Lorraine Devereaux, Gerry White, Ron Collins, Kirk Farrell, and Jeff Piercey
Memorial University of Newfoundland

Bridging the Gap Between Higher Education Teaching and Learning: A Problem-based Perspective Generates Creative Results

Abstract

Three students from the Education 6300 Teaching and Learning Intersession, 2006 class collaborated with their instructor and her colleague to illustrate the quality work that is reflective of Memorial University of Newfoundland Faculty of Education and graduate students. Through a problem-based pedagogical format, these students were challenged to revamp the Bachelor of Education Degree at a fictional university. In response, they developed a technologically astute interactive presentation with PowerPoint slides, a web site, and a promotional video. Visual, auditory, and activity-based components attempt to blur the line between teaching and learning in higher education.

Introduction

In an age when teaching responsibility and accountability for delivering appropriate learning experiences to post-secondary students is high, preparing effective educators is of paramount importance. In reform-minded higher education settings, improving the quality of teacher education programs has high priority (Hammett & Collins, 2002; Kumar & Natarajan, 2007). Lui and Qi (2006) suggest that, “the way teachers are trained and prepared can significantly affect how they teach in the classroom, and the education children receive would shape how they work, live and interact with people from different backgrounds” (p. 24). Wildman (2007) referring to the work of Bok (2006) calls attention to “an overwhelmingly conservative bias in instructional methodology, with upward to 70 or 80 percent of faculty members continuing to rely on the lecture or some close variation as the mainstay of their teaching” (p. 23). And Poplin and Riviera (2005) advise that, “we must accept that the university has been as much a part of the system of education that has created achievement gaps as any
other group, perhaps more so, and we must be radically prepared to try new things to change it” (p. 35).

Lindblom-Ylänne; Trigwell, Nevgi and Ashwin (2006) recommend that, “one way of improving student learning is to support teachers in developing more student-centred approaches to teaching” (p. 295). They explain that teaching can be teacher-centered wherein teaching is viewed as “the transmission of knowledge” (p. 285) or, it can be student-centered whereby teaching is seen as facilitating student learning, and the focus is on having students construct their own understandings and knowledge. This student-centered or constructivist approach utilizes an instructional design that is activity based with multimedia strategies that cater to individual learning styles in which “both educators and learners function as active partners” (Kumar & Natarajan, 2007, p. 90) in the learning process.

This new educational paradigm moves away from the didactic lecture-based mode of instruction toward a goal of enhancing the ways students “think and augment knowledge building within authentic problem-solving contexts” (Kumar & Natarajan, 2007, p. 89). Davis, Sumara and Luce-Kapler (2000) suggest that constructivism “focuses on issues of individual cognition” and there is a “shift in thinking about thinking” (p. 65). Underpinned by the constructivist philosophy, learner-centred or “problem-based” inquiry caters to students’ diverse learning needs and expectations (Kumar & Natarajan, 2007; Oliver, 2007). In problem-based learning, students take primary responsibility for self-directed learning. Motivation to learn comes from this empowerment coupled with participation in a socially interactive activity of experiential dialogue and reflection with other people; what one discovers as a result of this process acts as the driving force for the learner to continue with his/her investigation (Barr & Tagg, 1997). Dalsgaard and Godsk (2007) indicate that by transforming traditional modules into problem-based blended learning, they reduced lecturing time, supported both repetition and educational differentiation and thus solved their “compelling need to meet new curriculum requirements” (p. 41).

Hmelo-Silver and Barrows (2006) suggest that the problem-based “active learning” strategy is defined by the following characteristics: (a) learning is driven by challenging, open-ended problems; (b) students work in collaborative groups; and, (c) teachers take on the role as “facilitators of learning”.

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Participants in problem-based learning initiatives assert that they become much more interested in their work. Students take ownership of their learning, see themselves as responsible for gathering and presenting information, and learn from social interaction and their own voices in the classroom. In this alternative to traditional learning, rather than provide knowledge, the teacher’s role is as facilitator who guides the learning process (Hmelo-Silver & Barrows, 2006). The problem-based strategy is transforming conventional higher education classroom lessons, advancing inquiry learning.

