

Report on the Scholarship in Teaching Award

Technology Tools for Inclusion: The role of curriculum authoring and feedback tools in preparing inclusive education teachers.

Research Team

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This research focused on the application of a suite of curriculum authoring and feedback tools (Bain, 1997a; Bain, 1997 b; Bain & Huss, 2000; Bain, Huss & Kwong, 2000; Bain & Parkes 2006) to the preparation of pre-service inclusive education teachers. In the present study, these tools were integrated along with a collaborative and cooperative learning process into a re-design of the course EED 212 Inclusive Education. They served as a support for teacher education students who worked collaboratively to design and adapt curriculum materials, to build reflections on their work in the subject, to deliver feedback to their peers and manage their participation in the course. This included the role of cooperative-mediation in the teaching and feedback cycle. All tutorial sessions incorporated cooperative feedback as part of the learning and feedback process employed in the subject.

Project Outcomes

The results of the study showed that students increased their knowledge of inclusive practice (use of professional pattern language and in the effects of collaborative and cooperative process research question 2) as a function of participation in EED212. The results also showed that students working cooperatively and collaboratively performed at a higher level on tests and quizzes at a statistically significant level when compared to independent preparation (research question 6). These findings are of note and are currently the subject of a manuscript nearing completion on the effects of cooperation and collaboration on the learning of teachers in pre-service preparation courses.

While collaboration and cooperation improved, this was not directly related to the use of the technology tools in the curriculum design process. Despite prior research (Bain & Parkes, 2006) indicating the benefits of the longitudinal use of the tools, this study did not yield an effect for lesson design in the short term (research question 5). This is an important finding in that it supports our prior research which suggests that the effects of technology on learning are most likely to occur when deeply embedded in the teaching and learning transactions associated with student/teacher learning over time. What we found was that the collaborative/cooperative process became a much more powerful driver than the technology, albeit recognizing that the authoring tools can engender collaboration. Students demonstrated high levels of satisfaction with collaboration, although found the learning curve on using the technology to be steep and demanding (research questions 1, 2, 4).

Findings in Relation to the Purposes of the Award and the Stated Expectations.

We have two manuscripts in progress related to the research questions on collaboration and cooperation. The first describes the effects of cooperation on student learning and the second on the development of the students' efficacy in the use of professional language as a function of the collaborative and cooperative process. The data has been analyzed for the first of these manuscripts and a literature review completed. At this time the results and discussion are being developed with an

expected manuscript submission date in August 2007. The second manuscript is in the data analysis stage with an expected completion date of November 2007. A case study description of this study has been submitted for presentation at the *Australian Teacher Education Association Conference* for this year. The focus of this paper is on the use of “professional language” or “pattern language” as it relates to the preparation of pre-service teachers. The conference paper and the feedback it receives will serve as a foundation for an empirical paper.

The technology related findings from this research will also be used in a summative paper that describes the broader compendium of research on the CATs tools and shows the similarities and discontinuities related to the findings of the research undertaken in EED212 and the longitudinal use of the tool. That paper is slated for completion by February 2008.

The preliminary findings from the research were also presented at the CELT Conference entitled *Learning and Teaching @ CSU: Bright Ideas and Evolving Evidence*. That paper, *Self-Organizing Course Development: A theory driven approach to course design* employed the results of the study to illustrate the theoretical principle of embedded similarity as it relates to the development of subjects and courses, and to illustrate the way in which cooperative practice can be influenced by instructional design.

Findings in Relation to the University Learning and Teaching Plan

The work completed with the support of this grant has made a substantive impact on subject and course design in Inclusive Education at both graduate and undergraduate levels. First, the success of cooperative collaborative process has resulted in the embedding of peer mediated instruction in the design of ESS440, ESS527, and ESS426. These subjects are part of the new MEd (Inclusive Education) that was the subject of a formal course review during the funding period for this grant and was the recipient of a *2006 Faculty Teaching Award*. This course is currently completing its first implementation cycle. We are especially interested in the ways in which cooperation can be embedded with new technologies in flexible learning methodologies that are supportive for distance education students.

The findings have also stimulated the redesign of EED212/ESS450 (currently under field test in CSU Ontario at this time). The re-design has focused on enhancing cooperative and peer mediation as a part of the instructional cycle for every tutorial/workshop. We also feel that our broader work on the development of theory and practice for course design has the potential to assist the broader CSU learning community address issues related to the theory and practice of course design, including course coherence and design integrity.

Finally, I would like to express my appreciation for the support represented by this award. While the funding was targeted at the EED212 Inclusive education subject, the impact has been much more extensive, informing the redesign of both graduate and undergraduate subjects and courses as well as the way the faculty members in Inclusive Education work together as a team.

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