/publications/jaln/v4n2/pdf/v4n2_fredericksen.pdf [30 Nov 2000]

Glaser, B. G. (1978) *Theoretical sensitivity: Advances in the methodology of grounded theory,* Mill Valley, CA: The Sociology Press.

Herron, J. F., and Wright, V. H. (2006) 'Assessment in online learning: Are students really learning?', in Wright, H.V., Syzmanski Sunal, C., and Wilson, E. K. (ed.) *Research on enhancing the interactivity of online learning,* Greenwich, CT: Information Age Publishing.

Lichtman, M. (2006) *Qualitative research in education: A user's guide,* Thousand Oaks, CA: Sage Publications.

Liang, X., and Creasy, K. (2004) 'Classroom assessment in web-based instructional environment: Instructors' experience', [Online], *Practical Assessment, Research & Evaluation,* vol. 9, no. 7, Available: http://PAREonline.net/getvn.asp?v=9&n=7 [12 Nov 2006)

Macdonald, J. (2003) 'Assessing online collaborative learning: Process and product', *Computers & Education,* vol.40, no. 4, May, pp. 377-391.

McLoughlin, C., and Luca, J. (2002) 'A learner-centered approach to developing team skills through web-based learning and assessment', *British Journal of Educational Technology,* vol. 33, no. 5, 571-582.

Morgan, C., and O'Reilly, M. (2001) 'Innovations in online assessment', in Lockwood, F. and Gooley, A. (eds.) *Innovations in open & distance learning: Successful development of online and web-based learning,* London: Kogan Page.

National Center for Education Statistics (NCES) (2003) *Distance education at degree-granting postsecondary institutions: 2000-2001,*[Online], Available: http://nces.ed.gov/surveys/peqis/publications/2003017 [30 Oct 2006].

Norton, P., and Wiburg, K. M. (2003) *Teaching with technology: Designing opportunities to learn,* (2nd Edition), Belmont, CA: Wadsworth/Thomson Learning.

Reeves, R. (2000) 'Alternative approaches for online learning environments in higher education', *Journal of Educational Computing Research,* vol. 23, no. 1, pp. 101-111.

Robles, M., and Braathen, S. (2002) 'Online assessment techniques', *Delta Pi Epsilon Journal,* vol. 44, no. 1, Winter, pp. 39-49.

Rovai, A. P. (2001) 'Building and sustaining community in asynchronous learning networks', *The Internet and Higher Education*, vol. 3, no. 4, 4th Quarter, pp. 285-297.

Rowley, D. J., Lujan, H. D., and Dolence, M. G. (1998) *Strategic choices for the academy: How demand for lifelong learning will re-create higher education.* San Francisco, CA: Jossey Bass.

Sahin, I., and Thompson, A. (2006) 'Using Rogers' theory to interpret instructional computer use by COE faculty', *Journal of Research on Technology in Education*, vol. 39, no.1, Fall, pp. 81-95.

Speck, B. W. (2002) 'Learning-teaching-assessment paradigms and the online classroom', in Anderson, R. S., Bauer, J. F., and Speck, B. W. (ed.) *Assessment strategies for the on-line class: From theory to practice*. New Directions for Teaching and Learning, No. 91. San Francisco: Jossey-Bass.

Strauss, A., and Corbin, J. (1998) *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd Edition), Thousand Oaks, CA: Sage Publications.

Qing, L., and Akins, M. (2005) 'Sixteen myths about online teaching and learning: Don't believe everything you hear', *TechTrends,* vol. 49, no. 4, July, pp. 51-60.

Quality Matters. (2006) *Quality Matters Rubric Standards,* [Online], Quality Matters, Inter-Institutional Quality Assurance in Online Learning, Available: http://www.qualitymatters.org/Rubric.htm [26 Apr 2007].

Swan, K., Shen, J., and Hiltz, S. R. (2006) 'Assessment and collaboration in online learning', [Online], *Journal of Asynchronous Learning Networks,* vol. 10, no. 1, pp. 45-62, Available: http://www.aln.org/publications/jaln/v10n1/pdf/v10n1_5swan.pdf [28 Sep 2007].

Vonderwell, S. (2003) 'An examination of asynchronous communication experiences and perspectives of students in an online course: A case study', *Internet and Higher Education,* vol. 6, no. 1. 1st Quarter, pp. 77-90.

Vonderwell, S., Liang, X., and Alderman, K. (2007) 'Asynchronous discussions and assessment in online learning', *Journal of Research on Technology in Education,* vol. 39, no. 3, Spring, pp. 309-328.

Zhao, Y., and Frank, K. A. (2003) Factors affecting technology uses in schools: An ecological perspective. *American Educational Research Journal*, vol. 40, no. 4, pp. 807-840.