Assessment

If we wish to discover the truth about an educational system, we must look into its assessment procedures. (Rowntree, 1977, p. 1)

INTRODUCTION

The term assessment in higher education often conjures up different sentiments and emotions. From an instructor perspective, Ramsden (2003) states that assessment involves “getting to know our students and the quality of their learning” (p.180). Conversely, students in a recent study were asked to use one word to describe their perceptions of assessment (Vaughan, 2010b). The four most common words were: fear, stress, anxiety, and judgment. This disconnect between instructor and student perceptions regarding assessment is a serious issue, especially since a number of educational researchers have clearly linked student approaches to learning with the design and associated feedback of an assessment activity.
(Biggs, 1998; Hedberg & Corrent-Agostinho, 1999; Marton & Saljo, 1984; Ramsden, 2003; Thistlethwaite, 2006). For example, standardized tests with minimal feedback can lead to memorization and a surface approach to learning, while collaborative group projects can encourage dialogue, richer forms of feedback, and deeper modes of learning (Entwistle, 2000). The purpose of this chapter is to demonstrate how the Community of Inquiry (CoI) framework can be applied to blended learning environments in order to create meaningful assessment activities for students in higher education.

**PRINCIPLES OF ASSESSMENT**

Over time, there has been an increased emphasis on formative assessment practices (Gorsky, Caspi, & Trumper, 2006; Gibbs & Simpson 2004, Gibbs, 2006; and American Association of Higher Education and Accreditation, 1996). Pask’s (1976) Conversation Theory of Learning suggests that learning takes place through our intrapersonal (inner voice) and interpersonal (external voice with others) conversations and that formative assessment practices help to shape and regulate this dialogue in higher education courses. Nicol and Macfarlane-Dick (2006) have developed the following seven principles of good assessment feedback based on the work of Pask:

Good feedback:
1. helps to clarify what good performance is (goals, criteria, standards)
2. facilitates the development of self-assessment and reflection in learning
3. delivers high quality information to students about their learning
4. encourages teacher and peer dialogue around learning
5. encourages positive motivational beliefs and self-esteem

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6. provides opportunities to close the gap between current and desired performance
7. provides information to instructors that can be used to help shape teaching

These assessment principles clearly align with the concept of an educational community of inquiry, which is “composed of a group of individuals who collaboratively engage in purposeful critical discourse and reflection to construct personal meaning and confirm mutual understanding” (Garrison, 2011, p. 15). When such a community takes place in a blended learning environment there are a variety of opportunities for self-, peer-, and instructor-assessment feedback.

**SELF-ASSESSMENT**

Alverno College (2006) defines *self-assessment* feedback as “the ability of students to observe, analyze, and judge their own performances on the basis of criteria and to determine how they can improve” (p.1). Akyol and Garrison (2011a) have recently demonstrated how this notion of self-regulated learning or metacognition “in a community of inquiry is a collaborative process where internal and external conditions are being constantly assessed” (p. 184). In addition, they have described three dimensions of metacognition, which involve the knowledge, monitoring, and regulation of cognition. The knowledge of cognition refers to awareness of self as a learner and includes entering knowledge and motivation associated with the inquiry process, academic discipline, and expectancies. The monitoring of cognition dimension implies the awareness and willingness to reflect upon the learning process. And, the regulation of metacognition focuses on the action dimension of the learning experience, which involves the employment of strategies to achieve meaningful learning outcomes.
Self-assessment activities that utilize rubrics and online journals can be used to support this metacognitive process in a blended learning environment.

RUBRICS

The Teaching, Learning, and Technology (TLT) Group (2011) define rubric as “an explicit set of criteria used for assessing a particular type of work or performance. A rubric usually also includes levels of potential achievement for each criterion, and sometimes also includes work or performance samples that typify each of those levels” (n.p.). In a blended community of inquiry, rubrics can be useful for clarifying assignment and assessment expectations only when students are actively involved in their co-construction. Students in a pre-service teacher education course indicated that without student involvement rubrics “can become simple checklists, a way to make sure that you’ve covered everything the teacher wants for the assignment rather than what you really wanted to do and learn” (Vaughan, 2010b, p. 11). Unfortunately, this comment suggests that without student involvement rubrics have the potential to support a surface rather than a deep approach to learning.

