



Mutation in education. An explanatory study of students' performance and satisfaction with face-to-face, hybrid, and online learning.

BY

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Article History

Received: 24/07/2023

Accepted: 28/07/2023

Published: 30/07/2023

Vol – 2 Issue – 7

PP: - 17-21

Abstract

In the past decade, especially during the Covid-19 pandemic, many students experienced multiple means of learning: traditional face-to-face, hybrid, and online learning in its two forms live and asynchronous. The purpose of this research is to investigate whether Graceland University students enrolled between 2020 and 2022 were better satisfied and more motivated by engaging in face-to-face (FTF), hybrid (HYB), or online learning (ONL). 117 students answered our survey and multiple regressions were used to test our hypotheses. We were able to validate two out of four hypotheses, satisfied students will perform better and students' overall satisfaction with the course and the instructor is higher in a face-to-face mode of teaching.

Keywords: Education, learning, learners' satisfaction, performance.

Introduction

Nowadays most people link online learning to the internet and think that online education had its beginnings in the late 1900s. However, the concept of distance learning was used for the first time in the mid-19th century when the postal service was developed and students were able to learn through what was known by "long-distance correspondence" (OnlineSchools, 2022). During the past decade, fueled by the COVID-19 pandemic, online learning has become an important part of higher education worldwide (Lin T.-C. , 2022). Despite the abundance of research in this area, many educators and researchers are still concerned about how to use e-learning effectively. (Tratnik, Urh, & Jereb, 2019).

Students are one of the main actors included in this educational service. Most of the students experienced multiple means of learning: traditional face-to-face, hybrid, and online learning in its two forms live and asynchronous. The purpose of this study is to explore whether students gained more knowledge and were satisfied by engaging in face-to-face (FTF), hybrid or online learning. Previous studies found that satisfaction is directly related to students' expectations

regarding the time and space of online learning, self-motivation, and the role of others, including fellow students and the teacher (Landrum, Bannister, Garza, & Rhame, 2021).

The online offering of courses has many benefits for both students, who can enroll and attend courses without having to be physically present on campus, and universities, which can enroll a larger number of students without having the need for the physical aspects of the courses. But online education has its own set of challenges. Online learning (ONL) often results in "significantly higher student attrition than face-to-face learning" (Kauffman, 2015). Additional studies showed that students enrolled in ONL courses are more likely to drop out than students enrolled in FTF courses (Patterson & McFadden, 2009). Some studies showed that this higher dropout rate is directly related to students' dissatisfaction with their ONL experience (Park & Hee Jun , 2009). Satisfaction was, is, and will always be a key concern for most universities and colleges. Relatively little research has been conducted on what influences student satisfaction with blended and online courses.

The hybrid (HYB) format is a mixture of ONL and FTF methods. In theory, this format should help tutors and advisors to better manage their classes; they can compensate for the time lost in FTF lectures by providing online activities allowing students to study remotely. While this method has many advantages in terms of flexibility and time management, it has many challenges as well. Similar to ONL, students are required to put in a lot of effort and are expected to have the required technological and time-management skills.

The past decade witnessed a rapid increase in online course offerings. Various stakeholders and policymakers were concerned with the quality of the online education provided to students. The learning outcomes under each method have been compared using the student's success rate as the most prominent measures of quality. Other studies used students' GPA or completion rate as measures of quality, and findings varied between studies. Some studies showed reduced completion rates and success in ONL compared to FTF while other showed the opposite (Spencer & Temple, 2021).

This study examines the relationship between students' preference, score, satisfaction, and performance. In the next part, we will discuss the available literature followed by an explanation of our methods and samples, a discussion of the results, and finally our conclusion, limitation, and future studies.

Literature review

Students are satisfied when they learn successfully, which leads to satisfaction with their experience (Moore, 2012). Satisfaction could also be explained by how students feel and think about their learning environment which is derived from combining all the beneficial aspects of a learning environment (Jen-Her, Tennyson, & Hsia, 2010). Satisfaction and motivation are closely related, and the former determines the latter (Chute, Thompson, & Hancock, 1997). Most higher education institutions tend to focus on improving their students' satisfaction and expectations, these satisfied students are considered good indicators of an institution's accomplishments. A higher level of student satisfaction will increase the rate of retention and the possibility of students taking more courses. Satisfied students will act as promoters for the institution, which will tend to attract more prospective students.

