# A comparative analysis of student engagement levels between face-to-face and virtual health and physical education courses

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## Abstract

The goal of this study was to compare the degrees of engagement that health and physical education students encountered in traditional lecture settings to those that they encountered in online learning environments. Individuals by oneself Engaging in Twenty-two first-year college students majoring in physical education and health were involved in the study. These university students took part in a three-hour summer session course. There are two separate components to the course, and students are able to pick which to study. While the second class viewed an online video presentation of the identical subject, the first class engaged in a typical in-person lecture. The course's online and in-person versions had the same exercises and content, hence there was no noticeable difference between them. There were two options for the course: online and in-person. A total of 34 Likert-scale questions were presented to the students in order to evaluate their level of interest in the subject. The replies collected from the two independent research groups were examined and compared using the Mann-Whitney Test. The significance level of 0.05 was employed in this investigation. None of the 34 methods employed to measure involvement, according to the results, indicated any statistically significant indicators of change.

**Keywords:** engagement, undergraduate, physical education

## Introduction

With the increasing number of students opting for online courses, colleges are striving to meet the growing demand for such educational offerings. According to Allen and Seaman (2010), there was a 1.2% increase in traditional student enrolment compared to the previous year, but online student enrollment had a substantial growth of 17%. Universities have the potential to meet the increasing need for online education by prioritizing the various aspects that impact students' satisfaction and overall achievement in the realm of online learning. A substantial body of research exists pertaining to the overall happiness of students with online education. Several recent research have examined various aspects of online learning and its impact on learner satisfaction. These studies have explored factors such as student characteristics, technology usage, course design and instruction, student evaluation methods, and student engagement. However, these studies have not specifically focused on the delivery mechanism of online learning. The subsequent paragraphs present a succinct overview of the existing literature pertaining to each of the aforementioned subjects.

## Student Characteristics

A variety of characteristics are taken into consideration in the evaluation process for online students. There have been a great number of scholarly investigations carried out to assess demographics; however, the precise demographic characteristics that have

been investigated in each study have a tendency to display a degree of variation. According to the findings of a recent study that was carried out by Pontes, Hasit, Pontes, Lewis, and Siefring (2010), it was discovered that individuals who choose to enroll in online courses frequently had concurrent employment commitments, were married or had dependents living with them, or experienced physical limitations that restricted their mobility. Additionally, it was found that individuals who chose to enroll in online courses were more likely to be older. According to a number of academic sources (Beqiri, Chase, & Bishka, 2010; Muilenberg & Zane, 2005; Pontes et al.), recent research has found that a greater distance between one's place of residence and the university campus, as well as being a graduate student, are additional factors that can predict higher rates of enrolment in online courses. These findings were published in the Journal of Educational Computing Research. Previous studies (Banks and Faul, 2007; Bickle and Carroll, 2003; Clayton, Blumberg, and Auld, 2010; Muilenberg and Zane, 2005) have shown that factors such as age, family structure, employment status, and personal schedules play a significant role in influencing individuals' decisions to enroll in online courses.

## How Students Interact

The establishment of a feeling of community is closely tied to student involvement, making it a key element in the context of online learning. According to Lao and Gonzales (2005), the establishment of a learning community is a vital component of online learning. It has been observed that students engaged in online learning have challenges in establishing a sense of connection and belonging within a community (Song, Singleton, Hill, & Koh, 2004; Ritter, Polnick, Fink, & Oescher, 2010). Contradictory evidence pertaining to the benefits of learning communities was uncovered by Lapointe and Reisetter (2008). Certain students discovered that the virtual community had a positive impact on their academic pursuits, whilst others did not share the same sentiment.

## Planning and teaching the course

The comparison and contrast between students' preferences for traditional face-to-face instruction and distant learning have been extensively examined in many research studies. As per the findings of Song et al. (2004), students frequently expressed that the course design was characterized by a combination of rigor and utility, which contributed to their achievements inside the online learning setting. According to Anderson (2006), students held an unfavorable perception of online education as a result of encountering chaotic instructors. Based on the findings of Hoban, Neu, and Castel (2002), it was observed that students expressed higher levels of satisfaction with online learning as compared to in-person learning, particularly when considering variables such as curriculum rigor, quality of instruction, and individual attention.