Several types of digital technologies can be used to support the co-construction of assessment rubrics in a community of inquiry. These include applications such as Rubistar (http://rubistar.4teachers.org/index.php), Teachnology (http://www.teachnology.com/web_tools/rubrics/), and Google Drive (https://drive.google.com/). An example of a co-constructed assessment rubric for a lesson plan assignment is illustrated in Figure 5.1.

In addition, students should be provided with the opportunity to practice applying the co-constructed rubric to student work completed in previous course sections, and in order to take ownership for the rubric they should be provided with the ability to add one unique grading component or criteria (e.g., creativity).
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Digital technologies can be also be used in a blended environment to provide a variety of options for students to assess themselves. For example, students can use Audacity (http://audacity.sourceforge.net/), an open-source audio tool, to create self-assessment narrations of how they achieved the various learning outcomes outlined in the rubric. The use of self-assessment audio feedback can be a powerful way for students to internalize their learning (Ice, Curtis, Phillips, & Wells, 2007).

**FIGURE 5.1.** Co-constructed assessment rubric for a lesson plan assignment (http://tinyurl.com/lessonplanrubric)

<table>
<thead>
<tr>
<th>Component</th>
<th>Beginning</th>
<th>Developing</th>
<th>Accomplished</th>
<th>Self-Assessment Comments</th>
<th>Peer Comments</th>
<th>Teacher Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer Review</td>
<td>0.25 points</td>
<td>0.5 points</td>
<td>1.0 points</td>
<td>Substantive and reflective comments about what you learned from reviewing another student’s lesson plan, what you liked about the plan, and suggestions for improving the document.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self/Reflection</td>
<td>0.25 points</td>
<td>0.5 points</td>
<td>1.0 points</td>
<td>Completed self-reflection scoring of the lesson plan assignment with substantive comments for each component</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subject/Age Appropriateness</td>
<td>0 points</td>
<td>0.5 points</td>
<td>1.0 points</td>
<td>There is a clear connection to an Alberta Education subject area and the content of the lesson is age appropriate (i.e., Division 1, 2, 3 or 4).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resources</td>
<td>0 points</td>
<td>0.5 points</td>
<td>1.0 point</td>
<td>There is a fully developed list of resources required to complete the lesson plan including Web sites and URLs, computer hardware and software requirements.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


digital technologies can also be used in a blended environment to provide a variety of options for students to assess themselves. for example, students can use audacity (http://audacity.sourceforge.net/), an open-source audio tool, to create self-assessment narrations of how they achieved the various learning outcomes outlined in the rubric. the use of self-assessment audio feedback can be a powerful way for students to internalize their learning (ice, curtis, phillips, & wells, 2007).
**ONLINE JOURNALS**

Students in professional programs such as teacher education and nursing are often required to maintain either a course or program journal. Online blogging tools such as WordPress (http://wordpress.org/) and Google’s Blogger (www.blogger.com/) are commonly being used to support this type of self-assessment activity. Figure 5.2 provides an example of a student’s online journal posting about a lesson plan assignment.

![Lesson Plan Assignment-Reflections](image)

*Figure 5.2.* Example of an online journal posting with guiding questions

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Students in a teacher education program suggested that online journals can be useful for self-reflection but, as one wrote, too often they can become a “boring and repetitive activity when I am simply being asked to reply to a set of teacher directed questions. Usually, I just post what I think the teacher wants to hear not what I’m really thinking” (Vaughan, 2010b, p. 12). Again, without student involvement, this type of self-assessment activity can reinforce a surface rather than a deep approach to learning.

In a blended community of inquiry, students should be provided with a high degree of control over their online journal postings in order for them to discuss and develop their own metacognitive strategies. This can be achieved by designing online journal assignments focused on process-orientated postings that lead to a final product such as an end of the semester self-reflection paper. This paper can then be assessed by the instructor using a rubric that has been co-constructed with the students in a digital format such as Google Drive.

**PEER ASSESSMENT**

The Foundation Coalition (2002) indicates, “Peer assessment allows students to assess other students (their peers) in a course. Peer assessment can also provide data that might be used in assigning individual grades for team assignments” (p. 1). The French moralist and essayist Joubert (1842) is attributed with the quote: “To teach is to learn twice,” and in an effective community of inquiry all participants are both learners and teachers. The term teaching presence, rather than teacher presence, implies that everyone in the community is responsible for providing input on the design, facilitation, and direction of the teaching process.

