A Comparison of Factors Affecting Student Performance and Satisfaction in Online, Hybrid and Traditional Courses

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ABSTRACT

While numerous studies have contrasted the outcomes between online and traditional class formats, few have examined the effectiveness of the hybrid delivery method in business education settings. This paper presents and tests a model for analyzing factors affecting student performance and satisfaction with instructional format across three delivery methods. Specifically, the paper hypothesizes that opportunities for greater participant interaction, course clarity, and learner control may be distinct advantages of hybrid courses leading to greater student satisfaction and performance.

Keywords: hybrid, online, delivery mode, student satisfaction and performance

INTRODUCTION

Interest in online course delivery has increased significantly in the last decade. As a result, more courses are now supported by online technology or offered fully online. Business schools have been among the most proactive in terms of using online course delivery methods. Despite favorable trends toward the adoption of online learning, a dilemma pertains to the extent to which online technologies should be incorporated within business courses.

At one extreme, *traditional face-to-face* teaching is used where all lecture/discussion is conducted face-to-face in the classroom. At the other extreme, *purely online* courses deliver all course content online often through a course delivery platform such as Blackboard or Moodle. However, a third option, the *hybrid*/*blended* course has emerged. This approach blends online learning with the traditional face-to-face classroom format. Some suggest the hybrid approach may provide the "best of both worlds" and further enhance the learning outcomes of students beyond those achieved in either traditional classroom settings or purely online delivery methods (Garrison and Kanuka 2004; Klein, Noe, and Wang 2006).

While hybrid courses have grown in popularity, researchers have only recently begun to study this course delivery method in business education settings. A literature review conducted by Arbaugh (2014) reported that the vast majority of studies pertaining to course delivery compared purely online courses with traditional classroom-based courses. In a comprehensive search for peer-reviewed articles published between January 1, 2000 and December 2013, Arbaugh found 338 articles that examined online and/or hybrid learning in business and management education. Of these articles, 59 specifically addressed hybrid learning. Very few compared online, hybrid and traditional delivery methods simultaneously.

Furthermore, previous studies examining hybrid and online learning have generally not attempted to explain why or under what conditions one method may be more effective than another. This paper presents a conceptual framework for analyzing factors affecting student performance and satisfaction across online, hybrid and traditional course delivery methods. More specifically, the paper proposes that opportunities for enhanced participant interaction, improved course clarity, and higher levels of learner control may be distinct advantages of hybrid delivery methods leading to greater student satisfaction and performance.

DEFINITIONS OF DELIVERY METHODS

Until recently, business education research has generally failed to explicitly define what constitutes an online, hybrid, or traditional course. The lack of specificity in indicating the degree of blending within courses has limited researchers' ability to determine the conditions under which online, hybrid or traditional learning is most appropriate (Kellogg and Smith 2009). Consequently, the three delivery modes are formally defined below.

Defining what constitutes a hybrid learning environment has been a challenge. According to Colis and Moonen (2001) hybrid learning is a blend of "traditional face-to-face and online learning so that instruction occurs both in the classroom and online, and where the online component becomes a natural extension of traditional classroom learning." The categorization of a course as hybrid is a function of the amount of instruction provided face-to-face versus online. The cutoff for this categorization differs by researcher. However, consensus is emerging that a hybrid course combines online learning with traditional face-to-face class time where between 30% and 79% of course content and activities are delivered online (Allen, Seaman and Garrett 2007; Arbaugh 2014).

The definition of "online" also varies widely. In a body of reviewed research, McFarland and Hamilton (2006) found an "online" course could alternatively mean; (1) a course having materials delivered online that does not meet synchronously, and does not meet face-to-face; (2) a course having materials delivered online that meets synchronously and regularly; or (3) a course delivered by videoconferencing, where a live instructor is lecturing in one location and students are viewing the lecture somewhere else. For the purposes of this research, an online course is one where at least 80% of the content is delivered online. Purely online courses have no face-to-face interaction between the instructor and students and among students (Allen, Seaman and Garrett 2007).

