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EXTENDED ABSTRACT:

INTRODUCTION

Learning using electronic tools has been studied for impacts on students since the calculator and typewriter were introduced into classrooms. The information systems field has been at the forefront of introducing IT artifacts into the classroom to enhance student learning outcomes. Research in IS has focused primarily on replacing a traditional classroom structure (synchronous time and place) with completely asynchronous learning approaches (Alavi, Marakas, & Yoo, 2002; Arbaugh & Benbunan-Finch, 2006; Santhanam, Sasidharan, & Webster, 2008). However, the approach that is gaining significant attention is that of a blended approach, where the class aims to incorporate both traditional and e-learning elements, leveraging the strengths of each. Indeed, Alavi and Leidner (2001) argue that technology mediated learning (TML) should not attempt to duplicate traditional learning approaches and thus the research should move toward "forming relationships among technology and relevant instructional, psychological, and environmental factors that will enhance learning outcomes." One of the most significant impacts that using a blended approach can have is to allow the professor to "flip" the classroom to enhance learning outcomes.

Increasing the number of majors in IS and preparing our students at large (Granger, Dick, Luftman, Van Slyke, & Watson, 2007; Koch, Van Slyke, Watson, Wells, & Wilson, 2010) makes the development of compelling classroom experiences an imperative for IS professors globally. Leveraging the technological tools developed by practitioners in our field in a meaningful way in the classroom to promote active learning gives IS professors a slight advantage over other disciplines in incorporating active learning activities and thus effectively flipping the classroom. An added bonus for the professor when adopting a flipped classroom is a potentially more interesting academic experience. Lecturing the same introductory class multiple times over several years, even with rapidly changing course material, can lead to professor burnout and a lack of enthusiasm for the material. Implementing an effective flipped course leads to potentially better student outcomes in terms of learning and student satisfaction with the course, while giving the professor a potentially new course each delivery based on the choice of different active learning items implemented for the course.

The primary research questions for this investigation center around student outcomes in terms of learning and course satisfaction in the IS discipline using IT tools. Our first question is "does flipping the classroom using IS/IT improve student outcomes?" and second, "does flipping the classroom using IT/IS impact student evaluations of the course?" Over the course of three semester-long course periods, data on student outcomes and satisfaction are analyzed to look at the differences between T_1, where a lecture delivery method was used to teach an Introduction to IS course; T_2, the initial flipped classroom delivery of the same material; and T_3, the second flipped classroom delivery.

LITERATURE REVIEW

The term "flipped classroom" is discussed across several fields in academic literature. This work adopts the definition of flipped classroom from Walvoord and Anderson (2011), where the learning environment is modeled for students to gain first exposure learning (gaining knowledge and comprehension) prior to class and focus on higher level learning with respect to Bloom's taxonomy (Anderson et al., 2001) (e.g., synthesizing, analyzing, problem-solving, etc.) in class. Lage, Platt and Treglia (2000) described a similar approach as the "inverted classroom." The contrast of the flipped model from the traditional model is not based on any virtual aspect of class meetings or use of technology, rather that the student's first

exposure to the material occurs through reading or videos outside of the synchronous class environment and not via lecture in class.

A common misconception regarding a flipped classroom setting is that it necessarily engages students in active learning. Active learning is "involving students in doing things and thinking about what they are doing." (Bonwell, 1991, p.5). While the strategies of active learning are promoted during the synchronous time of a flipped classroom through problem solving, analysis, and evaluation, the students must also be involved in active listening and cognition tasks during the first exposure to the material as well. The flipped classroom with its active learning activities will not be successful unless the first exposure to the material results in sufficient comprehension to make the active learning activities meaningful.

Research demonstrates that several different educational constituencies benefit when employing flipped classrooms. Many studies have been conducted that demonstrate the positive impact of flipped classrooms in delivering material across a wide variety of domain knowledge: undergraduate engineering (Mason, Shuman, & Cook, 2013); undergraduate statistics (Wilson, 2013); and graduate physiology (Tune, Sturek, & Basile, 2013) among many others. Baepler et al. (2014) demonstrated the positive impact to professors and administrators through increased efficiency in teaching material and teacher/student ratio. Professors also benefit from this pedagogical approach. Kim et al. (2014) discuss how to successfully design a flipped classroom (Kim et al., 2014)(Kim et al., 2014)and findings on how to best integrate differing active learning activities have also been studied and presented (Davies, Dean, & Ball, 2013). Following recommendations from the Urbaczewski (2013) on fouture research on flipped classrooms in information systems, this study addresses the gap to cover introductory IS course student outcomes and proposes extending the outcomes to integrate the differing perspectives among the stakeholders in higher education content delivery.

Stakeholder analysis of the incorporation of flipped classrooms in information systems

Performing a stakeholder analysis of why we as information systems should incorporate flipped classroom delivery universally provides several important perspectives on the issue. The three stakeholders identified in this study are students taking IS courses, IS professors delivering courses, and higher education administration responsible for managing the enrollments and staffing of these courses. Each of these constituencies would have significant motivation to employ flipped classroom techniques and to do so effectively. From a student perspective literature clearly indicates positive learning outcomes and the value received in a flipped classroom versus other formats that are not focused on active learning activities. This study uses quantitative statistical methods to analyze student data from an introductory IS course taught in three different delivery timeframes using lecture methods and using flipped classroom techniques to present the impact on students in this knowledge domain. Additionally, we use similar quantitative statistical methods to analyze the impact on outcomes for the professor, as indicated by student satisfaction scores, and a qualitative self-report from the instructor who taught these courses on level of satisfaction with each type of course delivery mode.

[Findings of the statistical analysis from this study will be presented at the conference, should this work be invited for presentation.]

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