Student Satisfaction

Students have different perceptions when comparing online and traditional courses. Demotivation and persistence are related to the negative perception that a student can have (Kauffman, 2015). Previous studies discussed different factors that will impact students' satisfaction with online learning. The instructor and technology are two of the most important factors that greatly impact satisfaction (Bolliger, 2004), but the student's attitude toward hybrid learning and their knowledge of computers software also play an important part in learner satisfaction (Suwantarathip, 2019). Students' capacity to handle technical difficulties, having adequate skills in computer operation, and Internet search capabilities are necessities for students' success and satisfaction (Lin &

Vassar, 2009). It is up to the instructor to anticipate the level of student satisfaction with the course. When instructors allocate enough time for students who seek advice, the level of student satisfaction increases. Instructors should simplify the process of learning and motivate and inspire students to learn. Instructors' feedback on students' performance and assignments can encourage and inspire students. Constructive and positive interaction with students will also improve the level of satisfaction. The second important factor is the online learning aspect.

Hybrid learning contains both online and face-to-face components. Technologies should enrich the learning experience of learners. Students with good computer literacy typically do better than those who are poor at using computers. Students will succeed if they are familiar with the technology used in the course and will be less satisfied if they are frustrated with technology (Miller & King, 2003). When a student finds it easy to use technology or software in learning, this increases the likelihood of student satisfaction with the course (Selim, 2007). Gender is another factor that might have an impact on satisfaction. Male and female students exhibited no significant differences in terms of satisfaction with hybrid learning, but female students performed better than male students in face-to-face settings (Adas & Abu Shmais, 2011). Contradictory results were found in the Gulf area and showed that gender differences affected students' attitudes toward hybrid learning. Female students had a higher satisfaction with hybrid learning and they outperformed male students in terms of scores (Al-Fadhli, 2008). Yet, there were others who argued that male students favored hybrid learning more than female students (Suwantarathip, 2019). The last factor that we will discuss in this article is attitude, one of the most significant factors mentioned in many studies. Students with high GPAs will have a higher level of satisfaction with their courses and believe that their studies improved because of the hybrid features of courses (Kintu, Zhu, & Kagambe, 2017).

Students' performance

Recent studies focused on whether online learning is as effective as traditional learning environments. Some found that results were comparable while others found students' performance in FTF were worse than those in ONL and HYB courses, noting that a higher score or performance does not mean that ONL students learned more than the FTF and HYB students (Kauffman, 2015). Different disciplines may require different knowledge, especially in terms of conceptual and procedural knowledge. Because of these differences in courses, in terms of content and disciplines, the types of assessments used are critical to successful learning outcomes and satisfaction (Blumberg, 2009).

Students' performance has had a wide range of explanation within the existing literature. To measure their performance, most studies rely on academic performance in the form of grades or grade point average (GPA) and course completion or course retention (Tratnik, Urh, & Jereb, 2019). Some studies found a positive impact from the ONL format, showing an increase in students' performance in assignments and examinations, which increased the levels of satisfaction

and/or engagement in the course (Tratnik, Urh, & Jereb, 2019). In contrast, other studies demonstrated that ONL formats resulted in lower levels of student performance, higher levels of dropout or reduced course completion, and lower levels of students satisfaction (Buchanan & Palmer, 2017). While a small number of studies found no real difference between ONL and FTF, specifically they found no changes in performance and satisfaction levels between the two formats (Spencer & Temple, 2021).

Hypothesis or Purpose and Research Questions

Studies have determined several factors that influence students. The first factor that we chose in our research and that is discussed in the literature is the interaction. The interaction with instructors will influence students' satisfaction in the three learning environments ONL, FTF, and HYB (Kuo, Walker, Belland, & Schroder, 2013). Thus, our first hypothesis:

- H1: Students' overall satisfaction with the course and the instructor is higher when engaged with an instructor in a traditional FTF classroom versus online and Hybrid learning.