Traditional instruction is characterized by student and faculty interaction via lectures, discussion and exams on campus at scheduled times and days (Terry 2007). However, even defining what constitutes a traditional course is complicated by today's technology driven instruction. The majority of business instructors today incorporate some mode of online communication or course content delivery even if the vast majority of instruction takes place in a face-to-face setting. For the purposes of this research, a traditional course is one which regularly meets in a face-to-face setting where 0 to 29% of the content is delivered online (Allen, Seaman and Garrett 2007).

PREVIOUS RESEARCH AND HYPOTHESES

Despite the limited number of studies focusing on the hybrid model, some observers believe this approach can offer unique benefits to students by combining the flexibility of online instruction with the interactivity of classroom settings (Arbaugh 2014). The following provides a rationale explaining why and under what conditions hybrid learning may enhance learning outcomes such as student performance and satisfaction.

Performance and Satisfaction

Much of the existing research in business literature has focused on contrasting the outcomes between traditional and purely online courses. Specifically, many studies have focused on the outcomes of student performance and student satisfaction. Generally, these studies have shown no significant difference in student performance (measured by test scores, course grades, or performance of learned content) when comparing purely online and traditional courses (Arbaugh, 2000; Borthick and Jones 2000; Kock et al. 2007). On the other hand, studies have shown significantly lower student satisfaction with the online delivery method compared to traditional face-to-face courses (Carr 2000; Rivera and Rice 2002; Schoech, 2000; Weber and Lennon 2007).

Research comparing the outcomes of online, traditional and hybrid courses has been scarce. To date, the few studies that have compared hybrid with online delivery or traditional delivery generally have shown favorable results for the hybrid format. For example, Means,Toyama, Murphy, Bakia, and Jones (2010) using hybrid studies in their meta-analysis, found that hybrid courses demonstrated stronger learning outcomes than did face-to-face courses. In other studies, hybrid courses have been shown to yield higher skill development (Chen and Jones 2007; Kovack, Miley, and Ramos 2012) and higher course performance (Clouse and Evans 2003; Hamilton and Te 2010; Keith and Simmers 2013; Terry 2007) relative to purely online or face-to-face classroom based offerings. Similarly, other studies report higher student satisfaction and lower drop-out rates with hybrid courses compared to purely online (Black 2002; Hara and Kling 2001; Terry 2007).

Although most of these studies did not compare hybrid, online and traditional courses concurrently, the collective findings suggest that students taking a hybrid version of a business course may have greater satisfaction with the course and higher course performance as compared to students taking the same course in a purely online or traditional format.

Hypothesis 1a: Students participating in hybrid courses will report higher levels of satisfaction compared to students participating in purely online or traditional courses.

Hypothesis 1b: Students participating in hybrid courses will achieve a higher performance level compared to students participating in purely online or traditional courses.

Participant Interaction

The hybrid course delivery setting may yield more positive outcomes due to the opportunity for interaction and collaboration with fellow students and the instructor. This format not only requires students to communicate online, but also to attend a certain number of classroom meetings with the instructor. Thus, a student enrolled in a hybrid course has the opportunity for more face-to-face interaction than a student enrolled in a purely online course. This face-to-face interaction may foster relationships and give students a stronger sense of class community.

In addition, the text-based computer-mediated communication (CMC) that is used in online learning for discussion forums and other group communication may promote a level of reflective interaction that is often lacking in a traditional classroom. Students in hybrid classes not only interact face-to-face, but also may participate in online discussion where they have time to read messages, reflect on them, and write thoughtful responses. Thus, hybrid courses offer students a greater range of opportunities to collaborate and interact with each other and the instructor than either online or traditional courses. Some preliminary research supports this proposition. In a comparative analysis of hybrid, traditional and fully online graduate courses, Rovai and Jordan (2004) found that hybrid courses produced a stronger sense of community among students than either traditional or fully online courses.

Preliminary research in online business education has found interaction between students, fellow students, and the instructor to be a prominent predictor of course outcomes (Arbaugh and Rau, 2007; Brower 2003). Swan (2001) found that most students who reported higher levels of interaction with their instructor and peers also reported higher levels of satisfaction and learning. Graham and Scarborough (2001) supported Swan's findings with a survey showing that 64% of students felt that having access to a group of students was important. Similarly, other studies have reported strong associations between interactive teaching styles and high levels of learner satisfaction and learning outcomes (Arbaugh, 2000; Swan, 2001).

