Examining Student Engagement in a Flipped Classroom

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Introduction

Interest in measuring student engagement within the postsecondary setting has been increasing (Barkley, 2010; Bowen, 2005; Korobova & Starobin, 2015; Mandernach, 2015). Previous studies have found low levels of student engagement in lecture-based courses (Chickering and Gamson, 1987; Ewing & Whittington, 2009; McCarthy & Anderson, 2000; Mennenga, 2012; Whittington, 1995), while active learning strategies (i.e., flipped learning) have shown an increase in student engagement (Lightner, Bober, & Willi, 2007; Tucker, 2012). Bowen (2005) stated that "despite this emerging emphasis, explicit consensus about what we actually mean by engagement or why it is important is lacking" (p. 4). Based on a scoping review of literature, Marx, Simonsen, and Kitchel (2015) defined engagement as "…a student's connection to their learning and the learning environment which incorporates behavioral, emotional, and cognitive aspects" (p. 524).

AgEdS 450 is a capstone course for students in the Agricultural Studies major at Iowa State University and is meant to provide them with real-world experiences in farm management. The course was recently flipped to a Team-Based Learning (TBL) format, which is a student-centered teaching method. In TBL, a course is comprised of six to eight major modules/ units. Modules are typically two weeks or longer, and build from simple to complex (Michaelsen, Knight, & Fink, 2004). At the beginning of each module, students engage in the introductory material prior to attending class. Once in class, students are assessed individually and again as a team over the introductory material. The remaining time in class is dedicated to application exercises, which allow students to work on solving complex, real-world problems (Michaelsen, et al., 2004).

Priority 4 of the National Research Agenda for Agricultural Education (Doerfert, 2011) calls for "designing, developing, and assessing meaningful learning environments…" (p. 22). Doerfert discussed the need to assess pedagogical practices in order to continue our contributions as potential "…leaders in scholarly investigations of teaching and learning…" (2011, p. 23). The purpose of this study was to determine congruency and discrepancies between student-reported course activities and the value instructors placed upon engagement practices within [COURSE].

Conceptual/ Theoretical Framework

This study is grounded in student involvement theory (SIT) as developed by Astin (1999). SIT is grounded in decades of research elucidating that involvement references the "…quantity and quality of the physical and psychological energy students invest in the college experience" (Astin, 1999, p. 528). Student lack of involvement is often signaled by passivity. SIT allows us to measure student involvement via student and instructor self-reported participation in engagement activities used in a course.

Methodology

This descriptive study sought to determine student engagement in a flipped capstone course. The Classroom Level Survey of Student Engagement (CLASSE), derived from the National Survey of Student Engagement (NSSE), is a two-part instrument "that compares faculty expectations with what students report experiencing in a class" (Ouimet & Smallwood, 2005, p. 13). In developing the CLASSE, Ouimet and Smallwood focused on items from NSSE that were based on Chickering and Gamson's (1987) Seven Principles for Good Practice in Undergraduate

Education (Ouimet, 2011). The CLASSE Student assessment asks students to reflect on their behavior regarding course activities related to engagement, while the CLASSE Faculty assessment asks faculty to rate the value they place on the same engagement related activities. Both surveys include 41 items divided into five constructs, including: 1) engagement activities (*n* = 19), 2) cognitive skills (*n* = 5), 3) other educational practices (*n* = 10), 4) class atmosphere (*n* = 4), and 5) demographics (*n* = 3). The CLASSE Student assessment was administered to all students enrolled in [COURSE] during the fall 2015 semester (*N* = 61) and yielded 54 usable instruments for an 88% response rate. The CLASSE Faculty assessment was administered to all individuals involved in planning, delivering, or approving curriculum (instructor, farm operator, and the professor-in-charge) within the course (*N* = 3) and yielded a 100% response rate. CLASSE Student assessment means were calculated with SPSS 19.0. The means were then compared to CLASSE Faculty data in a 2x2 quadrant analysis (Ouimet, 2011). Items in the top left quadrant (Q1) were rated very important or important for faculty and had below average student response frequencies. Items in the top right quadrant (Q2) were rated as very important or important for faculty and had above average frequencies of student response. The lower left quadrant (Q3) contained items instructors rated as somewhat important or not important and had below average student response frequencies. Q4, the lower right quadrant, housed items rated somewhat important or not important by faculty and had above average student response frequencies. Q1 and Q4 are known as *misses*, as they show discrepancies between faculty rated importance and student frequencies; while Q2 and Q3 are known as *hits*, which show congruency between what faculty reports compared to what students reported doing.

