

## **A COMPARISON OF STUDENT SATISFACTION BETWEEN TRADITIONAL AND BLENDED TECHNOLOGY COURSE OFFERINGS IN PHYSICAL EDUCATION**

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### **ABSTRACT**

Blended learning With the concerns and dissatisfaction with e-learning, educators are searching for alternative instructional delivery solutions to relieve the above problems. The blended e-learning system has been presented as a promising alternative learning approach. While blended learning has been recognized as having a number of advantages, insufficient learning satisfaction is still an obstacle to its successful adoption. Therefore, the purpose of this study was to evaluate students' satisfaction with blended learning course delivery compared to a traditional face-to-face class format in a general multimedia course in physical education. Forty six (n=46) undergraduate students, between the ages of 20-22 years old, were randomly assigned into two teaching method groups: Classroom Lecture Instruction (CLI) and Blended Lecture Instruction (BLI). For the data collection at the end of this study, students completed an online satisfaction questionnaire.

Independent sample t-test analysis was conducted to measure students' satisfaction towards the CLI and BLI methods. Results indicated that a blended course delivery is preferred over the traditional lecture format. These finding suggest that students' satisfaction could increase when the instructor provides learning environments not only in a traditional classroom, but in an asynchronous online system as well.

**Keywords:** Distance Learning, blended learning, traditional learning, student satisfaction, course management system.

### **INTRODUCTION**

In the recent years, many researchers have expressed an interest for blended learning since this is a new and untested fad in education (Clark & Mayer, 2007). Blended learning has been referred to as the "third generation" (Phipps & Merisotis, 1999, p. 26) of distance education systems. Correspondence education was the first generation and utilized a one-way instructional delivery method, including mail, radio, and television. The second generation was distance education, based on single technology, such as computer-based or web-based learning. Finally blended learning is the third generation, characterized as maximizing the best advantages of face-to-face learning and multiple technologies to deliver learning. In general, blended learning includes any combination of learning delivery methods, including most often face-to-face instruction with asynchronous and/or synchronous computer technologies.

Blended learning seems to improve students' learning experience by developing their capacity for reflection (Cooner, 2010). Furthermore blended learning enables the student to become more involved in the learning process (Wang, Shen, Novak, & Pan, 2009). Hybrid learning and blended learning are two terms that have been used synonymously (So & Brush, 2008).

Blended learning is thus a flexible approach to course design that supports the merger of different times and places of learning, offering some of the convenience of fully on-line courses without the complete loss of face-to-face contact. This is one of the reasons that blended learning courses have been well-received (Melton, Graf & Chopak-Foss, 2009). Other advantages obtained include its greater flexibility (Macedo-Rouet, Ney, Charles & Lallich-Boidin, 2009) and reduced costs (Vernadakis, Antoniou, Giannousi, Zetou & Kioumourtzoglou, 2011) in comparison to traditional classes (Woltering, Herrler, Spitzer & Spreckelsen, 2009), especially when large classes are involved.

While research recognized a number of advantages in employing blended learning, insufficient learning satisfaction has long been an obstacle to the successful adoption of this new educational approach (So & Brush, 2008). Therefore, more research has centered on student satisfaction with this type of learning (Melton, et al., 2009). Student satisfaction is defined as "the student's perceived value of his or her educational experiences at an educational institution" (Astin, 1993). The degree of student learning satisfaction with blended learning courses plays an important role in evaluating the effectiveness of blended learning adoption. Hence, comprehending the essentials of what determines student learning satisfaction can provide management insight into developing effective strategies that will allow educational institution administrators and instructors to create new educational benefits and value for their students (Wu, Tennyson, Hsia, 2010).

Student satisfaction is one of the five pillars of quality, together with faculty satisfaction, learning effectiveness, access, and institutional cost-effectiveness (Moore, 2002). Components of student satisfaction need to be investigated as blended education becomes more prevalent and dynamic forces such as adoption rates, learner expectations, levels of support, and other conditions continue to change.

Many studies have found students in online classes to be less satisfied with their course experiences as compared to their traditional, face-to-face colleagues (Priluck, 2004; Summers, Waigandt & Whittaker, 2005; Tallent-Runnels, Thomas, Lan, Cooper, Ahern, Shaw & Liu, 2006) some others have found no significant difference between the delivery modes (Bernard, Abrami, Lou, Borokhovski, Wade, Wozney, Wallet, Fiset & Huang, 2004; McFarland & Hamilton, 2005; Roach and Lemasters, 2006; Stizman, Kraiger, Stewart & Wisner, 2006; Zhang, Zhao, Zhou, & Nunamaker, 2004) and still others have reported online students to be significantly more positive in their evaluations (Kleinman & Entin, 2002; Iverson, Colky & Cyboran, 2005). However, much of the research literature has focused on comparing student satisfaction in face-to-face and online environments, or face-to-face and computer-mediated environments, but few studies have investigated differences in satisfaction between blended students and traditional students.