## Evaluation of Students

Numerous outcomes have been accomplished as a result of the influence of student evaluation and existing knowledge on student satisfaction with instructional delivery methods, encompassing both online and in-person training. In a study conducted by Banks and Faul (2007), a comparison was made on the efficacy of several instructional approaches in delivering educational material. The findings of the study indicated that

there was no significant disparity in the level of knowledge acquisition resulting from the utilization of different instructional methods. Nevertheless, previous research indicates that students express a high level of satisfaction with their academic achievements in assessments associated with remote education (Sampson, Leonard, & Coleman, 2010; Sherman, Crum, & Beaty, 2010). The aforementioned investigations were carried out by Sampson, Leonard, and Coleman (2010) as well as Sherman, Crum, and Beaty (2010). According to the research conducted by Pribesh, Dickinson, and Bucher (2006), there was no significant disparity observed in the overall academic achievement of students between face-to-face and distance learning environments.

The study revealed that students' overall performance exhibited a decline when they engaged in face-to-face sessions, particularly when project-based learning was implemented. Based on the research conducted by Ferguson and Tryjankowski (2009), it was seen that students who opted for traditional classroom settings exhibited superior performance in examinations compared to their counterparts who chose online programs. Our discovery adds to the existing body of knowledge by emphasizing the presence of uncertainty within this field of inquiry. According to Tucker's (2001) study, it was shown that students who engaged in remote learning had superior academic performance compared to their peers who were enrolled in conventional classroom environments. The findings of the study were supported by the higher scores achieved by participants on both the post-test and final exam. Sussman and Dutter (2010) conducted more research that provides additional evidence in favor of the proposition that both online and face-to-face learners achieve comparable levels of achievement.

**Distance learning and getting students involved**

A plethora of contemporary academic studies have been undertaken to investigate various aspects of online education, encompassing subjects such as course design, instructional methodologies, assessment strategies, student engagement, satisfaction levels, and student characteristics. The examination of virtual instruction is increasingly focused on a novel aspect referred to as student engagement. Axelson and Flick (2011) define engagement as the level of interest and involvement exhibited by students in their academic pursuits, as well as their level of connection to their peers, academic institutions, and learning environments. Axelson and Flick (year) argue that future research should prioritize the development of more effective methodologies for evaluating student engagement within the realm of higher education. Additionally, they emphasize the importance of comprehending the intricate correlation that exists between student engagement and the process of acquiring knowledge. According to a study conducted by Chen, Gonyea, and Kuh (2008), the findings indicate that students engaged in remote learning exhibit comparable levels of engagement when compared to their counterparts enrolled in conventional campus-based educational environments. Dixson (2010) devised a quantitative measure to assess the level of student involvement in online courses, with the aim of examining the specific activities and interactions that contribute to heightened levels of engagement. The inquiry involved the participation of six colleges located in the Midwest region.

An investigation was conducted to examine the relationship between student participation and instructor/student presence. Dixson's research findings indicate a positive correlation between enhanced student-teacher interaction and heightened student engagement in online educational settings. One of the tactics employed in this study to enhance student engagement was the provision of a diverse range of communication modalities. However, further investigation is required to substantiate this theoretical assertion. The objective of this research is to ascertain the necessity of expanding the scope of future investigations on online student engagement. In order to conduct a more comprehensive investigation of the variable pertaining to engagement in online training, Dickson (2010) formulated a hypothesis. The present study investigated two separate approaches aimed at involving undergraduate students in physical education and health at a public regional institution in the southern region. One approach facilitated engagement between students and instructors in a virtual setting, whereas the alternative adhered to a traditional lecture format. Hence, the objective of this study was to ascertain if there existed any significant disparities in the levels of engagement among undergraduate students specializing in physical education and health, while comparing traditional lecture formats to online training.

**Method**

Participants Twenty-two undergraduate students pursuing a degree in health and physical education comprised the sample for this investigation. During the summer semester, these students participated in a three-hour course. The title of the course was "Integrating Technology into Health and Physical Education." Students are presented with a choice between two course components. One section of the course received a traditional lecture in-person, while the other section had online access to the lecture. Assignments and academic requirements were identical for online and in-person seminars. Prior to the start of the summer semester, each student had a minimum cumulative grade point average of 2.50. The university is accredited by the Southern Association of Colleges and Schools (SACS) and the National Council for Accreditation of Teacher Education (NCATE) as a doctorate-granting institution. 2.2 Adjustment Eleven students participated in a four-week online course that included four discrete learning modules.

