The Selection of Synchronous and Asynchronous Communication Tools for MOODLE

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Introduction

The Modular Object Oriented Dynamic Learning Environment (MOODLE) learning management system (LMS) was selected to enhance a grade four face-to-face classroom environment for the subject of science. The blended learning approach is based on a 50% mix of face-to-face and e-learning in MOODLE, level two of the eMatrix developed by The Manukau Institute of Technology (Kelly, 2007). Level two requires a change in delivery mode where the degree of blended course delivery is between 50%-80% (Kelly, 2007). Thirty percent of the class population are English Language Learners with three years of English immersion education. The class size is currently fifteen students for September, 2009 enrolment. The MOODLE environment will be accessed twice a week in the school’s computer lab as part of the scheduled curriculum, but students will be strongly encouraged to access the class MOODLE outside of classroom hours.

The proposed MOODLE’s educational design is founded in social constructivist principles and problem based learning (PBL) in addition to Anderson’s (2008) theory in his *Toward a Theory of Online Learning*. Social constructivism argues knowledge and meaning are created from experience and interactions with others. PBL, which I feel complements social constructivism, is an active learning approach where students solve complex, ill-structured problems to stimulate their learning (Kenny, 2007). Students work collaboratively to understand the problem and construct solutions by connecting concepts from other disciples (Kenny, 2007; Lombardi, 2007).

In *Teaching in an Online Learning Context*, Anderson (2008) references the work of Garrison, Anderson and Archer (2000) to argue an effective online learning community requires
a cognitive presence, social presence and teaching presence. Cognitive presence refers to support of critical thinking skills for serious learning to occur (Garrison et al., 2000). Social presence refers to the creation of a supportive environment to facilitate collaboration amongst students (Garrison et al., 2000). Teaching presence refers to building curriculum using activities appropriate to objective, facilitating discourse, assessment and direct instruction (Garrison et al., 2000).

I believe the educational design foundations of the proposed MOODLE share the requirement of needing a strong learning community, or knowledge-building community (KBC) as proposed by Scardamalia & Bereiter (1999), in order to support Anderson’s (2008) theory of “learning centered” e-learning. Scardamalia and Bereiter (1994) consider a school as a KBC when members produce knowledge objects to be discussed and tested without judgement and where the role of the student is both producing and improving objects. Fundamental to the learning community is the use of technology to provide a facilitative infrastructure (Scardamalia & Bereiter, 1994). Perkins and Paffman (2006) suggest that MOODLE facilitates communication between students, teachers and parents, which strengthened their learning community. Discourse helps build learning communities, is essential for a PBL environment, facilitates the development of learners’ though processes and facilitates idea articulation (Anderson, 2008; Kenny, 2007). An LMS can foster community development and its communication tools play an important role (Bates, 2000; Schwier & Dykes, 2007).

Communication Tools
With the goal of building a blended-delivery learning community in mind, the selection of asynchronous and synchronous communication tools has been guided by Chickering and Gamson’s (1987) *Seven Principles for Good Practice in Undergraduate Education*, Chickering and Ehrmann’s (1996) *Implementing the Seven Principles: Technology as Lever* and Bates and Poole’s (2003) SECTIONS framework. The selected communication tools have been framed by Anderson’s (2008) theory of online learning. Analysis of each tool is based on educational application, potential limitations and practical effectiveness. Synchronous communication tools require simultaneous participation between participating members, but asynchronous tools allow for a delay in time (Johnson, 2006). Two asynchronous tools (blog and discussion forums) and a synchronous tool (chat) were selected. I prefer to work with communication tools that are available within the MOODLE LMS due to my current level of familiarity with MOODLE.

**MOODLE Chat**

Chat is a synchronous communication tool within the MOODLE LMS that functions as a text-based, simultaneous conversation. Synchronous chat supports Chickering & Ehrmann’s (1996) principles of student-faculty cooperation, student-student cooperation and utilization of active learning techniques. The advantages of synchronous communication are immediacy, efficiency, convenience, partnership development, planning and mentoring (Murphy & Laferriere, 2007). Synchronous tools engage students in active learning by facilitating peer-to-peer contact, reciprocity and cooperation between students (Chickering & Ehrmann, 1996; Murphy & Laferriere, 2007). Chat functions help students and the teacher develop a social presence as they establish trust in the learning community (Anderson, 2008). Facilitating a
teacher presence through chat will me satisfy the National Educational Technology Standards for Teachers (NETS) requirement of establishing a relationship of approachability and providing an opportunity to model appropriate behaviours and digital responsibility (NETS, 2008). The chat function has been tested and is found to be accessible, reliable and its functionality satisfies the “ease of use” requirement of SECTIONS (Bates & Pooles, 2003). A class discussion is possible, as well group or individual discussion formats. In addition, chat is available only for members of the course to adhere to the “students” requirement in SECTIONS, which stresses technology appropriateness. Students will not be able to chat outside of the learning community to safely learn the technical skill.