In a blended community of inquiry, one of the biggest challenges of peer assessment activities can be finding a convenient place and time for all students to meet outside of the classroom. Digital technologies can be used to overcome this barrier, beginning with the
group areas in learning management systems such as Blackboard. These group areas can be used to communicate and share documents about the peer assessment process for individual and group projects. They usually consist of asynchronous (e.g., e-mail and discussion board) and synchronous (e.g., chat) communication tools, along with a file exchange function.

Collaborative writing tools such as Google Drive can also be used to provide meaningful peer review feedback on written assignments (Figure 5.3). This application allows students to control who has commenting and editing privileges for their documents.

![Garbage Lesson Plan](image)

**Resources**
- Computers with Internet access for the use of google docs in order to create a spreadsheet and the world wide web for relevant student research
- Projection screen and projector hooked-up with a computer so the whole class can watch a YouTube video and later see the results of the garbage audit
- Handout for recording data from the garbage audit
- Scales for weighing garbage (one per group - 0.4 - 0.5)
- A few extra garbage bins or bags to sort garbage
- Digital Camera to record what we find

**Bridge:**
- Watch one of the following YouTube videos:
  - Why Recycle 101? (2:26) [http://www.youtube.com/watch?v=OstDI2kEjFw](http://www.youtube.com/watch?v=OstDI2kEjFw)
  - Trash Problem USA (1:19) [http://www.youtube.com/watch?v=5W1QGEGKRX8&feature=related](http://www.youtube.com/watch?v=5W1QGEGKRX8&feature=related)
- Ask students what they have thrown out/recycled today? yesterday?

**FIGURE 5.3.** Example peer review comments for a writing assignment in Google Drive

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In addition, online journal applications such as Blogger can be used to provide peer review feedback on individual project work (Figure 5.4).

![Web-based Peer Review Feedback](image)

**FIGURE 5.4.** Peer review of individual project work using Google’s Blogger application

Additionally, wiki tools such as Wikispaces can be used to co-create and critique online discussion summaries (Figure 5.5). The history files of a wiki summary clearly demonstrate the contribution and critique that was made by each member of the group.
Digital tools such as the University of California at Los Angeles’ Calibrated Peer Review (CPR) (http://cpr.molsci.ucla.edu/) have also been developed to help students learn how to provide constructive feedback to their peers in a community of inquiry.

Within classroom settings, personal response systems (e.g., clickers) can be used to support a form of peer instruction (Crouch & Mazur, 2001). The process begins with the teacher posing a question or problem. The students initially work individually toward a solution and vote on what they believe is the correct answer by selecting the desired numbered or lettered response on their clicker.
The results are then projected for the entire class to view. For a good question, there is usually a broad range of responses. Students are then required to compare and discuss their solutions with the person next to them in the classroom in order to come to a consensus. Another vote is taken but this time only one response or clicker per group can be utilized. In most circumstances, the range of responses decreases and usually centers on the correct answer. As an alternative to this process in a community of inquiry, the instructor can provide groups of students with opportunities to generate the quiz questions in advance of the classroom session.

While digital technologies can provide students with increased flexibility and communication opportunities to complete peer assessment activities, outside of the classroom several additional concerns have been expressed. First, students often lack previous experience with peer assessment; they strongly recommend that in a community of inquiry instructors should “provide guidance and a class orientation on how to give each other meaningful feedback and that there should be opportunities for both written and oral peer feedback” (Vaughan, 2010b, p. 18). In a blended learning environment, these students also suggest that instructors should “provide class time to begin and conclude peer assessment activities in order to build trust and accountability for the peer assessment process” (Vaughan, 2010b, p. 19).

**INSTRUCTOR ASSESSMENT**

Instructor assessment practices in higher education are often limited to high-stakes summative assessment activities such as midterm and final examinations (Boud, 2000). The role of an instructor in a community of inquiry is to provide ongoing and meaningful assessment feedback in order to help students develop the necessary metacognitive skills and strategies to take responsibility for their own learning.
In a blended environment, an instructor can use a variety of digital technologies to provide diagnostic, formative, and summative assessment to students in a community of inquiry. For example, instructors can use collaborative writing tools to provide formative assessment feedback at checkpoints or milestones for individual or group projects (Figure 5.6). This allows students to receive instructor feedback throughout the process of constructing the project rather than just focusing on summative assessment feedback for the final product.

