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Investigating a Blending of Classroom Instruction with Online Learning Environment in Undergraduate Education: Students' Perspective

Dennis York, Ron Owston, Susan Murtha, and Janna Finkel

York University

Objectives

Increasing enrolment demands and students' desire for learning flexibility have urged universities to respond accordingly with innovative technology enhanced curriculum and support infrastructure. Many universities have adopted a blended learning modality that brings together the advantages of both online and classroom environments which are often perceived favorably by students (Castle & McGuire, 2010; Cavanagh, 2012; Diaz & Brown, 2010). Despite the numerous studies which indicated that blended learning offers increased flexibility of learning, broader accessibility to educational resources, and pedagogical and technological richness, very little research has been conducted on exploring under what instructional design conditions and with what kinds of students blended learning is most effective (Diaz & Brown, 2010). Therefore, the purpose of this two-year study was to provide insight into the variability in student perceptions of face-to-face courses redesigned where the proportion of time devoted to online activities varied. In addition, our study is intended to examine whether commuter students are affected by various blends of classroom and online instructional time.

Theoretical Framework

Recent studies suggest that students favor blended learning approaches and seem to be more satisfied with blended learning when compared to traditional lecture courses (Osgerby, 2013; Martinez-Caro & Campuzano-Bolarin, 2011). Students appreciated the flexibility of blended learning and would recommend blended courses to their peers. They favor the ability to work on their own schedule, in their own pace and from their preferred location (Battye & Carter, 2009). Blended courses are found to be especially beneficial to students who have work and family responsibilities (Ashton & Elliot, 2007; Dziuban, Hartman, Juge, Moskal, & Sorg, 2006; Owston, Garrison, & Cook, 2006; Smyth, Houghton, Cooney, & Casey, 2012). A recent study that examined the relationship between student perceptions and grades by Owston, York and Murtha (2013) found that there is a strong correlation between the two. The survey results show that high achievers were the most satisfied and preferred the blended format versus fully online or face-to-face. They also found that blended courses were more convenient and learned concepts better than in traditional face-to-face courses. Researchers recommend that institutions should offer students the opportunity to choose between fully online, blended, or face-to-face courses, especially if considering that low achievers find it difficult to cope with learning in a blended course.

Research shows mixed feedback in regards to format and types of blends. Some students prefer a larger proportion of face-to-face learning whereas others prefer a lesser time spent in class (Castle & McGuire, 2010; Farley, Jain, & Thomson, 2011; Korr, Derwin, Greene, & Sokoloff, 2012). Students usually prefer having face-to-face tutorials (Battye & Carter, 2009) as they strengthen peer learning (Farley et al., 2011; Moore & Gilmartin, 2010; Smyth et al., 2012).

Face-to-face interaction also encourages confidence and supports comprehension of material (Collopy & Arnold, 2009). Unlike upper-year students, first-year university students, especially, prefer that both lectures and tutorials should be taught in a face-to-face format rather than over the Internet, a preference that can be allocated to their lack of familiarity with self-directed and technology-mediated learning. Online discussions might be perceived by students as formal requirements rather than a valued component for their learning (Bliuc, Ellis, Goodyear, & Piggott, 2011). Ellis and Calvo (2004) report that the quality of the approach students exhibit in online and face-to-face discussions is in accordance with the way in which they perceive their learning context. The researchers add that students who have a poor perception of teaching would also neglect to understand the purpose and perform at a lower level in online discussion activities.

Recent studies offer explanations as to why students might experience discomfort in a blended course. Some students are concerned about the reduction of face-to-face interaction and the transfer of a greater amount of learning outside of the traditional classroom (Collopy & Arnold, 2009; Diaz & Brown, 2010; Hsu, 2011; Poon, 2012). Other students appear to be unprepared to navigate efficiently a blended course for lack of self-regulated learning skills needed to manage increased workload online and take their own responsibility for being actively engaged in the learning process (Collopy & Arnold, 2009; Harris, Connolly, & Feeney, 2009; Korr et al., 2012). Furthermore, students may be overwhelmed with the rapid pacing of a blended course that prolongs their class work over an extended period of time and become disruptive to their lives (Moore & Gilmartin, 2010; Smyth et al., 2012). The feeling of continuous learning might be influenced by dissociation of the relationship between online and in-class learning that might result in an increased redundancy of learning activities rather than concentrating on a particular task (Hsu, 2011; Reiss & Steffens, 2010; Korr et al., 2012).

Methods and data sources

A sample of 2,597 students (52% response rate) from a Canadian comprehensive urban university participated in the study. Over a two-year period, the instructors redesigned 40 undergraduate courses from a fully face-to-face lecture format into several different e-learning formats in order to improve students' accessibility and enhance their learning through the use of technology (Monahan, 2010). According to the proportion of class time replaced by time devoted to online activities, those courses were grouped into seven clusters: Web-enhanced (0% online replacement but supplemented with online resources or activities); Blend I (30% online replacement); Blend II (50% online replacement); Blend III (in-class lectures with online tutorials); Blend IV (online lectures with in-class tutorials); Blend V (class lectures with blended tutorials), and fully online (100% online) courses. All courses used Moodle, an open-source learning management system, in which course materials were distributed and online activities (e.g., video lectures and online forums) were carried out.