This study examines the relationships between student preference, score, satisfaction, and performance. We intend to study the relationship between scores and mode-of-learning preferences in the second hypothesis, the students' preferences within the online delivery methods in the third hypothesis, and the relationship between satisfaction and performance in H4.

- H2: Students with low GPA will prefer the fully online (ONL) classes option if available.
- H3: Within the ONL setting, students prefer live lecture meetings instead of the asynchronous option.
- H4: Satisfaction is positively related to performance. Satisfied students will have higher performance.

Method and sample

Context and Participants

The sample of this study consisted of enrolled undergraduate students in their junior and senior years at Graceland University.

With the permission of and assistance from the administration and instructors who agreed to have their students participate in the study, an online survey link was distributed to students from various disciplines offered during April 2023. 132 students completed the survey, but we were able to use only 117 answers as the remaining 15 were incomplete. We used multiple regressions to examine the relationship between the variables of the study and to test our four hypotheses.

Instruments

The survey included questions about demographics, students' satisfaction, and six predictor variables. Demographic information covered age, gender, grade point average (GPA), nationality, major, and students' classification. All of our measurements use a 5-point Likert scale, a range from not likely (score 1) to very likely (score 5) (Kuo, 2014).

Figure 1 shows that there were more male respondents (76) than females (41).

Fig. 1: Gender

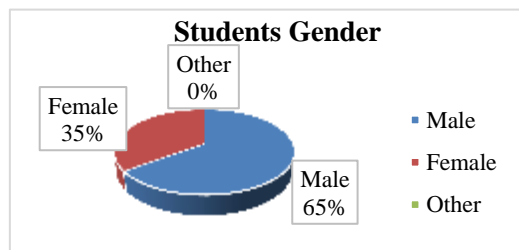


Figure 2 shows that most respondents (86) were between the ages of 20 and 22 years old. 14 students are above 22 years, and 17 students are below 20 years old.

Fig. 2: Age categories

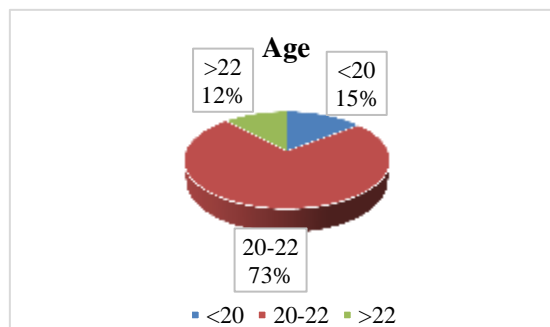


Figure 3 shows that most of our respondents were students from the United States of America (87) followed by South Americans (23), Africans (3), Canadians (2), Europeans (1), and Asians (1).

Fig. 3: Nationalities

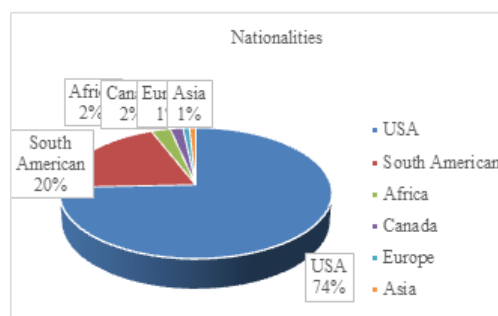


Figure 4 shows that 64 students have a GPA above 3.5, 21 respondents with a GPA between 3 and 3.5, 23 respondents between 2.5 and 3, and 9 respondents between 2 and 2.5.