The practical effectiveness of chat is its ability to provide instant feedback from peers in class, to hold discussions in real time with virtual class guests or to hold a virtual group meeting (Cooch, 2009). Chat enables students to clarify their ideas and directions as they work through authentic problems together. Chat can help groups remain on-task as they organize their collaboration efforts. MOODLE chat options for the instructor include naming a chat room to clarify the topic, creating an introduction text to facilitate discussion, a “next chat time” option to select the next open room time, save past sessions option to record conversations and the option to allow students to view past sessions (Cooch, 2009). Chat activities in the science unit are designed for PBL overall, but the introductory activity is focused on the building of trust and community.

Limitations in synchronous communication include lack of comfort with the technology, coherence of chat conversations, posting of unsubstantial comments and boredom with text
interface resulting in lowered cognitive and social presence (Cooch, 2009; Garrison et al., 2000; Murphy & LaFerrriere, 2007). MOODLE chat can be monitored by the instructor, but this demands a great deal of time away from students who may need face-to-face support in the proposed blended environment. To overcome the barriers of unsubstantial commenting and ineffective monitoring, students will be scaffolded to eventually “lead” chats. They will also be required to post a self-reflective summary of chat discussions, an activity consistent with a PBL environment and the development of student-content interactions (Anderson, 2008; Kenny, 2007).

A further challenge of chat relates to students who are English Language Learners (ELL). In an LMS environment, international ELL students preferred asynchronous communication tools (Bates, 2000). Synchronous chat may intimidate due to the speed of exchanges and required reading and typing skills. To overcome this barrier, students will be provided with chat topics one week prior to any required chat activity to provide preparation opportunities. ELL students will be closely monitored during the MOODLE classes. ELL students will be encouraged to use word processing skills to cut and paste prepared materials to help build their confidence using chat. Personally, I have used chat and found it to be effective when the discussion topic has been given in advance.

MOODLE Discussion Forums

The major advantage of asynchronous communication tools is they provide time for students to reflect on and engage in complex learning. Discussion forums are a popular asynchronous tool for several reasons. Student collaboration through forums promotes the
principle of faculty-student, student-content and student-student contact, the key components of Anderson’s (2008) community of inquiry. In the proposed MOODLE, students know each other, but discussions can facilitate inquiry through discourse to reflect Garrison and Anderson’s (2000) teaching and cognitive presence (Wozniak, 2007). Discussion forums are used for collaboration, to help students negotiate how they will work together (Palloff & Pratt, 2005). It is my opinion that this communication tool satisfies the “teaching and learning” component of Bates & Poole’s (2003) SECTIONS and my discussion forums are designed to support inquiry, collaborative learning and authentic problem solving.

The initial practical application of discussion forums is in creating a community from the first MOODLE activity, the “icebreaker”. The icebreaker is designed as an introductory activity to welcome students to the environment by asking them to introduce themselves, thus creating a social presence (Garrison, Anderson & Archer, 2000). I have successfully posted to this forum to model digital-age learning, as suggested by NETS (2008), and to establish a teacher-presence and personalized tone for the course (Garrison et al., 2000). It is suggested by Woziak (2007) that the role of the instructor in influencing student participation in asynchronous activities is essential in promoting student-student interaction.

MOODLE discussion forum options include “single simple” discussions (one question for students to answer), “standard forums” (everyone can start a new topic), “Q & A” (students must answer before they can view replies) and “1-person-1-post”, where students can post one new topic only (Cooch, 2009). Discussions in MOODLE are archived and students can return to threads to review how ideas formulated or to make connections between different concepts.
Forum moderation is an available option, and enables instructors to delete posts, reply to posts or edit posts (Cooch, 2009). Future activities will require students to work through issues together in a PBL approach, and I will moderate discussions. Due to MOODLE’s options, I intend to develop a variety of forums, and have groups of students lead discussions in time.

