

Zoom University: The Impact of Online Learning on Students

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Introduction

As part of a semester-long research project, we sought to better understand the impact of online learning on students' academic performance, stress, and sense of community. We conducted our research through a survey administered to college students, as well as a variety of interviews conducted by student researchers. The survey and interviews were a compilation of questions gathered from student assignments in order to answer our research question, "How does online learning impact students' stress, sense of community and performance?" While literature exists on the topic of online learning, we do not believe this topic has been explored thoroughly due to the rapid nature of which online learning became the reality for many students. In this paper, we will review literature surrounding students' experiences with online learning and provide an overview of the methods used in our research. We will then explain the results of our survey and provide a discussion on our interpretation of these findings.

Literature Review

The concepts we will be analyzing in this study include: student stress levels, academic performance, and feelings of community in students who participate in online learning as opposed to in-person learning during the COVID-19 pandemic. The independent variable of this study is whether or not the student participated in online learning, impacting the dependent variables of that student's stress level, academic performance, and perceived level of community.

Online Learning

In order to have a clear understanding of what is being studied, it is important to define "online learning." In order for a student's survey answers to be recorded in our study, they must have participated in online learning in the past year. This means that students must have

completed at least one of their courses completely or partially online. Most of our participants met this qualification and their answers were able to be recorded for our data.

Sense of Community

A student's sense of community in the classroom impacts that student's behavior in ways such as how comfortable they feel asking questions or asking their professor for help. "Students need guidance to achieve their learning goals," (Tan, 2020) and if a student does not feel a strong sense of community in their learning environment, they are less likely to receive the guidance they need to succeed. In their article, "Students feeling of and desire for a sense of community," Drouin and Vartanian (2010) speak on Alfred Rovai's definition of community with factors that "include, but are not limited to, social presence, or the individual's (e.g., teacher's or student's) ability to contribute, socially or emotionally, to the group, (Rourke et. al, 2001), and characteristics of the learner (e.g., dependent or self-directed; Grow, 1991)" (Drouin & Vartanian, 2010). His definition of community suggests that the student's desire to communicate clearly and how it can be influenced by setting.

Stress

We also take a look at how students' stress levels are impacted by the online learning setting. Pre-medical freshman, Hakeem Werra said, "the self-pacing of online classes creates a stressful learning experience" (Ntdaily, 2020). In many online learning situations, students may meet with their professors rarely or not at all and then are left to do work on their own for the rest of the week. This learning environment provides challenges for students raised in an in-person classroom.

Performance

The last variable we analyze in our study is student performance or perceived performance. In Siming Guo's study, "Synchronous versus asynchronous online teaching of physics during the COVID-19 pandemic," performance was measured by calculating the percentage of difference in grades from the first half of the semester, which took place in-person versus the second half of the semester, which took place online (Guo, 2020). Unlike Guo, however, we are unable to take note of our subjects' actual test scores, so we will take their word on the topic of performance and how they perceive that their performance has changed or not changed through online learning.

Rationale

For our research, we have determined that our independent variable, the student's learning format, would have an impact on the following dependent variables: stress, performance, and sense of community. Our research is vital in understanding how millions of students across the world may have been impacted by a switch from traditional face-to-face learning to online learning. We believe that these variables are directly affected if students are subjected to online learning methods compared to their traditional face-to-face methods of learning. For instance, a switch in learning may mean that a student no longer has to physically appear in front of their classmates and professor, saving them the time of showering and picking out an outfit. This simple change can have a chain reaction that impacts our dependent variables, such as less pressure on the student to appear attractive and therefore less stress. The provided example is only one instance where we may notice the impact that our independent variable has on the dependents.

We believe that in order to gain a better understanding of how students are impacted by online learning, we need to examine if changes have occurred in their overall stress, academic

performance, and sense of community. As mentioned, not physically appearing in front of peers may be one such reason, but others could include: class organization, class frequency, professor accessibility, change in grading formats, change in examination formats (such as open-note exams), change in workload, change in technology reliance, in addition to other factors. While these are not the variables that will be examined in our research, it is important to note that they can be considered when discussing a change in learning methods. This is because a change from traditional to online could mean a change in the aforementioned factors which could in turn lead to a change in our dependent variables.