In their recent research, Larson and Chung-Hsien (2009) conducted a comparison of three delivery modes (traditional, blended, and online) using student exams and final grades. The results reported that despite delivery mode there was no significant difference regarding student satisfaction, learning effectiveness, and faculty satisfaction.

In contrast, Melton, et al. (2009) concluded that a blended course delivery is preferred over a traditional lecture format, and promising data emerged to challenge teachers' traditional approach to teaching general health courses at the university level.

Moreover, Lim & Morris (2009) have reported that student satisfaction increases when blended learning is adopted. As mentioned before, the degree of student satisfaction with courses has played an important role in evaluating the effectiveness of blended learning. Nevertheless, there is a lack of research studies that have examined differences in student satisfaction between blended and traditional learning, especially in the physical education area. Therefore, the purpose of this study was to evaluate student satisfaction with blended learning course delivery compared to a traditional face-to-face class format in a general multimedia course in physical education.

To meet the purpose of this study, the following research question was formulated: Do student ratings of instruction reflect a higher class satisfaction score in the blended sections compared to the traditional face-to-face sections?

## **METHOD**

### **Participants**

The participants in this study were forty six (N=46) third-year undergraduate students from the Department of Physical Education & Sport Sciences at the Democritus University of Thrace taking an elective course titled "Information and Communication Applications – Multimedia Systems" during the fall semester 2008. Two classes were selected for this quasi-experiment. These classes were taught and instructed by the same instructor according to the designed teaching plan throughout the entire course. Participants were randomly assigned to one of the two different teaching methods: CLI (12 males and 10 females) and BLI (13 males and 11 females) creating two independent groups of 22 (47.8%) and 24 (52.2%) students respectively. Prior to group assignments, participants were orientated to the purpose of the study, the experimental group to which they belonged, the method by which the course would be taught and obligations for participation in the experiment. All students in the two classes were asked to participate, but the procedures were different for the two course delivery formats. Each student was asked to give consent to participation in the study and was informed that participation was voluntary.

### **Course Context**

The course under study was a semester-long, 2 credit-hour class, targeted at third-year undergraduate students in the Department of Physical Education & Sport Sciences. Its purpose was to introduce students to the fundamentals of multimedia design. The course provided students with the fundamental skills and knowledge to define a problem and design a multimedia application to solve it, to understand and recognize the characteristics of good multimedia design, to begin to use and apply popular multimedia development tools, and to work as part of a team to produce a workable multimedia solution.

Specifically, students in both environments (CLI, BLI) were required to build a prototype of their multimedia application in the initial stage of this course. In particular, each student was asked to assume the role of a Physical Education teacher working in a secondary school, and to prepare a video presentation aimed at introducing his/her pupils to a specific physical activity and life quality topic, chosen by the student. In the first 45-minutes of each class, the teacher lectured on the guidelines or mistakes and bugs of the video presentation frames. Then, the students had 50-minutes to discuss with their team members about how to implement what they learned.

When the online classes were delivered, students could synchronously discuss and collaborate on the construction of their video presentations through online messenger and chat room. They could also asynchronously interact with team members in their exclusive forums. Moreover, when the classes were delivered in the classroom, students discussed and assigned their tasks in this physical learning environment. Students had to reconsider and modify the prototypes of their video presentations according to the new knowledge they had just acquired.

In this experiment, the instructor initiated students in CLI and BLI into the field of multimedia applications development, planning and creation. He first established the students' essential knowledge and developed required skills in the initial stage of the course. After students climbed the stiff learning curve and encountered bottlenecks, students were required to gather information and solve problems by themselves.

The use of a course management system (open e-Class platform) environment was the main difference between the two groups. The amount of material covered in the blended learning course, and the depth with which it is covered, was in general equal that of a classroom face-to-face course.

