**OLC Innovate 2016 Emerging Ideas Session**

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This session presents student-focused research on a large flipped undergraduate lecture course , using three perspectives to look at student performance, student satisfaction, and student use of lecture videos.

During the past several decades, advances in technology have continued to transform the way education can be experienced, both for instructors and students. With low cost computer-based video capture capabilities becoming more readily available in the past few years, capturing, editing and posting digital video recordings is a realistic option for anyone who wants to use instructional video in any academic discipline for any audience – local and global audience.

Universities in the U.S. have begun to embrace the potential of video capture software integrated with other learning management and IT systems. Many universities provide educators with the opportunity to digitally “capture” (record) their lectures ahead of class or during live class sessions, enabling them to invert, or “flip” the classroom. When an instructor uses lecture capture technology, students can watch the lecture, viewing demonstrations and other presentation material as homework before each class session, and then focus on concept application activities during live classroom sessions (Zupancic & Horz, 2002).

Budget pressures have led many universities to offer very large classes for some courses, in order to keep other courses at reasonable class sizes. In these “megasection” courses, lecture is often used as the primary instructional mode. Given the limited ability of lecture-based instruction to help students achieve deep learning goals, many instructors have begun using techniques to flip  their classes to make in-class instructional time more effective. According to Harrison Keller, vice provost for higher educational policy at University of Texas at Austin, “If you do this well, you can use faculty member’s time and expertise more appropriately, and you can use your facilities more efficiently. More important, you can get better student-learning outcomes.” (Berrett, 2012, p. 2)

Faculty in many institutions have been working independently or with instructional design support for several years to redesign courses to take advantage of these flipped approaches. The flipped (or inverted) classroom is redesigned to be more learning-centered, with the instructor focusing on using class time to add value to the understanding the student has already started to build from watching the recorded video material, completing the assigned readings and other instructional activities. In this regard, Strayer (2012, p.171) states that the flipped classroom approach, “moves the lecture outside the classroom and uses learning activities to move practice with the concepts inside the classroom.” These learning-centered activities use active learning to engage the student’s thinking during class time.

This presentation provides the results of a series of three studies conducted in a large undergraduate lecture-oriented class, focused on three perspectives, or lenses : student academic performance, student perceptions and satisfaction, and student use of videos.

**Lens One: Student Performance**

Answering the question, “How does the flipped classroom affect student performance?”, the first study reports the overall effectiveness as measured by student academic performance, and describes the design used to shift from a teacher-centered, lecture-based pedagogy to a learner-centered flipped classroom approach. Student grades in the flipped classroom are compared to student grades from a previous semester taught in the traditional mode (lecture) in the same context and by the same instructor to the same type of student. Analysis shows that student grades increased significantly on two of three exams taken by students during the flipped course. During the presentation, we will discuss this result and its implications. [Albert & Beatty, 2014)

**Full study report available:**

Albert, M. and Beatty, B. J. (2014). Flipping the classroom applications to curricular redesign for an introduction to management course: Impact on grades. *Journal of Education for Business 89*(8) 396-402. Taylor and Francis.

**Abstract:** The authors discuss the application of the flipped classroom model to the redesign of an introduction to management course at a highly diverse, urban, Association to Advance Collegiate Schools of Business–accredited U.S. university. The author assessed the impact of a flipped classroom versus a lecture class on grades. Compared to the prior lecture class taught by the same instructor using the same text and tests, results indicate that grades on all three exams were higher, and grades on two of three exams were significantly higher.

**Lens Two: Student Perceptions and Satisfaction**

Answering the question, “How do students react to the flipped classroom approach?”, this second study reports the results of a 14-item student survey conducted at the end of the first offering of the flipped class. The evaluation instrument will be shared and discussed with presentation attendees. Results of the analysis of this survey show that the evaluation scores are not correlated with student grades (test scores). In the survey, students reported a preference for the flipped class instead of a traditional lecture class or a fully online class, that they valued the in-class discussions incorporated into the flipped class, and that they preferred shorter pre-recorded presentation videos over longer ones. Interestingly, though the students reported that they valued the in-class discussions and the overall flipped class approach, they also reported that they would prefer to have the instructor deliver core course content live, in person, rather than through pre-recorded video. During the presentation, we will discuss the results of the survey, correlations between student perceptions and grades, and their implications. [Beatty & Albert, in press)

**Full study report available:**

Beatty, B. J. and Albert, M. (in press 2016). Student perceptions of flipping the classroom for an introduction to management course. *Journal of Applied Research in Higher Education.* Taylor and Francis.

**Abstract:** During the past several years, an active learning approach called the “flipped classroom model” has begun to be applied to higher education. Research on the effectiveness of the flipped classroom model in higher education has focused on either grade outcomes or student perceptions, and is recent and limited. The primary purpose of this exploratory study is twofold: 1) to assess student perceptions of a flipped classroom model used in an introduction to management course, and 2) to determine the relationship between student perceptions and student grades. A quantitative approach was used, and a survey was created to assess student perceptions of their flipped classroom experience. Correlation analysis was used to explore the possible association between student performance (measured by test scores) and perceptions of the flipped classroom experience. Results indicate several significant differences in student perceptions of a flipped classroom model between successful (grades A-C) and unsuccessful (grades D-F) students. Findings can contribute to educators using a flipped classroom model, as well as to researchers investigating the impact of key factors related to student perceptions of their flipped classroom experience. Implications for applying the flipped classroom model are discussed along with implications for much-needed future research.

**Lens Three: How do student video-viewing patterns affect performance and preference?**

The third study reports the in-depth analysis of students’ video viewing patterns in the flipped class, and describes the correlation of these patterns to grades and expressed preferences. Using basic frequency counts, student video-viewing patterns are analyzed and described. The correlation of various patterns with test scores and student survey results is reported and potential interactions are discussed. [Beatty, Merchant & Albert, in review)

**Full study report available: (pre-print draft)**

Beatty, B. J., Merchant, Z., and Albert, M. (2016). *Analysis of Student Use of Video in a Flipped Classroom.* Manuscript submitted for publication.

**Abstract:** This study explores the use of pre-recorded lecture videos by students in a large introductory management course to determine patterns of video use and the potential correlation between student use of videos and student learning measured by grades and student satisfaction measured by an end of course survey. A quantitative study approach was used, using frequency counts of student video use, student grades on three exams, and student responses to a 20-question survey. Correlation analysis was used to explore the possible association between student use of videos and learning (measured by test scores) and perceptions of the flipped classroom experience. Results indicate that student use of videos varied significantly along several aspects – within a single topic, by time of day and day of week, and across the full course term. Student use of videos was positively correlated with academic performance (measured by exam score) and student satisfaction. Implications for effective use of pre-recorded videos when implementing the flipped classroom model are discussed along with directions for much-needed future research.

Given time, this presentation will engage participants in interactive discussion about flipped classroom approaches, with an aim to share best practices, encourage ongoing collegial interaction, and identify opportunities for further development and research projects. Plans for the next round of studies at SF State in Fall 2016 will be shared, with a call for interested participants to begin joint research and publication efforts.

**References**

Albert, M. & Beatty, B. J. (2014). Flipping the classroom applications to curriculum redesign for an introduction to management course: Impact on grades. Journal of Education for Business, 89(8), 419-424. doi: 10.1080/08832323.2014.929559

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