Additionally, we believe our three dependent variables may also be interconnected. For instance, learning online may cause a change in academic performance and a change in the sense of community, but it could be the case that the change in sense of community which occurred because of online learning is also the reason academic performance changed. Similarly, stress levels may switch because of a change in learning methods, but this could also be the result of a change in the sense of community, or vice versa. While each of these variables can be examined independently as dependents of a change in learning style, we do believe that they are related in many ways making it important to study them together.

Social Penetration Theory & Sense of Community

We see a common theme of feeling disconnected from the classroom with learning on an online platform. This occurrence has negatively impacted not only the students who are learning, but also the professors who are used to teaching in a traditional classroom setting--leading to an increase not only in grades but also the sense of community in learning. The traditional college experience is typically an inclusive environment in which students can feel comfortable and able to collaborate with classmates and professors (Drouin & Vartanian, 2010) defined “classroom

community” as the “spirit, trust, interaction, and commonality of expectation and goals, in this case, learning” (p. 4) that occurs within a classroom environment, either virtual or physical.

Included in this definition are: “(1) social community, or connectedness to the group (e.g., the instructor and fellow students) and (2) learning community, or common norms and values and satisfaction of learning goals” (Drouin & Vartanian, 2010). This definition helps us understand the importance of a student’s connection to their instructor and the classmates around them.

When students are subjected to an online learning environment, they may not receive the same sense of community.

The Social Penetration Theory states the more an individual develops a relationship with someone, the more likely that individual is to share a greater emotional connection, instead of remaining at the surface level of conversation (Miller & Miller, 2011). In order to fully comprehend the material being taught, sometimes a student needs to ask in-depth questions. However, if that student does not have a sense of community in which they feel comfortable asking those questions, they are not completely understanding the class material, thus resulting in a potential impact on academic performance. Our research explores the trends in the overall sense of community felt by students as a result of online learning. Because students that attended in-person class saw a smaller percentage grade drop (Guo, 2020), we can hypothesize that being able to interact face-to-face with their classmates and professors helps to establish relationships in which students feel more comfortable asking questions, getting help, and absorbing information. Social Penetration Theory also connects to our dependent variable of stress because students that do not feel comfortable in their learning environment may experience increased stress. Social Penetration Theory also explains our rationale that our dependent variables of stress, academic performance, and sense of community are all interconnected.

What We Know

Switching to online learning was a shock for students around the world. Students quickly learned that online learning presented a different set of challenges than what they were used to. How students perform in online learning varies for each individual as far as academic performance, stress, and sense of community. For example, there could be more distractions, temptation to do other things during class, or a lack of connection between the professor and student. Each professor sets up online classes in a different way, which could lead to difficulty for students, as there may be little consistency between classes. One thing that is not represented though the literature is the long term effects of online learning. As online learning has rapidly become a reality for students and has had little time to be studied, there is not yet literature explaining how current students will be affected when it comes to post schooling. Online learning is new to everyone and students are handling the transition in different ways. There is still a lot more to learn about how online learning has affected students.

Methods

Procedures

The two steps for our data collection were a survey and an interview. Our survey was made using questions that students created. These questions were then reviewed, hand-picked, and assembled by Dr. Smith, who also created the script for our interview in a similar manner. Students sent out the survey to people in their social network and were asked to conduct the interview with one other member of their social network. Interviews were conducted on the student's own time and recorded. Students were then asked to transcribe the interview for our research. Survey data was collected online by Dr. Smith. All survey data was made available to

the students, and students were also able to compare data collected in their interviews with their group members.

Measures

During both the survey and interview process, we asked students a variety of demographic questions in order to understand who was responding and to observe trends among certain groups. In addition to the demographic questions, students were asked about their learning habits and preferences, in addition to the technology available for learning. Students answered these interval questions via a likert scale of 1-5. Students were able to express their preferences, performance, and experiences with online learning compared to traditional face-to-face learning and we were then able to observe common themes and trends.

Participants

Our survey data consisted of 105 predominantly white students ages 18-22 who are all currently enrolled in college. They were recruited to take the survey by members of a communication research method class. There was also an interview conducted with four participants. Each researcher interviewed someone in their social network that is enrolled in college. The interviewees consisted of two males and two females, all of which are white and ranged in age from 19-21.