Teacher presence, demands on the teacher’s time, the volume of discussions, lack of valuable contributions and motivation can be limitations to discussion (Anderson, 2004; Bates, 2000; Rourke & Anderson, 2001). Familiarity with MOODLE’s discussion options will help me manage the volume of posts and new threads. My educational design includes modelling discussion forum etiquette and the introduction of student-led discussions. In this design, I satisfy the NETS (2008) requirements of facilitating and inspiring student learning, modelling collaborative knowledge construction and modelling digital responsibility.

Student-led discussions foster cooperation, reciprocity resulting in an enjoyable learning experience among students and engage students in constructive learning (Chickering & Ehrmann, 1996; Rourke & Anderson, 2001). However, Rourke & Anderson (2001) also found peer-led discussions rarely facilitate cognitive dissonance and consequently students are not forced to construct a higher form of reasoning. If this issue arises and students report frustration or a lack of motivation, I will offer challenging yet appropriate directions for discussions as a form of moderation. ELL students who feel intimidated by discussions will be encouraged to prepare posts for selected discussion topics ahead of time. I intend for discussions to take the pressure off of the teacher and provide students with an opportunity “take charge” in the learning community (Palloff & Pratt, 2005).
MOODLE Blog

Blogs have proven themselves as an effective tool in education for all students, including ELL students (Ferdig & Trammell, 2004; Wu, 2005; Wu, 2006). Blogs function like journals and provide students with a space for self-expression, reflection and creativity (Ferdig & Trammell, 2004; Huffaker, 2005). To satisfy Chickering & Ehrmann’s (1996) principle of utilizing active learning techniques, a blog can be used as a space for individual student reflection, and students can read, follow and comment on the blogs of their peers. As an asynchronous tool, blogs support the principles of respecting diverse talents and ways of learning because students are provided with their own creative space within the learning environment (Chickering & Ehrmann; Huffaker, 2005). In addition, the comment feature on blogs and the ability to subscribe to Real Simple Syndication (RSS) feeds for blogs promote peer feedback and collaborative exchange (Ferdig & Trammell, 2004).

The MOODLE blog functions as a reflective space for students in the proposed design. Being asynchronous, it affords students time to compose ideas and make connections. Practical use of the blog function will involve activities focused on reflection of materials by posting comments and personal feedback. MOODLE blogs include “tags”, so students can connect posts or search the posts of others (Cooch, 2009). Practical use of this tool will include searching peers’ blogs for related themes. SECTIONS “ease of use” and “teaching and learning” are supported through a “What You See Is What You Get” (WYSIWYG) editor in MOODLE, the ability to post images and to post additional references. A final important practical point is the teacher can see student reflections and use the blog to help assess growth in learning.
Limitations to the MOODLE blog are minimal in the proposed environment. Privacy is my main concern because blogs are visible through students’ profiles within MOODLE. MOODLE assigns blogs to the user, not the course, and blogs can be accessed through the student’s profile (Cooch, 2009). To overcome this, students will be informed of this limitation and a traditional journal can be used if requested. Other concerns include motivating students to post to their blog, providing support for ELL students and establishing blog etiquette. However, with the creation of a strong community and promotion by the teacher through reminders and blog comments, students should feel responsible for maximizing their participation (Palloff & Pratt, 2005). Blog etiquette is a concern, but I will establish proper etiquette and guidelines in the syllabus and model them with my own MOODLE blog. Related to ELL student barriers, blogs use in ELL classrooms has been researched and it has been found that student confidence using and communicating in English increases with blogging (Wu, 2005, 2006). Again, being an asynchronous tool, ELL students could create posts in a word processing program as homework and post to MOODLE at a later date. Finally, the MOODLE LMS can be accessed from home if students need extra time to post.

Conclusion

For a community of inquiry to function in a blended learning environment, access to content must be balanced with communication and interaction tools (Anderson, 2008). The proposed MOODLE will incorporate asynchronous and synchronous communication tools to provide a balance in instructor, cognitive and social presence through the facilitation of interactions between student-student, student-teacher and student-content. Blogs, discussion
forums and chat tools provide the student and the instructor with a variety of communication opportunities within the LMS to construct knowledge in a PBL environment. Previous research has shown an LMS course can facilitate community development and its communication tools play an important role in supporting interactions (Anderson, 2008; Bates, 2000; Kelly, 2007; Schwier & Dykes, 2007).
References


http://www.aupress.ca/books/120146/ebook/14_Anderson_2008_Anderson-Online_Learning.pdf


http://www.aupress.ca/books/120146/ebook/14_Anderson_2008_Anderson-DeliveryQualitySupport.pdf