**Problem-based Learning Assignment**

Getting answers, solving problems, discovering why things happen and figuring out how to make improvements are a few common, widely accepted constructivist educational objectives. A problem based learning assignment was chosen for this component of the course because it embraces the question-and-answer dialectical approach, and incorporates formulation of a thesis-antithesis-synthesis (Savery, 2004). And, Barr and Tagg (1997) suggest that in problem based learning each member of the classroom group feels wanted and believes their opinion matters. Thus, thinking, reasoning, creating, and expressing are enhanced through close work with other people, from conversation and working on something together. Teamwork is a very powerful learning source (Perkins, 2004).

Consequently, in partial fulfillment of the course, Education 6300 – Teaching and Learning, during the 2006 spring semester, students were given problem-based learning scenarios and were instructed to divide into groups of three or four and develop a feasible solution to the problem selected. The final product would be a 30-40 minute presentation of a proposed solution to the problem. The solution was to include an overall statement of goals for the project and the theories, ideas, and books of literature that were used to guide the development of the proposed solution. The overview of the model was to be described in a five-page submission using a format of choice, for example, text, diagrams, concept maps, web page, and so on.

In completing their task, students were expected to focus on their assignment, expressing their ideas clearly and purposefully (developing them beyond mere
statement), and research, apply, and accurately document relevant sources using the American Psychological Association (APA) research style. It was explained that creativity and innovation in both content and delivery would be highly regarded in this student-centred pedagogical approach wherein the instructor acted as a facilitator and guide. Thus, it came to be that three students chose to revamp the bachelor of education degree at the fictional University of New Lantosia. A copy of this assignment is attached in Appendix A and you may access the students’ suggested solution to the problem online at www.mun.ca/educ/newlantosia. The web page includes a PowerPoint presentation and promotional video.

**Atlantic Universities Teaching Showcase**

Shortly after conclusion of Education 6300 proposals were invited for the Association of Atlantic Universities Teaching Showcase entitled *From Vision to Voice: The New Story of Teaching and Learning* to be held on October 28, 2006 at Memorial University of Newfoundland. The Education 6300 course instructor invited a Faculty of Education colleague and three graduate students to submit a proposal to this conference. This proposal entitled *Showcasing an Innovative Approach to Shared Teaching and Learning Roles through a Problem-Based Perspective* was entered in the Anthology section where creativity and uniqueness were encouraged. It was selected for inclusion at the conference and during the presentation participants were encouraged to solve several other problem scenarios related to the University of New Lantosia. They were invited to design a course delivery model for the diverse University of New Lantosia student learners and/or create a professional development in teaching program for the University’s faculty members.” These scenarios are provided in Appendix B.
Reflections on the Teaching and Learning Process

Part of the course description for E6300 is as follows:

…the course introduces ways of thinking which are self-reflexive and critical, which challenge established traditions, and which provide frameworks for rethinking teaching and learning in the context of efforts to improve education and to enhance educational equity (www.mun.ca/educ/grad/index.html).

Referring to the course excerpt given above Ron explains that,

These words could be applied to the students of the course as they read and reflect on their textbook and other course readings, and make in-class presentations as graduate students. These same words could be applied to those same people, not in their role as graduate students, but in their role as professional teachers. Finally, course professors can also take on the dual roles of student and teacher as well. All these interpretations came into play during the work done by Kirk, Ron, and Jeff for Dr. Devereaux's Teaching and Learning course. By giving her students many options in the methods they could use to present their course work, Dr. Devereaux proved she was open to new approaches and ways of learning, certainly indicative of her ability to be a student while maintaining her role as professor. By taking a unique approach to their final presentation, including the humorous advertisement, the students proved they were capable of learning the required material and teaching it in a unique manner. Dr. Gerry White's neatly crafted problem scenario began as a teaching tool, but became for him a learning one, as he eventually joined forces with the others in preparing for the Atlantic Universities Teaching Showcase. The course description excerpt printed above has been met and exceeded with this novel interplay of people. Dr. Lorraine Devereaux, Dr. Gerry White, Ron Collins, Kirk Farrell, and Jeff Piercey have all been active teachers and learners, in the truest sense of the word.
In reference to the problem of revamping the Bachelor of Education Degree at the University of New Lantosia, Gerry adds that,

