

Examining Academic Stress level in Various Learning Modes for College Students

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In this paper, we detail the results of an online survey known as the Perceived Stress Scale to find insights into the current stress level of the general college population during this period of hybrid learning. Students can take courses in many ways, either online live, asynchronous online, or in-person. We surveyed thirty college students, seven female, and twenty-four male, during the final few weeks of the semester, as this tends to be the most stressful period for students. All of which are currently experiencing offline, online, and hybrid learning environments. At first glance at the data, more than fifty percent of the students are satisfied with their current class arrangements. After conducting an ANOVA test on the resulting data, we found no significant difference between the student's different learning environments.

CCS Concepts: • **Human-Centre Computing**;

Additional Key Words and Phrases: online learning, offline learning, academic stress, university students

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1 INTRODUCTION

Virtual learning has emerged as an alternative to the traditional classroom setting. As technology progressed, online learning also grew across different platforms in education. A key force in online learning came in the Spring of 2020 when the Covid – 19 pandemic blanketed the globe. Among the concerns with virtual learning, student mental health became a key concern. Would isolation from other students and instructors, lack of technological resources, and lack of personal connections cause an increase in stress levels? The concept of Learned Helplessness emerged out of the growing number of students in the virtual learning environment. Learned helplessness is a scenario in which people perceive others as not having the problem of failure to use technology and begin to blame themselves. A 2021 study at Abilene Christian University found that although few students outright experienced learned helplessness with virtual learning, many reported experiences that

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Non-continuous variables	Frequency	Percentage %
Female	7	23.3
Male	23	76.7
Age		
Less than 21	1	3.33
21-30	29	96.66
Education level		
Undergraduate	7	23.33
Postgraduate	23	76.67
Class modality		
Live Online Class	10	33.33
Asynchronous Online Class	5	16.66
In Person Class	15	50
Satisfaction learning environment		
Very satisfying	1	3.33
Satisfying	19	63.33
Not very satisfying	1	3.33
Dissatisfying	0	0
Neither dissatisfying, nor unsatisfying	9	30

Table 1. Demographics of participating students (n=30).

contributed to learned helplessness such as struggles with mental health due to isolation and rapid shift from in-person to fully online learning [4].

A 2021 study at Vytautas Magnus University revealed a withdrawal phenomenon in students. This phenomenon combines educational, emotional, and social issues. It examined how students would go through the stages of exhaustion, helplessness, and then finally withdrawal. Researchers contributed this phenomenon to the shift of virtual learning and the unpreparedness of students and educators to adapt to the new environment. Students who withdrew showed signs of high level anxiety, stress, frustration, and helplessness [5].

Our qualitative research focused on the mental and physical impact of remote learning. We wanted to expand the research to identify the relationship between students' stress levels and remote learning. We sent out a survey to students taking online courses to answer questions on a Perceived Stress Scale. Our hypothesis is that remote instruction increases the stress in students.

2 METHOD

In order to understand the stress level of college students in various learning modes, we designed a stress evaluation study. To evaluate, we used reliable tools Perceived Stress Scale (PSS) [3] as a measure of general stress and the Perception of Academic Stress Scale (PAS) [1] as a measure of academic stress and its associated causes. PSS is a widely used method to measure the perception of stress in participants' life through a set of 14 questions with a 5-point Likert scale. Similarly, PAS consists of 18 questions that evaluate various factors in academics such as academic expectations, faculty work, and examinations, students' academic self-perceptions.

We recruited participants from a general pool of college students around various parts of the United States. A total of 31 participants (7 female and 24 male) aged 21-30 took part in the study. The study was conducted in an asynchronous remote way during the final weeks of the semester as it was reported to be a stressful phase in an academic year [2].

During the study, students were also asked to provide demographics including age, sex, academic year, monthly personal income, expenses, smoking, drugs and alcohol habits, and general health conditions in Table 1.[6, 7].