### **Satisfaction Scale**

One of the best developed and most widely used student feedback questionnaires in the literature is the Student Evaluation of Educational Quality (SEEQ) (Marsh, 1982). The SEEQ is not based on student learning research but on psychometric analysis. A consequence of this is that while the constructs underlying the SEEQ are less well supported by learning theory, the psychometric characteristics of the questionnaire are developed to a high degree. Participants in this study completed a 12-items modified version of the SEEQ questionnaire (Centra, 1993) using a 5-point Likert scale with the following variables: strongly agree = 5, agree = 4, neutral = 3, disagree = 2, and strongly disagree = 1. The SEEQ has an exceptionally high level of reliability (Cronbach's alpha from 0.88 to 0.97). It also has a reasonable level of validity in that scale scores correlate significantly with a wide range of measures of learning outcome such as student marks on standardised examinations, student feelings of mastery of course content, plans to apply skills learnt on the course and plans to pursue the subject further (see Table 1).

### **Data Collection**

Data for this research was collected using an online survey. The online survey was designed in such a way that when participants first clicked on the link to the survey, they were shown an informed consent letter explaining the purpose and structure of the survey, their rights as participants, as well as any possible risk involved in participation of this research. In the letter, participants were also given the email address of the researcher in case there were other questions regarding the research that a participant wished to clarify. The email could also be used if a participant was interested in knowing the results of the research study.

The online survey was divided into two different sections (demographic information, and student satisfaction). After reading the informed consent letter, the participants completed the survey in a section-by-section manner, that is, after the completion of one section, the participant was asked to click a next button to go to the next section, until all sections were completed. The survey was also designed with an embedded program so that if a participant chose to skip any item, a remark designed using JavaScript appeared requiring the participant to complete the missing item before he or she proceeded to the next section.

After completion of the entire survey, the participant clicked on a submit button, which sent the completed questionnaire to a secure server accessible only by the researcher. It was determined that participants would need approximately 30 minutes to complete all sections of this instrument.

No technical errors were encountered during the completion of the online questionnaire. Data were analyzed using SPSS 17 statistical software.

### Design

Research methodology employed a quantitative, posttest control group design. Use of intact classrooms, where students are not individually assigned to groups, denotes a quasi-experimental research design (Green & Salkind, 2007). Specifically, the experiment on satisfaction was a factorial design with teaching method groups (CLI and BLI) and post-test measurement as independent variables, and student's scores from the satisfaction scale as dependent variables.

## RESULTS

An alpha reliability analysis was used to verify the internal consistency of the satisfaction survey. Independent sample t-test analysis was conducted to measure students' satisfaction towards the CLI and BLI methods.

Each variable was tested using an alpha level of significance .05. The results of each analysis are presented separately below.

### Reliability of satisfaction scale

Reliability analysis of the on-line subjective satisfaction survey instrument showed an alpha reliability coefficient of .90 for the questions that were designed to measure student satisfaction. According to Green & Salkind (2007), the reliability coefficients should be greater than .70 before we can assume sufficient reliability for a research tool. Thus, the determination was made that the satisfaction survey was reliable measurement instrument.

### Student satisfaction comparison

To compare student satisfaction at completion of the course, all participants completed a satisfaction survey which consisted of a modified SEEQ (Centra, 1993). All of the 12 questions that comprised the SEEQ were rated higher for the blended course design (Table 1).

Table: 1  
Means and standard deviations for post-test scores of the two groups on satisfaction

Questions	Blended Mean (SD)	Traditional Mean (SD)	T value	Sign.
1. Class size is appropriate	4.44 (0.62)	3.91 (0.94)		
2. The class activities were engaging	4.13 (0.76)	3.70 (0.97)		
3. The class environment was inviting	4.11 (0.80)	3.50 (1.08)		
4. The class was fun	3.73 (0.88)	3.10 (1.22)		
5. I was bored in class	2.67 (1.15)	3.25		

6. I enjoyed going to class	3.21 (0.99)	(1.19) 2.83 (1.25)		
7. I felt comfortable to voice my opinion in class	3.80 (0.87)	3.16 (1.06)		
8. I learned from my peer experiences	3.50 (1.02)	2.92 (1.17)		
9. I felt my presence was valued in the class	3.48 (0.95)	2.75 (1.13)		
10. I felt comfortable approaching the instructor	4.01 (0.90)	3.85 (1.01)		
11. The instructor encouraged class discussion	4.30 (0.71)	3.64 (1.03)		
12. I would recommend this class to a friend	3.92 (0.94)	3.58 (1.24)		
Composite Student Evaluation Score (Q1 – Q12)	45.30 (10.59)	40.19 (13.29)	4.21	p < .001

A composite score for the SEEQ was calculated, and the overall mean was higher for the blended course (45.30) than the traditional course (40.19). Significant differences for total mean scores of SEEQ are reported in Table: 1. The total scores between the blended (45.30) and traditional (40.19) were significantly different  $t(44)=4.21$  ( $p < .001$ ) indicating that blended students judged the quality of education to be higher than traditional students.