In contrast, a common complaint about purely online courses is the lack of personal interaction between students and professor. Hara and Kling (2001) found that feelings of isolation were an important stress factor for online students. Insufficient interactions of students with peers and faculty are likely to result in a low sense of community and feelings of isolation causing dissatisfaction and lower performance.

Hypothesis 2a: Higher levels of perceived interaction between the instructor and students and among fellow students will be associated with higher levels of student satisfaction.

Hypothesis 2b: Higher levels of perceived interaction between the instructor and students and among fellow students will be associated with higher levels of student performance.

Hypothesis 2c: Students will report higher levels of perceived interaction in hybrid courses compared to purely online and traditional courses.

Learner Control

Learner control refers to the extent to which students are given control over instructional features that influence the pace, content and structure of the learning environment (Brown, 2001). In other words, learner control is the extent to which students can choose what, when, where, and how to learn (Kraiger & Jerden, 2007). Examples of high level learner control include giving students the choice of what instructional content to view, when and in what order to view that content, or whether to complete optional quizzes. Thus, learners are given more control over their own instruction and can follow a more individualized approach. A key benefit of high learner control is that students can structure their learning environment to suit their particular needs.

Several studies indicate that pacing is an important incentive for students when selecting online courses (Richards & Ridley, 1997; Roblyer, 1999; Wilson & Whitelock 1998). Students like the opportunity to choose both when and where to learn. When students can control the pace of learning, satisfaction with the course improves (Runnels, Thomas, Lan, Cooper, Ahern, Shaw and Liu, 2006).

Klein, Noe and Wang (2006) found that students in hybrid classes were more motivated to learn and had higher course grades than students in traditional classrooms. They noted a primary difference between hybrid and traditional classes was the additional technology used in hybrid courses which gave students more control over when and where they learned and provided more tools to facilitate learning. Others have noted that these approaches allow instructors to change how class time is used to better tailor opportunities for student learning. Additionally, White and Ploeger (2004) suggested that while the traditional class is instructor-centric and sequential, the properly designed hybrid or online class is learner-centric where students are able to non-sequentially review and refer back to materials as they need them. A wider variety of learning tools which are conveniently accessible should provide opportunities for improved student performance.

Hypothesis 3a: Higher levels of perceived learner control will be associated with higher levels of student satisfaction.

Hypothesis 3b: Higher levels of perceived learner control will be associated with higher levels of student performance.

Hypothesis 3c: Students will report higher levels of perceived learner control in hybrid and online courses compared to traditional face-to-face courses.

Course Clarity

Clarity is defined as the quality of being easily understood. Course clarity is crucial to the success of student learning. It may be achieved through (1) clearly communicating course objectives, procedures, and expectations; (2) organizing course materials into logical and understandable components; and (3) presenting material in ways that students can easily follow (Eom, Ashill and Wen, 2006).

Some comparative studies of online and traditional classroom settings have found that perceived ambiguity (i.e., the opposite of clarity) is higher in online courses. Perceived ambiguity occurs when students lack clear information regarding course objectives and expectations, methods for fulfilling known course expectations, and/or consequences of performance of those expectations. Some suggest that hybrid course formats provide students with the possibility of clarifying instructions. Students do not appear to be as distraught with hybrid courses because they have the option of seeking answers to questions in person with either fellow students or the instructor (Hwant and Arbaugh 2009).

Kock, Verville, and Garze (2007) found that while perceived ambiguity was higher and grades were lower in online courses than in traditional courses early in the semester, these differences no longer existed by the end of the course. This progression suggests that a hybrid format may offer the opportunity to accelerate the process where new online students become more comfortable with learning online. When students are confident of course objectives, procedures and expectations and can follow the instructors method of presenting material, they should be more satisfied with the course and achieve better performance.

Hypothesis 4a: Higher levels of perceived course clarity will be associated with higher levels of student satisfaction.

Hypothesis 4b: Higher levels of perceived course clarity will be associated with higher levels of student performance.