3 RESULTS

We computed the overall mean PSS score for different Learning Modes. PSS scores are: In-Person Learning (Mean = 2.05, SD = 1.066), Online Learning (Mean = 1.60, SD = 0.652), Hybrid Learning (Mean = 1.97, SD = 1.11). We performed Welch’s Analyses of variance (ANOVAs) on the PSS scores and found no significant difference in the mean PSS score between difference Learning Modes (F=0.60, p=0.564). Fig 1.

Participants also completed the PAS as a measure of academic stress and the calculated values for different Learning Modes are: In-Person (Mean = 3.25, SD = 0.37), Online Learning (Mean = 2.99, SD = 0.38) and Hybrid Learning (Mean = 3.11, SD = 0.42). We followed the similar Welch’s ANOVA and again no significant difference in the mean PAS score was found between different Learning Modes (F=0.84, =0.455) Fig 2.

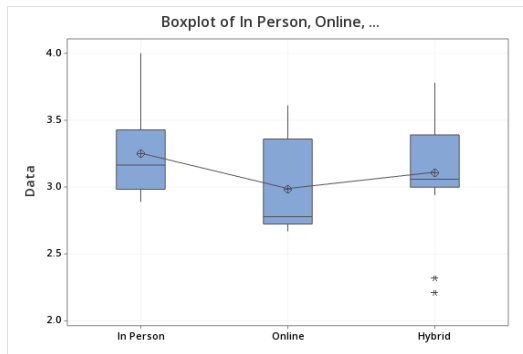


Fig. 1. PAS Score for Different Learning Modes

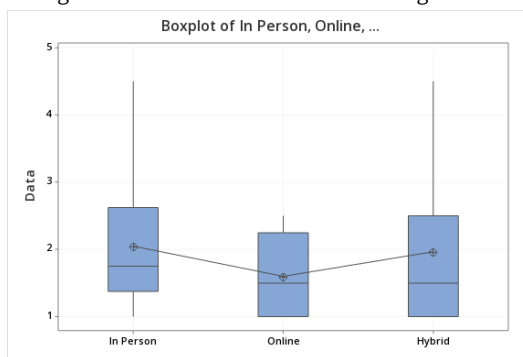


Fig. 2. PSS Score for Different Learning Modes

4 DISCUSSION

Contrary to what we expected, the level of perceived stress of the students in the three groups is similar. The COVID-19 pandemic has caused a noticeable disruption not only in the way classes are delivered but also in the lifestyle of students. During the last two and a half years, students have been exposed to different sources of stress that may come from the context in which they live or from the political and social instability that the pandemic has brought.

The mode in which the classes are being delivered isn't necessarily a factor that has a significant effect on the perceived stress level of students. Other factors that have to do with political unrest, climate change, or other issues that are outside of academic life may be playing a role in students' well-being.

By drawing on the findings provided by recent studies about the concept of learned helplessness and the withdrawal phenomenon, the area of research about the possible effects of remote learning on students' perceived stress levels is promising. Specifically, in the domain of human-computer interaction, there is an opportunity to explore the possibility of designing virtual tools that help students regulate their stress. Whether by assisting them in making changes or slight adjustments in their habits so that they take breaks often or by modifying the virtual environment to alleviate negative thoughts and emotions.

5 CONCLUSION AND FUTURE WORK

There is no statistical evidence that there is a significant difference in the perceived stress levels of students taking online, hybrid or in-person classes. When education is delivered through a digital environment, whether synchronously or asynchronously, it brings new questions and challenges to diverse fields like psychology, cognitive sciences, design, and human-computer interaction. A spread adoption of remote learning, even after emergency education, will require the adaptation of traditional methods and digital tools to ensure students' well-being. From a human-computer interaction perspective, increasing the adoption of technologies like virtual reality and augmented reality can bring new possibilities to enrich virtual learning environments to help students feel more connected with the class and peers, even if interactions happen remotely. Stanford University's Virtual People course [8] is an example of that. For the future of our work, a deep exploration of the use of virtual reality in the classroom altogether with an assessment of its effect on the perceived stress levels of students while taking the classes is a rich ground to explore.

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