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Presenter(s)

Julianna Banks (Indiana University-Indianapolis, US)

Pratibha Varma-Nelson (IUPUI, US)

Session Information

October 10, 2012 - 2:15pm

Track: Learning Effectiveness

Areas of Special Interest: Research Study

Institutional Level: Multiple Levels

Audience Level: All

Session Type: Extended Information Session

Location: Northern Hemisphere E2

Session Duration: 80 Minutes


Virtual Session

Abstract

Cyber Peer-Led Team Learning is the online adaptation of a proven high-impact pedagogical approach that has shown consistent positive effects on student success.

Files

Final Presentation:

 [cPLTL_Sloan-C.pptx](#)

Extended Abstract

Overview This presentation will address educators and course developers about how synchronous cyber workshops support collaboration and student learning, and broaden access to Peer-Led Team Learning (PLTL). Attendants will have the opportunity to learn about the design and delivery of PLTL; how faculty have adopted cPLTL in courses; how the technology enhances student learning, how to structure program evaluations; what costs are associated; and, what options exist for sustainability. To demonstrate how students use the technology and interact in the synchronous workshop, the PowerPoint presentation will include an audio visual recording of a cPLTL workshop.

Today's Campus [Highlights Sloan-C Annual Conference](#) in Nov-Dec Issue

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[Keynote Address: Democratizing Higher Education](#)

Sebastian Thrun, VP & Fellow Google

[Plenary Panel: Evolution or Revolution? What's Happening with Traditional Online Learning?](#)

Jeff Young (The Chronicle of Higher Education, US) - Panel

Moderator

Jose Cruz (The Education Trust, US)

Alan Drimmer (University of Phoenix, US)

Jack Wilson (University of Massachusetts, US)

Plenary Address: Citizen Science - Authentic Participation in Research

Arfon Smith (Citizen Science-Adler Planetarium, US)

Press Release: October 9, 2012

Sonic Foundry Partners with the Sloan Consortium to Webcast International Conference on Online Learning

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[Creating an Institutional Culture that Embraces Accessibility and Supports Online Student Success](#) - By Kristen Betts, Director of Online and Blended Learning, Armstrong Atlantic State University. Kristen Betts will be presenting "From Compliance to Culture: Building an Effective Infrastructure to Support Accessibility and Online Student Success" on October 11, 2012.

[Online and On the Move](#) - By Emily Boles, Senior Instructional Developer, University of Illinois, Springfield. Ray Schroeder will be presenting "Online and On the Move: Mobile Online Learning" on October 10, 2012.