Hypothesis 4c: Students will report higher levels of perceived course clarity in hybrid and traditional face-to-face courses compared to online courses.

RESEARCH DESIGN

Course Format Descriptions

The purpose of this study was to: (1) compare the efficacy of the three delivery modes using a multi-disciplinary sample; and (2) determine what factors might contribute to student performance and satisfaction across the three delivery modes. To this end, the study examined three different courses (i.e., Management Information Systems, Retailing and E-Commerce, and Entrepreneurship), taught using three delivery modes (i.e., online, traditional, and

hybrid). The same instructor taught all three versions of the same course. To ensure courses within each discipline were comparable, instructors used the same text, course outlines, assignments, assessments and grading standards across all three delivery modes. Course formats are described as follows.

Online courses. For the online courses in this study, content was delivered exclusively online. All sections used Moodle as the course management system. Course materials in the form of voice-over PowerPoints, streamed videos, lecture notes, text based supplementary materials, external links, discussion forums, and online quizzes were offered through the course management system. Students met face-to-face two times during the term to take a mid-term and final exam.

Traditional courses. Students in traditional course sections met face-to-face either twice a week or three times a week where the instructor used a lecture/discussion format. The traditional course sections also used Moodle as a course management system, but did so only to support classroom activities (e.g., posting the syllabus, grades, slides and notices from the instructor). Approximately, 90% of course content (excluding assigned readings) was delivered face-to-face by the professor. All major exams were administered in the classroom.

Hybrid courses. Students in hybrid courses met face-to-face in the classroom approximately once a week for class lecture/discussion. Instructors used a 50-50 blend where each hybrid course substituted online instruction for approximately one half of the term's class periods. All major exams were administered in the classroom.

Sample

The sample consisted of students enrolled in 13 different sections of business courses offered at a private regional university. Students self-selected whether to enroll in an online, hybrid or traditional course format. At the conclusion of each course, students were asked to complete a questionnaire. They were informed that participation was voluntary and that all results would be kept confidential. After final course grades were submitted to the university, each student's survey results were matched to his/her final course grade. All names and identifying markers were removed from the questionnaires before they were passed to the researcher who performed the coding and data entry.

Data collection occurred over two consecutive semesters during a single academic year. A total of 178 students completed surveys. Most participants (104 of 175) were in the 20-24 age range. Fifty-one percent were women. The vast majority were undergraduate students (98.3%), who worked an average of 23.4 hours a week and were enrolled in an average of 4.5 courses per semester.

Measures

*Student Performance***.** Student performance was assessed using each student's final numeric grade earned in the course. Previous studies have used grades to reflect performance and student mastery of the material covered in the course (Klein, Noe, Wang 2006; McFarland and Hamilton 2006; Rivera and Rice 2002). In all classes, regardless of delivery mode, final grades were based on exam scores and other assessments. The additional assessments included a combination of team projects, quizzes, and/or written assignments. Within each discipline, instructors used the same assessments, procedures, and criteria across the three delivery modes to determine final grades. Course grades were obtained from instructor records at the conclusion of the term.

Student Satisfaction. Student satisfaction with the course was assessed using a 3-item scale. The items for satisfaction were adapted from prior research (Estelami 2012; Klein, Noe, and Wang 2006; and Rivera and Rice 2002). Questionnaire items addressed overall student satisfaction, satisfaction with the course format, and whether students were willing to enroll in a similar course in the future. Students rated their agreement with each item (e.g., "Overall, I was satisfied with this course") using a 5-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree". The internal consistency reliability estimate, Cronbach's Alpha, for this scale in this study was .89.

*Participant Interaction***.** Participant interaction was assessed using a four-item scale adapted from a subscale developed by Eom, Wen and Ashill (2006). After conducting an extensive literature review, they designed a list of items they believed were logically associated with the factors in their model, one being participant interaction. Their measurement model was validated through factor analysis, reliability analysis, and correlation analysis. Results provided support for the reliability and convergent and discriminant validities of the measures used in their study. In the present study, students rated their agreement with each item (e.g., "I frequently interact with other students in

this course") using a 5-point Likert scale. The internal consistency reliability estimate, Cronbach's Alpha, for this scale in this study was .82.