## DISCUSSION

When educators provide educational alternatives, they need to take into consideration whether students enjoy these alternative forms of learning. Blended learning course delivery environments have recently become a very prominent instructional delivery alternative in tertiary education. Therefore, the purpose of this study was to evaluate students' satisfaction with blended learning course delivery compared to a traditional face-to-face class format in a general multimedia course in physical education. Results indicated that the mean satisfaction scores were significantly different between the blended and traditional course. Specifically, the analysis revealed a significant difference in class satisfaction between the blended learning section and the traditional sections, with blended learners reporting a higher level of class satisfaction. This finding suggests that a blended learning format can be a viable option to maintain and maybe even increase students' satisfaction.

One possible explanation for the success of blended learning environment on student satisfaction could be that the blended course model allows students to accomplish course learning objectives more successfully than the traditional course (Amrein-Beardsley, Foulger & Toth, 2007). In addition, it seems that supplementing traditional in-person methods with web-based activities and resources, made the course more accessible and interactive to cultivate increased student interest and self-exploration (Amrein-Beardsley et al., 2007). Furthermore, students seemed to appreciate the flexibility related to the online portion of the course (Ireland, Marindale, Johnson, Adams, Eboh & Mowatt, 2009; So, 2009).

Finally a blended course appears to have the potential of accommodating some of the various learning needs of the students because of its advantage of multiple instructional delivery modalities (Vernadakis et al., 2011). In other words, the high levels of student satisfaction may be due to the fact that there was a good fit between the blended course delivery method and the expectations and needs of the students.

However, since the blended learning design focused on active learning in the classroom portion of the course; students might have rated higher satisfaction not necessarily-just due to the blended design, but also as a result of the enjoyment of the in-class portion.

This finding was fairly consistent with other studies in the literature which seem to indicate that student satisfaction and success rates in blended courses was equivalent (Larson and Chung-Hsien, 2009) or slightly superior to traditional courses (Melton, et al., 2009; So, 2009; Schober, Wagner, Reimann, Atria & Spiel, 2006; Taradi, Taradi, Radic & Pokrajac, 2005). In addition, studies have shown that most online learners do prefer some face-to-face contact with instructors and tend to be more successful when this occurs, thus supporting the blended course model (Melton, et al., 2009; Riffel & Sibley, 2005; Schober et al., 2006).

Given that this study was not a true experimental study, there are certain limitations inherent in the sample groups. The participants used were samples of convenience pulled from a population of course-enrolled students who had given permission during the first week of class for their course data to be collected and used for future research. The limitations of the sample groups include, but are not limited to, non-randomization of participants, personal characteristics of the students within each group. Another limitation is that the course used is an elective course. The students who choose to enroll in this elective course may be very different in character, maturity, motivation, and ability than students who chose not to take the course.

The major thrust of blended instruction is to overcome the shortcomings of online instruction and utilize various instructional sequencing and delivery strategies to enhance learner satisfaction while also achieving increased learning outcomes.

The explosion of blended learning course delivery in supporting learning has made it extremely significant to focus future research on exploring the appropriate conditions, which would entice learners to adopt this new approach and enhance their learning satisfaction. Comprehending the essentials of what increases student learning satisfaction can provide better management insights into developing effective strategies that will allow universities to create new opportunities and value for their students and instructors.

## **CONCLUSION**

In conclusion, this study has revealed that blended course has the potential of bringing the best ends of two worlds together via its potential of meeting diverse learning needs with its multiple modes of delivery.

Student satisfaction could increase when the instructor provided learning environments not only in a traditional classroom, but in an asynchronous e-learning platform as well. However, because the demand for both students and faculty were higher in a blended course, enough transitions and preparations are required before rushing into any blended learning.

Recommendations emanating from the study include repeated research on satisfaction among different course formats in general physical education courses, accompanied by longitudinal studies to determine any long-term effectiveness.

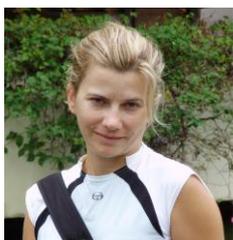
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the Olympic Games ATHENS 2004.

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