ENHANCING KNOWLEDGE BUILDING: CREATING A LEARNING COMMUNITY FOR HEALTHCARE PROFESSIONALS IN LARGE UNDERGRADUATE CLASSROOMS

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Introduction and Summary/Focus: Pharmacy students are examined as a knowledge building environment blending classroom and technological supports through perspectives of researcher, teachers, observers and students. Innovations include classroom random panel design and student created pre and post testing. Impact on students individually and as a community will be reported. Relative merits of lecture hall interventions, extended online, are compared for both quantitative outcomes and qualitative perceptions via web-based participant surveys. This project explores how face to face vs. online resources fit effectively in course structure, and healthcare educators will share lessons learned regarding advances and limitations.

Purpose: Using classroom interventions and technological and social supports to improve educational outcomes, agency and confidence in a diverse group of pharmacy students.

Methods: A set of iterative design enhancements aligned to theory and computer technology was implemented. They included student input and innovative classroom dynamics. (n = 200) The lecture hall was converted to virtual patient-practitioner interactions through randomly selected panels where individual students solved gradually unfolding therapeutic cases combining Socratic discussion with role-playing moments. Pre and post class student created patient-based tests were assessed and extended through a web-based discussion forum for examination inclusion. Advancements were measured with twelve knowledge building indicators, from student and teacher/observer participants as well as pre and post outcome scales. Two online student surveys compared design changes to traditional constructivist tasks; and classroom vs. online supports in Likert comparisons and free response commentaries.

Results: Analysis of goals, knowledge building advancements and limitations are reviewed. Students reported increased agency and confidence and a change in daily learning habits. With design enhancements, a shift was seen from learning as individuals to building knowledge as a community. Results showed increased classroom attendance and development in knowledge, skills and abilities. Online discourse demonstrated idea improvement, emergent understanding, and collaborative, continuous, complex problem-solving.

Conclusions: Environments conducive to community knowledge advancement lead to improvement in student outcomes and perceptions. Student-created testing offers authentic questions of understanding, idea diversity and epistemic invention, which is promising in professional education evaluation.

Benefits to Participants: The perspectives of factors that enhance or detract from knowledge building and the assessment of the classroom design modifications may be important to broader learning sectors especially post-secondary and/or health care educators, particularly in large group settings. They may enlighten education applications in designing or refining learning tools to enable motivation, facilitate support and examine assessment measures.

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References:
Bielaczyc, K. Designing social infrastructure: The challenge of building computer-supported learning communities. Proceedings of the European Computer-Supported Communities of Learning Conference. Maastricht, Netherlands. (2001) March

Bielaczyc K, Collins A, Technology as a Catalyst for Fostering Knowledge-Creating Communities*). A. M. O'Donnell, C. E. Hmelo-Silver, & J. van der Linden (Eds.), Collaborative learning, reasoning, and technology. Mahwah NJ: Lawrence Erlbaum Associates. (2005).

Brown, AL, Design Experiments: Theoretical and Methodological Challenges in Creating Complex Interventions in Classroom Settings. The Journal of the Learning Sciences, 2 (2), (1992):141-178.

Scardamalia M, Instruction, learning, and knowledge building: Harnessing theory, design, and innovation dynamics. Educational Technology, 44(3) (2004): 30-33.

Scardamalia M Online Learning and Knowledge Building Environments Ch 23 In G. Kearsley (Ed.), *Online Learning: Personal Reflections on the Transformation of Education* . Englewood Cliffs, NJ: Educational Technology Publications. (2005) pp. 350-358

Scardamalia,M, & Bereiter C, (in press) Knowledge Building: Theory, Pedagogy, and Technology. In K Sawyer (Ed) Cambridge Handbook of the Learning Sciences 2005.

Sibbald D: Potential for Knowledge Building in Large Size Pharmacy Classrooms, Summer Institute 2006, Institute for Innovation and Technology, Toronto, August 2006