Course Clarity. Course clarity was also assessed using a five-item scale adapted from the Eom, Wen and Ashill (2006) measurement model. Similarly, students rated their agreement with each item (e.g., "Course objectives and procedures were clearly communicated") using a 5-point Likert scale. The internal consistency reliability estimate, Cronbach's Alpha, for this scale was .89.

Learner Control. Learner control was measured using a three-item scale adapted from Copcha and Sullivan (2008). Students rated their agreement (e.g., "I could learn course material at my own pace") using a 5-point Likert scale. Items were designed to measure student perceptions of how, when and in which order they could complete coursework. This conceptualization included not only pace control but other facets of control important for student self-regulation. The internal consistency reliability estimate, Cronbach's Alpha, for this scale was .73.

Control Variables. The researchers also measured demographic variables to assess the comparability of students across the three delivery modes. Specifically, the researchers measured age (1=<20, 2=20-24, 3=25-34, 4=35-44, and 5= >44), gender (1=Male, 2=Female), and the number of hours worked each week.

FINDINGS

The means, standard deviations, and correlations among the variables in the study are shown in Table 1. As depicted in the table, individuals reported generally positive levels of satisfaction, clarity, and interaction. Additional analysis found satisfaction and interaction were highest in the traditional delivery method ($\bar{x}$=4.04 and 4.11) and lowest in the online method ($\bar{x}$=3.87 and 3.67). Interestingly, clarity, while high in all three methods, was highest in the online delivery method ($\bar{x}$=4.48) and lowest in the traditional delivery method ($\bar{x}$=4.27). This is interesting in that clarity was also highly correlated with all of the variables of interest in our study. The high correlation between student satisfaction and clarity (r (178)=.60, p<.001) suggests the importance of clear expectations and organization regardless of the delivery method. This is further emphasized when, as shown in the table, performance is significantly positively correlated with all of our variables of interest. The lack of any significant negative correlations between the variables of interest reinforces the expectation that improvements in course as well as individual perceptions will be beneficial.

Table 1: Means, Standard Deviations, and Intercorrelations Among all Variables

		M	SD	1	2	3	4	5	6	7	8
1	Instructor	1.93	.05								
2	Age	2.61	.92	-.23**	--						
3	Gender	1.51	.50	-.02	.08	--					
4	Performance	76.92	11.45	.08	-.07	.12	--				
5	Satisfaction	3.99	.96	.13	.06	-.04	.23**	--			
6	Interaction	4.00	.78	-.04	-.05	-.12	.28***	.41***	--		
7	Clarity	4.33	.61	.04	.21**	.08	.23**	.60***	.34***	--	
8	Control	3.80	.76	.07	.05	.04	.15*	.49***	.42***	.45***	--
9	Motivation	3.60	.66	.011	.26**	.08	.20**	.17*	.05	.20**	.10

NOTE: n=178, * p< .05, ** p< .01, ***p<.001

Additional analysis of delivery method (1=traditional, 2=hybrid, and 3= online) revealed that while there was no significant correlation between student performance (r(177)=-.07, p>.05) or satisfaction (r(178)=-.07, p>.05) and delivery method, there was a significant negative correlation between delivery method and student interaction (r(178) = -.22, p<.01), indicating lower perceived interaction with others as the course becomes more remote. Additional analysis also found significant correlations between delivery method and age (r(175)=.69,p<.001), gender (r(176)=.25,p<.001), and hours worked (r(175)=.59,p<.001) indicating that there are some differences in the student populations selecting different delivery methods.

Correlation analysis showed there were no significant correlations between any of the control variables (instructor, student gender, and student age) and student satisfaction or performance, so t-tests were used to test many of the hypotheses.

There was insufficient evidence to suggest a significant difference between the satisfaction of students in hybrid courses, as compared to either traditional ($t(137) = -.401$, $p > .05$) or online ($t(71) = .381$, $p > .05$) failing to support Hypothesis 1a. There was also not enough evidence to suggest a significant difference between the performance of students in hybrid courses, as compared to either traditional ($t(136) = .476$, $p > .05$) or online ($t(71) = 1.415$, $p > .05$) failing to support Hypothesis 1b.

