Fostering Collaborative Learning in an Undergraduate Interdisciplinary Education Course

Barbara Brown Christy Thomas Joshua Hill Gabriela Alonso-Yanez

UNIVERSITY OF CALGARY
WERKLUND SCHOOL OF EDUCATION

Abstract

An interdisciplinary approach to designing lessons requires collaboration among teachers. In undergraduate programs in education, faculty often assign group tasks and students struggle with negotiating ideas and effectively engaging in collaborative learning with peers. In this study, researchers used repeated surveys and social network analysis to examine pre-service teachers' peer-group interactions while co-designing an interdisciplinary unit plan. Findings suggest effective relationships are needed to support collaborative learning, peer leaders can support collaborative learning and instructors can make leadership roles and strategies visible to help manage collaboration including how to use technology to support collaborative learning. Findings from the first year of this design-based research study serve to develop recommendations for teaching and learning strategies that will be tested over the next year.

Setting

The undergraduate students work in small groups to develop a comprehensive concept-based unit plan (Erikson, Lanning & French, 2017). More than simply working together in a group, collaborative learning is defined as co-laboring with the intent to build both personal and collective capacities (Sharratt & Planche, 2016). The instructors each use a repertoire of teaching and learning strategies to steward collaborative learning as a pedagogic technique (Laurillard, 2012).

Research Methodology

In this design-based research study (Amiel & Reeves, 2008; McKenney & Reeves, 2012) mixed methods (repeated surveys, interviews) were used to inform the findings. Drawing on McKenney and Reeves (2012) description of design research, three iterative phases occurred during the study following an initial phase of informed exploration:

- Phase 1: investigation/analysis
- Phase 2: design/prototyping; and
- Phase 3: evaluation/retrospection.

Research Question

How are pre-service teachers supported with collaborative learning when co-designing an interdisciplinary unit of study?

	Survey 1	Survey 2	Survey 3
Student Responses	81	52	39
Instructor Responses	6	5	5

Key Findings (n=210 students; n=6 instructors)

Relationships

- The identified relationships included: instructor-to-instructor, instructor-to-student, and student-to-student. Relationships between instructors were established through regular team meetings where there was dialogic exchange, sharing of ideas, and problem solving. Instructors were accessible and available to the students providing feedback during class and expert advice when needed. Student-to-student relationships were formed while students worked together in groups and this was perceived as both positive and negative. Students provided emotional support for each other but also struggled to resolve conflicts. Working collaboratively requires building relational trust and instructors can support students in establishing trust with each other and with their instructor in their efforts to support collaborative learning.

Formative Assessment Strategies

- Formative assessment strategies support collaborative learning. Drawing on Wiliam's (2011) strategies for formative assessment as a lens for analysis, findings suggest a range of formative assessment strategies were used by instructors throughout the course (e.g. peer feedback, instructor feedback, self-reflections, outside experts). Responses to survey questions about formative assessment strategies used were consistent among students and instructors. Using a variety of formative assessment strategies supports collaborative learning and moves learning forward.

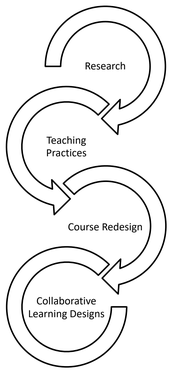
Technology

- Technology was used to support collaborative learning. For example, 94% of students and 100% of instructors recognized shared online spaces (e.g. Google Docs) supported collaborative learning. Instructors also used these spaces to monitor individual and group needs and progress. In the interview one student noted, "It was pivotal, all throughout. We couldn't have ever done it had we not been able to see other's work." Instructors perceived the institutional learning management system supported collaborative learning. However, students noted other tools and social media helped mitigate challenges involving scheduling, project management, communications and integrating divided work.

Project Management

- Project management was identified as either a key skill exhibited by one or more members of the group and this contributed to successful collaborative learning or project management was identified as lacking and presented a challenge for the group. Students noted that peer leaders assigned tasks, clarified expectations, provided direction, set timelines, took initiatives and identified needs when assuming a project management role. Despite using protocols and tools to support project management in their classes, instructors identified a deficiency in project management as a barrier to collaborative learning and an area for growth.

Significance



This research has influenced our own teaching practices as we reflect on the challenges and supports required to promote collaborative learning. The findings also serve to inform redesign of the course syllabus for the undergraduate interdisciplinary course, professional learning with the instructor team and the next iteration of the study. On a broader level, these initial findings also serve to inform faculty involved in designing teaching and learning strategies for collaborative learning and those who want to engage in research to promote learner interaction.

References

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