**Darren’s Lesson Plan**

**Lesson title:**
- Golf/Phys-Ed/Grade 10-12 Div 4
- 1 hour 20 minutes

**Resources**
- Laptops with internet access per every 2 students
- Video Camera per every 2 students
- Golf Clubs
- Wiffle balls
- Gym
- http://www.youtube.com/watch?v=mE5DTgMck0U

**Bridge:**
Watch Youtube video of Tiger Woods taking a golf swing in slow motion (Youtube search slow motion golf swing- will be first to appear) 1-2 minutes. http://www.youtube.com/watch?v=mE5DTgMck0U Be sure to also put this web site in your resource section. -Norm Vaughan 1/24/10 11:02 PM

**Learning outcomes:**
- This lesson will allow students to identify the areas of their golf swing that needs improvement.
- P3 4.1 and 4.2 You also need to write out the text for this Alberta ICT Learning Outcome :) -Norm Vaughan 1/24/10 11:02 PM

**Figure 5.6.** Example of using Google Drive to provide instructor formative assessment feedback comments
Instructors in a blended community of inquiry are also encouraged to take a portfolio approach to assessment. This involves students receiving a second chance or opportunity for summative assessment on their course assignments. For example, students initially submit and receive instructor assessment for each of the required course assignments. Throughout the semester, students then have the opportunity to revise these assignments based on the initial instructor feedback and to post them to their course or program portfolios for final summative assessment by the instructor. A range of e-Portfolio tools can support this process, ranging from the LiveText commercial application (https://www.livetext.com/) to the free Google Sites tool (http://sites.google.com/).

In addition, digital technologies can be used to support external expert assessment opportunities. For example, students can publicly share critiques of academic articles by using blogging tools such as WordPress and Blogger. The authors of these articles can then be invited to post comments about these critiques to the students’ blogs. Blogging applications will be described in more detail in chapter 6.

External experts can also provide assessment feedback on individual or group presentations through the use of web-based video technologies. These types of presentations can be video recorded and either streamed live (e.g., Livestream at http://www.livestream.com/) or posted to a video-sharing site such as YouTube (http://www.youtube.com/). The external experts can then provide assessment feedback in either synchronous (e.g., real-time audio) or asynchronous formats (e.g., online discussion forums) to the students.

In terms of strategies, students in the teacher education program study suggested that instructors should “focus on providing students with ongoing formative assessment feedback rather than on just summative midterm and final examination comments” (Vaughan, 2010b, p. 22). They also recommended that instructors should strive to “provide oral feedback in addition to their written assessment
feedback. For example, instructors could request that students meet with them during office hour sessions to orally debrief about assignments” (Vaughan, 2010b, p. 22). Finally, these students emphasized, “Let us provide instructors with more feedback on their assignments and teaching practice throughout the semester, not just at the end — assessment should be a two-way conversation between students and instructors” (Vaughan, 2010b, p. 22).

CONCLUSION

Self, peer, and instructor assessment should be an integrated process in a blended community of inquiry, rather than a series of isolated events, in order to help students develop their own metacognitive skills and strategies. For example, a student in the teacher education study commented, “I used the self-reflection for checking my work and making sure I had everything I needed. I used peer review for a different perspective on my work, and I used instructor feedback to understand how I could improve my work” (Vaughan, 2010b, p. 23). Another student in the same study stated, “Self-reflection showed me what I liked about my work and what needed to be improved, peer feedback gave comments on what could be done better and then instructor feedback gave ideas on how the assignment could be fixed up to get a better mark” (Vaughan, 2010b, p. 23).

In addition, these students stressed how a blended Community of Inquiry framework supported by digital technologies helped them integrate these three forms of assessment into a triad approach (Figure 5.7).

This triad-approach involves students using rubrics, blogs, and online quizzes to provide themselves with self-reflection and feedback on their course assignments. They can then receive further peer feedback on their course work via the use of digital technologies such wikis, clickers, and other peer review tools. Finally, instructors and in some cases external experts can review students’ ePortfolios.
and use digital video technologies to observe student performance, diagnose student misconceptions, and provide additional assessment feedback.

Figure 5.7. Using digital technologies to support a triad approach to assessment in a blended community of inquiry

An international call for a greater focus on assessment for learning, rather than on assessment for just measurement and accountability of student performance, is well documented in the educational research literature (Yeh, 2009). The use of digital technologies to support student assessment in a blended community of inquiry may lead to Hattie’s (2009) vision of a visible teaching and learning framework where “teachers SEE learning through the eyes of their students and students SEE themselves as their own teachers” (p. 238).