Results

Stress

We believe that three of our survey questions provide findings which can be used to evaluate stress as a result of online learning. We can use the question, “I find most online learning platforms easy to use,” as an indicator of stress. For this question, students responded with an average value of 3.72 with a standard deviation of 1.041, meaning a majority of students

found platforms easy to use. Additionally, we believe that students' attitudes towards online learning could also be an indicator of stress. For this, students responded with an average of 2.79 and a standard deviation of 1.204, meaning that responses were relatively neutral but leaned toward being unhappy. While students felt fairly neutral towards online learning, we saw a strong indication that students preferred traditional face-to-face learning styles with an average response of 4.35 and a standard deviation of .879 when asked this question. Finally, students were simply asked to rate how much online learning stressed them out. For this question, we found that students responded with an average of 3.3 and a standard deviation of 1.230. One student described their online semester as, "kind of a lot of work for no payout, and I got burnt out really quickly. But at this point, I've just been doing it for so long that I don't know how not to do it." On average, our data showed students tended to be relatively neutral in their feelings about online learning stress, but our interviews proved that students had varying degrees of stress due to their individual experiences.

Performance

As far as the variable of performance is concerned, in response to the statement, "My grades are better when I learn online than they are when I learn face-to-face," students responded with an average value of 2.67 and a standard deviation of 1.157, meaning students tended toward the "I disagree" or "neutral" side of this statement. Students responded with an average value of 2.88 and a standard deviation of 1.141 in response to the statement, "online learning is effective," meaning that students were neutral or disagreed slightly with the statement. In contrast to this statement is, "face-to-face learning is effective," to which students responded with an average value of 4.53 and a standard deviation of .748, meaning most students heavily agreed with this

statement. All three of these data points conclude that students' performance or perceived performance is slightly lower with online learning than with face-to-face learning.

One correlation presented to us from our research was that students who have more years of schooling tend to have better grades in an online setting than students with less years of schooling. One upperclassman interviewee stated, "I think that I have gotten better grades [during the online learning semester] because we have been able to use our notes, so it's really nice not having to memorize anything because a lot of the time I won't remember it anyway, but at least it makes me take really good notes." This finding supports the information we found when reviewing literature on the subject. Some previous research states that online learning made no difference in a student's performance, while others suggested that online learning negatively impacted performance. This discrepancy in prior research becomes more clear with our findings that older students perform better than younger students in an online learning setting. Thus, we can explain why current literature may present conflicting findings on academic performance.

Sense of Community

Three particular statements which students responded to in our survey directly addressed or variable of students' sense of community in the online learning environment. The first of these statements, "It is more difficult to get help from a professor when enrolled in an online class," resulted in a mean of 3.68 and a standard deviation of 1.236, meaning that students generally felt neutral or agreed with this statement. The second statement, "I am closer with my classmates in my face-to-face classes than in my online classes," provided us with a mean of 4.3 and a standard deviation of .974, meaning that students strongly agreed with this statement. The third statement, "I am closer with my professors in my face-to-face classes than in my online classes,"

resulted in a mean of 4.13 and a standard deviation of 1.089, showing that students strongly agreed with the statement. In alignment with our findings, one interviewee expressed, “With face-to-face classes, I feel like I talk to more people. For example, you talk to your classmates before class starts, or you talk to your professor. With online classes, you don’t have that same bond with your classmates, and you feel so far disconnected from the other students and the professor.”

Discussion

From our findings, we developed four overarching themes which help to answer our research question, “How does online learning impact students' stress, sense of community and performance?” The four themes are as follows:

1. Students' performance, or perceived performance, is slightly lower with online learning than with face-to-face learning.
2. On average, students’ stress levels remained relatively neutral in the online learning environment.
3. While students did not heavily dislike online learning, they strongly preferred face-to-face learning.
4. On average, students feel a much stronger sense of community, both with their professors and fellow students in an in-person classroom.

Our findings contribute to the literature discussing online learning by serving to explain the impact of online learning on student stress, sense of community, and academic performance.

Our findings are unique from other literature on the subject specifically because of our evaluation of stress and sense of community, which, to our knowledge, has not been examined in other online learning studies. We believe that more research could be conducted in order to better

understand the impact on academic performance, as our research, as well as other research on the topic, was limited in demographics and sample size.

Conclusion

From the 105 participants that participated in our study, and the four individuals who were personally interviewed, we found a variety of results. We conclude that our variable stress is not as strongly dependent on our independent variable, learning method (face-to-face or online). However, we found that our sense of community variable was strongly dependent upon our independent variable. While our sample was from a limited demographic and size, it seems that most students prefer face-to-face learning, and online learning has impacted students' performance, stress levels, and sense of community in a classroom setting in a negative manner.

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