> When I made up this activity I envisioned the project would require a fair bit of dialogue and sharing of ideas in the professional learning community. The final product far exceeded my highest expectations. The time, energy, effort and genuine interest put into this project left little doubt in my mind that we have top notch teachers in our classrooms who by the nature of the final product of this activity are clearly genuinely interested in improving the training of teachers in the province of Newfoundland and Labrador. Hats off to these graduate students and their instructor, Dr. Lorraine Devereaux on a job very well done.

And, regarding his experience with our team, Jeff says that,

> I thoroughly enjoyed the experience of working collaboratively with everybody. This was indeed a worthwhile exercise, by improving the quality of teacher education we should be able to bring about improvement in teaching.

Kirk expands on our colleagues statements suggesting that,

> One of the themes of our presentation was blurring the lines between teaching and learning through a learner-centred pedagogical approach. I believe that it is important that in teaching we see ourselves embedded in the learning process; facilitation sometimes means taking a back seat and allowing the lead roles to be played by students. In post-secondary education, and especially in graduate classes, students have a wealth of experience, both formal and anecdotal, on which to draw and contribute. Shared responsibility for teaching and learning means that all participants have a stake in the content, direction, and goals of the experience. From our experience, the classroom that embraces problem-based learning can result in a nurturing environment that produces some amazing and educationally profound results.
And Lorraine concludes that,

This whole reciprocal teaching and learning process has been an exhilarating experience for me. Our team members, individually and collectively, epitomized the concept of sharing our work, experiences, expertise, and knowledge. Gerry set the seeds for this teaching and learning process by sharing his problem scenario with me. Ron, Kirk and Jeff's exceptional presentation brought me to my feet with laughter and applause, but most importantly, brimming with pride in my students' work.

**Conclusion**

A constructivist learner-centred, problem-based approach has driven our teaching and learning experience at Memorial University of Newfoundland to great heights. The process described within our manuscript encompasses three different stages of teaching and learning. These include:

- the problem scenario development, utilization, and classroom presentation,
- the extended learning conference session, and
- culmination through manuscript publication.

We feel honored to share our work and experiences in teaching and learning with others.

**References**


Savery, J. (2004). *What is Problem-Based Learning?* Paper presented at the meeting of Professor of Instructional Design and Technology, Indiana State University, Bloomington, Indiana.

Appendix A
Problem Scenario #1 – Classroom Assignment

Revamp the UNL Bachelor of Education Degree

The Faculty of Education of the University of New Lantosia has been preparing K-12 teachers since 1967. In this one-year post-degree teacher preparation program for primary/elementary and secondary students, 150 students enroll and finish the program each year. 20 full-time, two adjunct, and several sessional faculty offer a variety of courses and field-based experiences to students in the areas of curriculum, teaching, learning, human development, philosophy and history of education, assessment, and the context of schooling. The program has not changed significantly since its inception. Students complete 15 courses in the first three semesters prior to completing a 12-week student teaching experience in a school. In the past two years, some minor changes have occurred in the program. A one-week field experience has been introduced in the fall and winter semesters. Preliminary survey feedback from students about these two short experiences is very positive and several students have suggested that longer field experiences be incorporated into the program.

At a recent Faculty Council meeting, the topic of reform in teacher education was added to the agenda. The topic generated considerable discussion among faculty, with many articulating that the current program could be strengthened in several ways. As one faculty member said,

Although we do many things well, there is much room for improvement. There are gaps in the program. For example, we don’t have a whole lot of integrated experiences in the program where the student has an opportunity to engage in critical reflection about teaching and learning.

Two weeks ago, the Dean received a document signed by 100 students, requesting that a Classroom Management Course be offered in the upcoming semester. At the end of the meeting, the suggestion was made that consideration should be given to revamping the entire program.