The academic term began with a face-to-face gathering, which was followed by a meeting in the third week. Students have the option of completing all course requirements remotely through online platforms, or they can utilize the campus-based computer facilities. Each pupil enrolled in this asynchronous course was required to complete a weekly module. The instructor distributed written, audio, and video notifications via a learning management system to ensure regular communication. Using both a wiki and a learning management system, the instructor evaluated the students' submitted assignments. To request assistance from the lecturer, students may have used email, text messaging, or telephone contact. Each of the eleven in-person teaching days (n = 11) lasted approximately three hours on average. The students gathered at the university's computer center and assiduously completed their homework assignments under the instructor's supervision. In certain academic

contexts, the instructor provided explicit instruction, while students also gained knowledge through facilitated exploration, student-led discourse, indirect instruction, and other similar methods. The instructor provided both written and verbal instructions for each assignment the students were required to complete. Using the course wiki platform, all assignments were submitted and discussed within the classroom. Students have multiple options for communicating with their instructor, including telephone, text messaging, phone calls, email, and face-to-face class meetings. We analyzed Dixson's (2010) measure of Student Online participation in order to determine if there was a statistically significant difference in the levels of engagement between in-person and online training in physical education. The evaluation of the students' engagement in the course was conducted through the utilization of a set of thirty-four Likert-scale questions. According to Dixson, the instrument's reliability coefficient was 0.95.

On the last day of instruction, a SurveyMonkey questionnaire was distributed to each student in order to collect data. Using the Mann-Whitney U test, the data were analyzed. The selection of this non-parametric test was determined by the ordinal scale of the data collected. The small sample size made it difficult to obtain a significant p-value for any of the 34 analyzed items. Evidence number four is another piece of evidence that supports the argument. Using the Dixson (2010) measure of Student Online Engagement, the study examined the level of student engagement in physical education teacher preparation programs by comparing students' perceptions of engagement in face-to-face instruction to online training. In 33 of the 34 variables used to measure involvement, there were no statistically significant differences. The researchers conducted a statistical examination of the differences in responses between the two research groups. With a significance level of $p = .05$, the Mann-Whitney Test was used for this purpose. According to the data presented in Table 1, the online class provided a significantly more accurate representation of participation in relation to a particular attribute.

The investigated variable was the extent to which students perceived their familiarity with their instructor. In relation to the other attributes linked to student engagement, no significant deviations were observed. This investigation may have two potential limitations. The original sample size for each cohort consisted of eleven individuals. Consequences of this were the diminished validity of the test and the increased difficulty in establishing significance. In addition, the investigation was limited to the training of physical education instructors. Uncertain is the likelihood of achieving comparable outcomes through alternative teacher preparation programs. It is difficult to ensure the utility of online courses for subjects such as laboratory work and industrial training.

## Discussion

The provision of online courses is a primary focus for both public and private colleges. The present trajectory suggests that the accessibility of online courses presents a multitude of benefits. It is advisable for academic institutions to persist in providing online courses to students and explore novel approaches to safeguard the preservation of their learning, engagement, and other consequential results from any potential

negative impact. Given the discoveries of the study, it is imperative to scrutinize some key concepts.  The utilization of online platforms for the instruction of all courses within a physical education teacher training program is deemed impracticable and unwise.

Comparable assertions can be posited regarding alternative initiatives aimed at enhancing teacher proficiency, such as music education, which adhere to more traditional methodologies. Hence, it is vital for program instructors to initially ascertain the courses that are best suited for online instructional delivery. Although only one question, specifically "how well do you feel you know your instructor," demonstrated statistical significance, further investigation indicates that this particular question indeed holds statistical significance. Based on a rating system ranging from 1 to 5, with 5 representing the highest rating, students enrolled in the fully online course provided a rating of "5", while students enrolled in the traditional in-person course provided a rating of "4". Based on the statistical data supplied, it is evident that both categories achieved exceptional performance. Based on the study's findings, it can be inferred that both transmission mechanisms have the potential to enhance students' familiarity with the instructor.

While there is a general consensus that online instruction embodies a student-centered educational approach in contrast to the conventional teacher-centered method of in-person instruction, there is a possibility that students enrolled in fully online courses may perceive their instructor as a fictitious entity devoid of real-world existence. Future research might do a comparative analysis of the responsibilities held by instructors in traditional face-to-face learning settings and virtual learning environments. Additionally, it could explore the levels of satisfaction and willingness among teachers to utilize virtual learning platforms. Furthermore, it would be advantageous to explore the allocation of time and effort that professors should dedicate to individual students in the context of online instruction compared to traditional face-to-face instruction. The study's ultimate and maybe most enlightening discovery is that the perspectives of undergraduate physical education students about their engagement in face-to-face and online teacher preparation programs shown no significant disparities.

Numerous investigations have reported noteworthy findings (Ware, 2005). Hence, it is apparent that undergraduate courses designed for teacher training has the capacity to integrate students into the course content, irrespective of whether the instruction is offered entirely through online platforms or in traditional face-to-face settings. The researchers acknowledge that there is no universally applicable approach for implementing online education. The efficacy of online undergraduate education can be enhanced through meticulous strategizing and execution. This approach has the potential to support students who have an inclination towards independent and self-directed learning, granting them increased freedom in their academic endeavors.

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