Fig. 4: Students GPAs

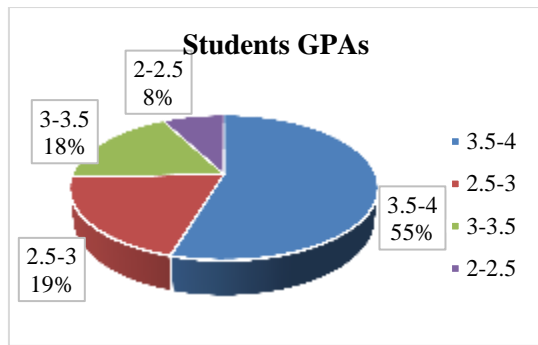
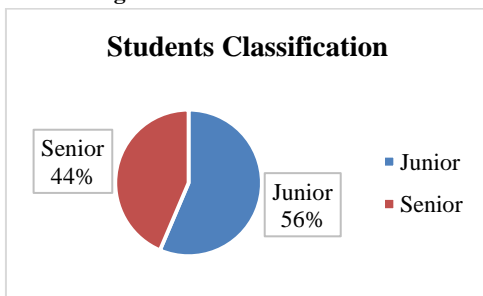


Figure 5 shows that we have 66 juniors and 51 seniors in our sample.

Fig. 5: Students' classifications



In this study, we used four regressions to test the four hypotheses.

Results and discussion

Regression Analyses

The first regression, Table 1, validates our first hypothesis. Students' overall satisfaction with the course and the instructor is higher when engaged with an instructor in a traditional FTF classroom versus online or Hybrid learning. The Adjusted R-squared between satisfaction and mode of teaching is 0.803, meaning 80.37% of the satisfaction is related/explained by the mode of delivery and by the engagement with instructors. A live interaction with their classmates and tutors will improve students' satisfaction and improve their learning. One of the explanations could be that students prefer the physical mode, to feel "normal" again, after spending most of the COVID-19 pandemic era learning online or hybrid.

Tab. 1: First Regression Statistics

Regression Statistics	
Multiple R	0.898749
R Square	0.80775
Adjusted R Square	0.803759
Standard Error	0.471022
Observations	117

In our second hypothesis, we intended to test whether students with low GPA will prefer the fully online (ONL) classes option if available. We were unable to validate our hypothesis as shown in Table 2. In contradiction to what was expected, all students no matter their GPA, prefer the face-to-face mode.

Tab. 2: Second Regression Statistics

Regression Statistics	
Multiple R	0.035305
R Square	0.001246
Adjusted R Square	-0.00215
Standard Error	0.849937
Observations	117

We couldn't find enough evidence to validate the third hypothesis. Shown in Table 3, we could not confirm that students prefer live lecture meetings instead of the asynchronous option in the online setting. We noticed that most of the answers we got dislike online teaching in all of its formats.

Tab. 3: Third Regression Statistics

Regression Statistics	
Multiple R	0.164322
R Square	0.027002
Adjusted R Square	0.021505
Standard Error	0.494237
Observations	117

Finally, we were able to validate our fourth hypothesis, as shown in Table 4. Satisfaction is positively related to performance and satisfied students will have higher performance. The Adjusted R-squared between satisfaction and performance is 0.7950, meaning 79.5% of the performance could be explained and is related to the student's satisfaction. Satisfied students will be more motivated to participate during lectures and to study more, which will improve their performance.

Tab. 4: Fourth Regression Statistics

Regression Statistics	
Multiple R	0.892832
R Square	0.797149
Adjusted R Square	0.795065
Standard Error	0.481342
Observations	117

Conclusion, Limitations, and future studies

In the present article, we explored the link between student satisfaction, performance, and mode of teaching. We surveyed senior and junior students at Graceland University, as they have studied in three different modes for the past three years: online, hybrid, and face-to-face.

Our research objective was to show that students' overall satisfaction with the course and the instructor is higher when engaged with an instructor in a traditional FTF classroom; students with low GPA will prefer the fully online format; within the online setting students prefer live lecture meetings; and satisfaction is positively related to performance. We were able to prove that students prefer the face-to-face setting, and that satisfaction is related to performance. One of the reasons could be psychological as students spent most of the COVID-19 pandemic era in lockdowns learning online or hybrid. They

are more satisfied when courses are delivered physically on campus and there is human interaction with instructors and fellow students. We did not find any impact for gender, nationality, or age.

One of the limitations of this study is that we surveyed students in one university only. Another limitation is that this study focuses on senior and junior students only. Future research that includes students at all levels is recommended. Other variables not selected in this study could have an impact on satisfaction. And finally, this study is run in an American context, studies in other countries could yield different results.

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