Presenters will provide a detailed review of the program evaluation, findings, and scaling initiatives; incorporate interactive hand-outs and clicker questions to engage audience members; and, provide online resources for more detailed information during the presentation and to the conference proceedings. Context, Issue and Primary Questions PLTL is a high-impact face-to-face pedagogy that incorporates active learning strategies in science, technology, engineering, and mathematics (STEM) courses. Rooted in social constructivism (Vygotsky, 1993) and social interdependence theory (Johnson & Johnson, 2009), PLTL is a teaching model that preserves the lecture and replaces recitation in science courses with a weekly two-hour session. During these interactive sessions (workshops), six to eight students work collaboratively to solve carefully constructed problems under the guidance of a peer leader. PLTL's documented success in improving student achievement and retention led Indiana-University Purdue University Indianapolis (IUPUI) to implement it in general chemistry in 1998 (Gafney & Varma-Nelson, 2008; Gosser, Kampmeier, & Varma-Nelson, 2010). Since then, IUPUI's PLTL program has achieved sustained success with the number of students receiving D and F grades in fall semesters decreasing from above 45% before PLTL was implemented to below 20% by 2008. The withdrawal rate also decreased from above 25% to less than 10% during that same period. Despite its success, issues of access remain a barrier for students who work, have family responsibilities, or whose institution lack resources to conduct the workshops. However, web conferencing software has made it possible to adapt this face-to-face pedagogy to a synchronous virtual environment. IUPUI developers have designed a robust online platform to deliver PLTL using real-time chat, video conferencing, document sharing, and desktop sharing capabilities, and have worked to determine: (1) whether the same quality of educational discourse could be replicated online and (2) what impact cPLTL has on student outcomes—achievement and course completion. Methods The evaluation design (Extended-Term Mixed-Method Evaluation [ETMM]) incorporates a variety of quantitative and qualitative evidence to support claims (Chatterji, 2004). To test the efficacy of translating face-to-face peer learning into a cyber-learning environment, researchers compared the educational outcomes of the online (cPLTL) and face-to-face (PLTL) workshops and used multiple measures—end-of-course grades, standardized final exam scores, interviews, surveys, observations, and discourse analysis—to examine and document the impact on student outcomes. To examine differences between PLTL and cPLTL workshops, a series of independent t-tests were performed on course grades, standardized exam scores, and survey responses. Student demographic data (e.g., gender, race/ethnicity, Pell Grant-eligibility, etc.) was matched with survey responses and academic performance data to further contextualize the findings. Transcripts of qualitative data were entered into NVIVO qualitative data analysis software for analysis and coded for a comparison of salient themes in the two conditions. Results Two hundred and thirty-two students (111 cPLTL and 121 PLTL students) participated in the study. An analysis across five semesters (Fall 2009 thru Fall 2011) revealed no statistically significant differences between cPLTL and PLTL students on the American Chemistry Society's General Chemistry exam. However, cPLTL students (M = 62.78) earned a slightly higher mean percentage score than PLTL students (M = 61.49). Student grades were also similar between the two conditions. On average, students in the sample earned approximately a C+ grade in the course, with cPLTL students earning (M = 2.30) and PLTL students earning (M = 2.34). While there were slight differences on each of the measures, none were statistically significant, indicating cyber students are performing as well as their peers in the highly popular face-to-face workshops. The discourse analysis showed evidence of critical reflection, application of theories in problem solving, critical thinking and analysis and other indicators of parity with the face-to-face workshop. However, beyond the quality of dialogue, the analysis highlighted additional benefits of the cyber environment. Not only were cPLTL students actively engaged in collaborative problem solving, they regularly reflected and drew on multiple information sources to better understand course content and to better explain or support their claims. The immediate access to electronic tools and resources may be, in part, responsible for more productive use of academic resources and for reflection and deliberation on concepts and theories. Significance These findings have implications for expanding peer-led learning in large classes and have generated more questions about PLTL's capacity to further enhance how and what students learn. As the project moves forward, the evaluation will consider how the "technology" facilitates engagement and deep learning activities. The findings also expand the knowledge base on best practices in STEM education and aids in understanding how to better support students' online learning needs, develop suitable instructional methods, and use technologies that are more effective in helping students engage in, understand, and apply course material. References Carspecken, P. (1996) Critical ethnography in educational research; A theoretical and practical guide. New York and London: Routledge. Chatterji, M. (2004). Evidence on "what works": An argument for extended-term mixed method (ETMM) evaluation designs. *Educational Researcher*, 33(9), 3-13. Gafney, L., & Varma-Nelson, P. (2008). Peer-led team learning: evaluation, dissemination and institutionalization of a college level initiative, Dordrecht, The Netherlands: Springer. Johnson, D. W., & Johnson, R. T. (2009). An educational psychology success story: social interdependence theory and cooperative learning. *Educational Researcher*, 38(5), 365-379. Gosser, D. K., Kampmeier, J. A., & Varma-Nelson, P. (2010). Peer-led team learning: 2008 James Flack Norris award address. *Journal of Chemical Education*, 87(4), 374-380. Vygotsky, L. (1993). The collected works of L.S.Vygotsky. Vol.2: The fundamentals of defectology In R.W. Rieber & A.S. Carton, (Eds.), NY: Plenum Press.

Lead Presenter

Julianna Banks is a fellow at Indiana University Purdue University Indianapolis and serves as the Project Director for the cPLTL Consortium. Dr. Banks earned a PhD in the field of higher education leadership and policy studies from Indiana University. Since the late 1990s, she has conducted research on a range of social and educational issues with private, non-profit, and government organizations. Her primary research focuses on access and equity in education, and faculty and student socialization, development, and retention. As a research fellow with the Center for Urban and Multicultural Education, she was recently recognized for her contributions and work toward equity for women in higher education.

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