Within two weeks of this meeting, the Dean had invited several people to be part of a committee that would examine the current program with the ultimate goal
of proposing a new conceptual framework and model of delivery that would reflect current research in teacher preparation and best practices. The committee consisted of the Dean of Undergraduate Studies, three faculty members, a high school teacher, an elementary school teacher, and a consultant from the Department of Education. The Dean was adamant that the new program would incorporate courses in the two areas of concern outlined above (i.e., integrated experiences and classroom management).

At the first meeting of the group, all committee members shared their beliefs about effective teaching, learning, and teacher preparation. Acknowledging that many different perspectives were represented at the table, the group developed a plan for how they would approach the task. It was agreed that with the time frame allocated, it would be impossible to complete a proposal for a revamped degree for primary, elementary, and high school teachers. Instead, the group asked permission from the Dean to complete only ONE degree with the two other degree programs being examined in subsequent months. The Dean agreed that the committee could come up with a proposal for either the primary, elementary, or high school education students.

**The task:**

Assume you are sitting on the committee. In groups of three, you are expected to develop a model that will reflect current research about effective teacher preparation and address the concerns/feedback as outlined above. The Dean expects that the report will contain the following:

- mission statement,
- set of guiding principles,
- brief summary of research, and
- proposal of core courses and the rationale for each.
Appendix B
Problem Scenarios: Conference Session

1. Design a Course Delivery Model for the Diverse Student Learners at the University of New Lantosia

The students in our classes at the University of New Lantosia are unique in their personalities, cultural experiences and values. Different students prefer different learning environments, learning modalities, and they all exhibit unique strengths, talents, and/or weaknesses. If we are to be successful in leading our students through their degree program, we must provide a variety of learning approaches so that diversity can be recognized and provided for in every course offered at this University. Understanding the various ways that people learn, interact with and process information can help us modify the way we teach so that all students can have an equal opportunity to succeed.

There has been a great deal of work on learning styles and multiple intelligences over the last two decades. The works of Rita Dunn and Kenneth Dunn on individual learning styles, Howard Gardner on multiple intelligences, and Anthony Gregorc on mind styles have been cutting edge. The challenge facing us is to adopt a course delivery model that fully meets the needs of the diverse learners enrolled at our University. In short, long gone are the days of strictly lecture and note taking.

The task:

In groups of three, assign the roles of student, faculty member and administrator. It is from these perspectives that you assume the challenge of proposing a course delivery model that will fully meet the needs of the diverse learners that are enrolled at our University of New Lantosia.

2. Develop a Professional Development in Teaching Program for the University of New Lantosia Faculty Members.

The University of New Lantosia was established in 1967 and is located in a northern, rather isolated locale. It offers a variety of degree granting programs in science, arts, engineering, law, education, business, and commerce. The University has 8,000 full-time students and 300 full-time teaching faculty
members. The University has seen an expansion recently in its student body, but
the number of faculty has not changed.

Machiavellian’s Magazine has just released its annual issue of university
rankings and the University of New Lantosia did not fare well. In a survey of
UNL students it was found that many students are not happy with the education
they are receiving. Across all faculties and departments the top complaint of
students was the quality of instruction.

The President of the University of New Lantosia has decided that there is some
truth to the survey published by the magazine. An internal review has found that
while all professors at the university have a minimum of a master’s degree and
70% of the faculty hold doctoral degrees, very few have taken any courses or
professional development in the area of teaching and learning. Some issues of
concern at UNL also identified by Machiavellian’s are

- a lack of accommodations and modifications for students with learning
disabilities,
- a lack of differential education for the gifted, and
- overly didactic teaching styles and a deficiency in experiential learning.

The President has called together focus groups to look at these issues concerning
teacher training for professors at the university. Each group consists of a student,
a faculty member and a member of the university administration.

The task:

In groups of three, assign the roles of student, faculty member, and
administrator. It is from this vantage point that you will argue and devise a
regimen for teaching the UNL professors to teach. Some questions you may
consider:

- What makes a good teacher? What are the values, skills, and aptitudes of a
good teacher?
- What tools, technological or otherwise, will professors require to teach?
- What will students require to learn? Will teaching to the individual be a
possibility?