This research utilized a mixed-method approach to data collection and analysis triangulation to gain a better understanding of student perceptions across varied e-learning formats. Findings of inferential statistical analysis are derived from a student survey data collected at the end of each course participated in the project. The survey was adapted from existing student surveys employed elsewhere in e-learning studies in order to address issues such as sustaining students' satisfaction, providing better experience to commuter students, facilitating better engagement, and improving learning outcomes (e-Learning Working Group, 2010). The resulting survey contained 29 items, of which 23 were statements followed by a 5-point Likert-style scale and 6 were multiple choice questions. Additionally, students were provided with an opportunity to elaborate on their responses provided in the survey. For the purpose of statistical

analysis, data were analyzed using the Statistical Package for Social Sciences (SPSS) in an analysis of descriptives and both multivariate (MANOVA) and univariate (ANOVA) analyses of variance to examine the variability in students' perceptions of e-learning in courses where the proportion of time devoted to online activities varied. In addition to statistics, we performed content analysis of students' comments for trends and themes to achieve greater refinement in data analysis, as well as to elaborate on the emergent issues and concepts pertaining to different blends of classroom and online time as gleaned through the nuances of students' subjective learning experiences (Creswell, 1994; Greene, Caracelli, & Graham, 1989). Further, a triangulation method was employed to connect quantitative and qualitative data in order to corroborate the findings and to provide stronger direction for the optimal condition or blend of face-to-face and online instructional time in designing an undergraduate course.

Results and discussion

Nearly 57% of students reported that they were satisfied with their e-learning course. MANOVA results revealed that students differed significantly on all measures of their perceptions of learning across various course formats, $V = .619$, $F(29, 116) = 9.74$, $p < .01$. Separate ANOVA analyses showed noteworthy differences in students' perceptions such as their feelings about reduction of travel time [$F(6, 2566) = 98.29$, $p < .01$], flexibility in their personal schedule [$F(6, 2571) = 65.08$, $p < .01$], engagement [$F(6, 2559) = 40.06$, $p < .01$], course satisfaction [$F(6, 2577) = 61.27$, $p < .01$], reliability of technology used for online portions of the course [$F(5, 1897) = 43.04$, $p < .01$], and user-friendliness of course Moodle sites [$F(6, 2566) = 38.45$, $p < .01$]. Follow-up Bonferroni post-hoc tests with ANOVA were conducted to examine pairwise difference among the means for significant variability in students' attitudes across all seven e-learning models. The results showed that students in fully online courses scored significantly higher on all 23 attitude measures than students in most blended courses. Nevertheless, students in both Blend I and Blend II scored significantly higher on most measures, as compared to students in Web-enhanced, Blend III, IV, and V courses. Some of these findings could be affected by lack of information about a course format in academic calendars. Unlike fully online courses, a structural organization of blended courses (i.e., a rotation of in-class and online sessions) was not clearly explained in a course calendar that might have resulted in students' frustration with adjusting their schedules with other courses and their out-of-school commitments (e.g., work or family). Other factor might be that students in blended courses were not aware of the availability of courses which offered the same content in a traditional format.

In relation to students' preferred format of instruction, a series of post-hoc analyses showed that online students remained supportive of a fully online format, while students in blended courses tended towards a traditional classroom instruction. Although evidence suggest that Blend I students were disposed to attend blended lectures, as compared to students in Blends III through V who preferred both lectures and tutorials held in a classroom. Those students felt that watching lectures online was time intensive and challenging due to distractions at home and inability to manage a computer-mediated learning environment. Some students indicated that online lectures were hard to fit into their schedules and thus made them easy to fall behind in the course. Interestingly, Blend I students appeared to better understand the relationship between the online and face-to-face course components in the blended course, as compared to Blend V students who scored the lowest. The results also indicated that students in fully online courses were the most engaged, followed by students in Blend I and Blend II; while the least engaged students were in Blend V.

Further, a series of ANOVAs were conducted with two independent variables – course format and students' commuting status and survey measures as dependent variables. Findings

revealed seven significant associations between the survey questions and two independent variables. Follow-up post-hoc testing indicated that commuter students in fully online courses were most positive on four measures representing the factors associated with Moodle comfort level, reduction of commuting time, reliability of technology for online activities, and clarification of course expectations, as compared to commuter students in Blend V who were the least positive on those measures. In addition, commuter students in Blend I and web-enhanced courses were more positive about increased interaction with other students, closer connectivity to others, and improvement of communication skills, as opposed to fully online students.

Scholarly significance of the study

This study shows that students at large consider their learning in varied combinations of classroom and online instructional time as beneficial and satisfying. Although it appears that blended courses where in-class and out-of-class learning are rotated not on a fixed schedule – Blends III through V – are perceived less appealing to students as those programming options offer students less flexibility in being able to adjust their learning pathways in order to fit in their personal schedule and use learning time more efficiently to accomplish course objectives. Additionally, Blends III through V were implemented in large classes with over 250 students that might also affected negatively on students' perception of learning, that is consistent with research on class size in traditional instruction (Bandiera, Larcinese, & Rasul, 2008). This study suggests that if the design of a blended course is properly balanced (where an online component is less-dominant such as Blend I) and delivered to students on a fixed schedule, students may enjoy and benefit from their learning, particularly those who have to commute to campus to get their education.

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