Results/Findings

The purpose of this study was to determine congruency and discrepancies between student-reported course activities and instructors' perceived value of engagement practices implemented in [COURSE]. The most congruency was found in Q2, meaning that students reported participating in those activities at above average frequencies, and faculty rated those activities as very important or important. Items within Q2 included asking questions during class, contributing to class discussions, including diverse perspectives on writing assignments, integrating ideas or concepts from other classes for assignments, making judgements about the value of information and validity of sources, synthesizing and organizing ideas into more complex relationships, being comfortable talking with the instructors, and applying theories or concepts to practical problems.

Conclusions/ Implications/Recommendations/Impact on Profession

This study supported previous literature that found high levels of student engagement in active learning-based, TBL formatted courses (Lightner et al., 2007; Tucker, 2012). We conclude that within a TBL formatted course, students are involved in the learning process at high levels both physically and psychologically, which leads to student development in several areas (Astin, 1999). Students are engaged in synthesizing and applying concepts to solve problems with their teams, are comfortable asking questions, discussing important topics, and are interested in learning the course material. In an effort to rise to the call in developing engaging learning environments (Doerfert, 2011), faculty members should consider utilizing the CLASSE to determine discrepancies in what students report doing compared to what is valued by the instructor. Data can be useful in determining the benefits of new pedagogies via a pretest posttest design which will ultimately improve student engagement in higher education

References

Astin, A. W. (1999). Student involvement: A developmental theory for higher education. *Journal of College Student Development, 40*(5), 518-529.

Barkley, E. F. (2010). Student Engagement Techniques: A Handbook for College Faculty. San Francisco, CA: Jossey-Bass.

Bowen, S. (2005). Engaged learning: Are we all on the same page? *Peer Review, 7*(2), 4–7.

Chickering, A. W., & Gamson, Z. F. (1987). Seven principles for good practice in undergraduate education. AAHE bulletin.

Doerfert, D. L. (Ed.) (2011). *National research agenda: American Association for Agricultural Education's research priority areas for 2011–2015*. Lubbock, TX: Texas Tech University, Department of Agricultural Education and Communications.

Ewing, J. C., & Whittington, M. S. (2009). Describing the cognitive level of professor discourse and student cognition in college of agriculture class sessions. *Journal of Agricultural Education, 50*(4), 36-49. doi: 10.5032/jae.2009.04036

Korobova, N., & Starobin, S. S. (2015). A comparative study of student engagement, satisfaction, and academic success among international and American students. *Journal of International Students, 5*(1), 72-85.

Lightner, S., Bober, M. J., & Willi, C. (2007). Team-based activities to promote engaged learning. *College Teaching, 55*(1), 5-18. doi: 10.3200/CTCH.55.1.5-18

Mandernach, B. J. (2015). Assessment of Student Engagement in Higher Education: A Synthesis of Literature and Assessment Tools. *International Journal of Learning, Teaching and Educational Research, 12*(2), 1-14.

Marx, A. A., Simonsen, J. C., & Kitchel, T. (2015). Undergraduate student course engagement and the influence of student, contextual, and teacher variables. Proceedings of the Annual National Research Conference (pp. 523-540), San Antonio, Texas.

McCarthy, J. P., & Anderson, L. (2000). Active learning techniques versus traditional teaching styles: Two experiments from history and political science. *Innovative Higher Education, 24*(4), 279-294. doi: 10.1023/B:IHIE.0000047415.48495.05

Mennenga, H. A. (2012). Development and Psychometric Testing of the Team-Based Learning Student Assessment Instrument. *Nurse Educator*, 37(4), 168-172. doi: http://dx.doi.org/10.1097/NNE.0b013e31825a87cc

Michaelsen, L. K., Knight, A. B., & Fink, L. D. (Eds.). (2004). Team-based learning: A transformative use of small groups. Sterling, VA: Stylus Publishing, LLC.

Ouimet, J. A. (2011). Enhancing student success through faculty development: The classroom survey of student engagement. *Journal of Higher Education and Lifelong Learning, 18*, 115-120.

Ouimet, J. A., & Smallwood, R. A. (2005). Assessment measures: CLASSE - the class-level of student engagement. *Journal of Assessment Update: Progress, Trends, and Practices in Higher Education, 17*(6), 13-15.

Tucker, B. (2012). The flipped classroom. *Education Next, 12*(1), 82-83.

Whittington, M. S. (1995). Higher order thinking opportunities provided by professors in college of agriculture classrooms. *Journal of Agricultural Education, 36*(4), 32-38. doi: 10.5032/jae.1995.04032