Significant correlations between student interaction and student satisfaction ($r(178) = .41$, $p < .001$) and student performance ($r(177) = .28$, $p < .001$) provide support for Hypothesis 2a and 2b respectively. For Hypothesis 2c there was insufficient evidence to suggest a significant difference between student interaction in hybrid courses, as compared to traditional ($t(137) = -.527$, $p > .05$), however there was a significant difference in perceived interaction between hybrid and online courses ($t(71) = 2.08$, $p < .05$) providing partial support for Hypothesis 2c.

Support for Hypothesis 3a and 3b respectively was indicated by significant correlations between perceived learner control and student satisfaction ($r(178) = .49$, $p < .001$) and student performance ($r(177) = .15$, $p < .05$) respectively. Hypothesis 3c was not supported as there was no significant difference in the perceived learner control between either the hybrid and traditional ($t(137) = -.199$, $p > .05$) or online and traditional courses ($t(142) = 1.44$, $p > .05$).

Significant correlations between perceived course clarity and student satisfaction ($r(178) = .60$, $p < .001$) and student performance ($r(177) = .23$, $p < .01$) provide support for Hypothesis 4a and 4b respectively. Hypothesis 4c was not supported as there was no significant difference in the perceived course clarity between either the online and traditional ($t(142) = --1.918$, $p > .05$) or online and hybrid ($t(71) = -1.008$, $p > .05$) courses.

CONCLUSIONS

The presented framework attempts to set up a structure for analyzing factors affecting student performance and satisfaction across online, hybrid and traditional course delivery methods. Hypotheses are presented which help explain how participant interaction, learner control and course clarity may affect student satisfaction and performance and which may differ across the three delivery methods.

Our results show that participant interaction, learner control, and course clarity are related to student satisfaction, regardless of course delivery method and across all instructors and disciplines. The same result is found for all three variables in regards to student performance. Collectively, these are significant findings. Most importantly, this understanding allows educators to shift their focus from delivery method to other course design factors when working to improve student outcomes.

Given the current literature, the finding of no difference in student satisfaction or in student performance across the three delivery methods was unforeseen. This may indicate that previous studies were actually finding differences at the instructor level rather than with the delivery method itself.

It was also unexpected that students failed to report higher levels of participant interaction, learner control, and course clarity in hybrid courses. It is possible that earlier studies that found hybrid comparing favorably with online were in fact showing differences in instructor, text, or course design.

Another finding that was counter to expectation was that students reported higher levels of course clarity in online sections than either traditional or hybrid ones. It was thought that students would experience more ambiguity and confusion in the online setting, since there are fewer opportunities to clarify course expectations and instructions. This may indicate that the online format requires instructors to spend more time explaining course parameters to help alleviate any shortcomings with the online delivery method.

LIMITATIONS AND FUTURE RESEARCH

This study has several strengths, mainly due to its design. While existing research compares the efficacy of different delivery methods, it is unusual to have three different methods taught by the same instructor during the same time period. This removes the potential contamination of instructor style or capability. In addition, all of the courses were within the school of business, which removes discrepancies due to subject matter and type of student.

The main limitation of the study is that all of the data was collected from a single university over the course of a single year. Additionally, although the overall sample size was fairly large (a total of 178 completed surveys), the size for the non-traditional sections was relatively small (ranging from 34 in the hybrid sections to 39 in the online sections). Future research should focus on examining the different methods of delivery across multiple organizations in order to increase the robustness of the findings.

Given the sole use of students in this study, caution should be used when making generalizations based only on these findings. It is suggested that students are the primary focus of research into teaching and pedagogy, and thus are an appropriate sample. Future research should examine the generalizability of the findings to a non-student sample.

Data were collected from students enrolled in online, hybrid and traditional versions of retailing, entrepreneurship, and management information systems classes. Results showed that participant interaction, course clarity, and learner control were positively related to student satisfaction and performance, regardless of delivery method and across all instructors and disciplines. Contrary to expectations, no significant differences in satisfaction and performance were found among the three deliver methods. Results suggest when the instructor, text, and course design are held consistent across delivery methods, there are no significant differences in student satisfaction and performance.

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