October 10, 2010

Attention:

District Coordinator, Curriculum and Technology

School District 00

***Proposal for a blended delivery model for a Chemistry 12 course***

I am a teacher of Chemistry 12 in this school district, a course in accordance with the prescribed learning outcomes from the British Columbia (BC) Ministry of Education, covering all content described in the Chemistry 12 (CH12) Integrated Resource Package (IRP) (2006). I would like to evolve my course instruction towards a blended model, where online content and interactivity can take place alongside face-to-face instruction and in class activities.

***LMS to achieve blended delivery***

This proposal submission is in request of the use of a Learning Management System (LMS) Platform to support learning. Literature suggests that a blended model would allow for more effective learning and greater success for my Chemistry students. Deng & Zhang (2007), in their study on the effectiveness of multimedia in the classroom, point to the benefits of active learning, enhanced collaboration, increased motivation and self-esteem, and the value of self-paced, interactive, exploratory, individualized learning. This can effectively be achieved with the use of a LMS in conjunction with my face-to-face Chemistry classes. It has been noted, “a combination of both face-to-face and online discussion seems to be most beneficial to students” (Guiller et al., 2008, p. 198). In this same study, the importance of utilizing online discussions in collaborative tasks that require critical thinking skills is emphasized (Guiller et al., 2008). Chemistry 12 requires critical thinking skills and opportunities for collaboration in order for meaningful transfer of learning to occur.

***Improved learning through technology supported in Ministry Documents***

The Chemistry 12 IRP (2006) states, “When planning for instruction and assessment in Chemistry 11 and 12, teachers should provide opportunities for students to develop literacy in relation to information and communications technology sources, and to reflect critically on the role of these technologies in society” (p. 10). Utilizing a LMS platform for the delivery and interactivity of my CH 12 course would effectively address this aspect of the IRP. Anderson and Elloumi (2008) stress that teachers must learn to develop their skills so that they can respond to student and curriculum needs by developing a repertoire of online learning activities that are adaptable to the diverse needs of the classroom.

***LMS Platform Choice***

My proposed choice of LMS Platform for this implementation is the Modular Object-Oriented Dynamic Learning Environment, aptly referred to as “Moodle”. It is described as a free and open source LMS developed to help educators focus on interaction and collaboration (<http://moodle.org/>). Moodle’s design excels in flexibility, allowing teachers to “choose many or only a few of its features” (Perkins and Pfaffman, 2006, p. 36). Features such as assignments, chats, forums, quizzes, lessons, wiki pages and workshop modules, are among the range of options that will allow this LMS platform to evolve as needed, to be most supportive of the classroom activities and students enrolled in Chemistry during each school year.

**Assessment criteria for the chosen LMS Platform**

Using the Bates and Poole SECTIONS Framework for Selecting and Using Technology (2003) is most appropriate for the choice of LMS in this context, as this framework explores the pertinent issues that apply to this context, such as:

* the students that this technology will serve,
* the ease of use, reliability and speed of mounting and using this technology,
* the kinds of teaching, learning and interactivity that this technology addresses,
* the cost of implementation,
* and the organizational issues around supporting and using this technology.

I have addressed these topics in the following paragraphs.

***Teaching and Learning – Appropriate LMS for CH 12 classroom***

Anderson & Elloumi (2008) suggest that online resources provide greater opportunities for learners to make connections with information to build knowledge. The collaborative nature of Moodle allows students to actively engage with the content, other students, and the teacher, by providing opportunities to take part in discussions that occur outside of the classroom. Calvani, Fini, Molino, & Ranieri (2010), are the members of a research team that developed Forum Plus, also named Discussion module for the Moodle platform. This enhanced feature allowed teachers to “obtain indicators to monitor the effectiveness of the dialogical interactions” (Calvani et al., 2010, p. 216). Being able to monitor its effectiveness in my practice is an attractive feature of this LMS.

***Ease of use, reliability and speed***

Moodle affords teachers and learners the ability to create and update course content without aide of programmers or designers, allowing educators to retain control over their educational content while having the openness and freedom to vary instructional delivery (Anderson & Elloumi, 2008).

**Resources needed to bring the Moodle Server online:**

***Technology and Support***

Moodle comes with installers for Mac OS X and Windows that include the web server (Apache) and database (MySQL) applications that it is built on top of (Perkins & Pfaffman, 2006). Moodle is easy to install. Since Moodle has to be accessible at all times, it will require cooperation and help from those who manage the school’s network .

***Cost of implementation***

Moodle is available to download for free at <http://moodle.org>, although some documentation suggests that it could cost $100/year for a class or $1000 / year for an entire school or district (Perkins & Pfaffman, 2006). The low to no-cost aspect of this LMS is the most compelling reason to allow its implementation, considering its limitless applications. Expansion from the current use of Moodle in continuing education to use in face-to-face classrooms in this district would require no additional set-up and very little, if any, technological maintenance or cost.

**Conclusion: Why choose Moodle**

Other systems such as Desire2Learn and Blackboard have similar offerings, however the set up of a Moodle course shell is easy in comparison, even for beginning users of technology. Given the flexible design, low technological support required, and essentially cost free start-up, it is clear that the benefits to all teachers and students enrolled would be well worth the commitment to implementation of Moodle in this district.

**APPENDIX**

**A Preview of the startup of my CH 12 Moodle Course Platform can be found at:**

<http://moodle.met.ubc.ca/course/view.php?id=190>

**To view other Moodle course shells implemented by this teacher, please visit:**

<http://www.mrblaskovits.com/moodle/>

*Click on Science 9*

*In an effort to safequard editing of this site, please email this letter’s author for username and password access.*

**CH 12 Course Content as prescribed by the BC Ministry of Education:**

**Module 1 Reaction Kinetics**

Estimated time 14-16 hours

**Module 2 Dynamic Equilibrium**

Estimated time 14-16 hours

**Module 3 Solubility Equilibria**

Estimated time 14-16 hours

**Module 4 *Unit 1* Nature of Acids and Bases**

Estimated time 7-10 hours

**Module 4 *Unit 2* Acids and Bases: Quantitative Problem Solving**

Estimated time 8-12 hours

**Module 4 *Unit 3* Applications of Acid-Base Reactions**

Estimated time 11-14 hours

**Module 5 *Unit 1* Oxidation-Reduction**

Estimated time 12-13 hours

**Module 5 *Unit 2* Applications of Redox Reactions**

Estimated time 10-13 hours

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