Online learning environment and mental health among university students

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Abstract

Students' experience of the pandemic required them to find ways to survive academically but, studies revealed that students' learning and mental health are greatly affected by pandemic. Currently, much research explores topics such as effects of COVID-19 pandemic on education; teaching and learning; students' mental health. This study explores how online learning environment as to assignment, lecturer/friend, facilities & equipment, home & environment, and physical class affect the mental health of three hundred sixty-seven university students during COVID-19 pandemic at a private university in Manila, Philippines using a quantitative technique specifically causal research design. The participants voluntarily completed the survey questionnaire measuring learning environment and mental health adapted from Universiti Malaysia Kelantan. Research results revealed that the more university students negatively viewed online learning environment specifically in terms of assignment, lecturer/friend, facilities & equipment, home & environment, physical classes the more they have bad mental health. Moreover, findings showed that online learning environments such as home & environment were found to be the strongest predictor of mental health among university students. The study implies that distractions in home environment during online classes resulted in negative mental health of university students.

Keywords: Online learning, learning environment, mental health, university students,

Background of the Study

For the last two years, the increase in the COVID-19 cases has prompted the colleges and universities to conduct classes virtually which is one of the unanticipated effects of the pandemic (Tangonan, M. et. al. 2023). Abruptly, the educational system encountered the most disrupted dynamic (Popescu, E., et. al. (2021) when learning environment becomes online with no preparations and trainings which is a quick action to ensure the continuity of students' learning (Selvaraj, A., et. al., 2021). However, despite the pandemic, online learning continues to advance education (Tangonan, M., et. al., 2023).

It has been determined that higher education institutions must adapt to flexible teaching and learning modalities, recalibrate the curriculum, empower the faculty, upgrade the infrastructure, implement a strategic plan, and evaluate every aspect of the educational system to ensure teaching and learning continuity (Dayagbil, F., et. al., 2021). Utilizing this time to develop curriculum, collaborate, acquire skills, and form new educational institutions are all significant ways to enhance the educational system (Willies, D., 2023). However, the enormous changes brought about by COVID-19 pandemic in practically every sphere of society have had a detrimental effect on college students' ability to learn (Noori, A., 2021). If students do not adapt immediately to changes, they will be left behind by changes to the existing system (Dayagbil, F., et. al., 2021). Thus, adjustment to the new set up due to the current condition is never easy because better preparation and good internet accessibility are needed for the whole online experience (Coman, C., et. al., 2020).

Adjustment in virtual learning environment such as online platforms, use of e-resources, online assessments and E-consultations has been a concern and a challenge for many students as well as teachers (Pandya, A. & Loadha, P., 2022). Likewise, Walters, T., et. al., (2022) identified the most significant challenge the students encountered during online classes are staying awake and focused on online class activities, distractions like watching online videos, misunderstanding instructions, and limited feedback from teachers. Similarly, Coman, C., et. al. (2020) also mentioned that some of challenges are accessibility, connectivity, lack of appropriate devices, technical issues, limited data, and data speed (Muthuprasad, T. et. al, 2020), lack of practical session (Selvaraj, A., et. al., 2021) as well as social concerns such as lack of communication and interaction with teachers and peers (Al-Mawee, W., et. al. 2021). Further,

online learning is same as with distance learning results in less effective supervision from teachers, limited interaction with peers, and home distractions (Walters, T., et. al., 2022) from their current physical environment.

The physical environment's impact on students' physiology can be seen in the way that noise can hinder their ability to encode information, which is essential for effective learning. In the optimum study environment, lightning optimization is essential. Students' physical experiences may have an impact on how they evaluate their online learning, and this evaluation may be either positive or bad depending on the encounter. Physical disturbances may have a negative impact on students' online learning, which in turn might reduce their sense of mastery (Kuan, F. & Lee, S., 2022).

As a result of demographic and environmental factors that do not fully support the availability of internet connections, students experience increased anxiety when they begin online learning. It also turns out that excessive internet use during online learning also increases stress and depressive symptoms in students. Increased stress and depression among students are two issues that online learning might have on their mental health (Nuryana, Z., et al., 2023). Moreover, Increased anxiety, despair, and general psychological distress were among the worse consequences for students' mental health that they reported during online learning (Yagshi, 2022).

Nowadays, most online learning occurs at students' homes, which can vary greatly depending on their financial situation (Kuan, F. & Lee, 2022). Akpinar, E. (2021) mentioned that home education has caused significant upheaval among both parents and kids. When compared to other students, those from disadvantaged backgrounds may be less satisfied with their online learning experience. This may have a negative impact on how well students perceive their technological literacy in online learning, such as how effectively they communicate in a virtual environment and how well they operate online learning platforms, rather than how much technological literacy they have and how well they perform academically (Kuan, F. & Lee, 2022).

Students' experience with pandemic required them to find ways to survive academically but, Barrot, J., et. al. (2021) revealed that students' learning and mental health are greatly affected by pandemic. Due in large part to the learners' lack of expertise with its implementation, the adoption

of the online learning technique has exposed them to a wide range of problems. The methods used by students and instructors to carry out the learning process have a significant impact on how effective online learning is. Since the students have understood the lecture material and are therefore unable to complete their assignments in accordance with the lecturer's requirements, their inability to concentrate on the information being provided through the platform will have a subsequent effect in terms of increased stress levels among the students (Akpinar, E. 2021).

Specifically, students' well-being and learning process may be affected by the courses design and structure; instruction; feedback and facilitation received from instructors; collaboration; learning styles. inclination towards information technology and communication; self-regulation; introversion and extraversion; academic stress; psycho-physiological factors like clothing, posture, tiredness, disposition, solitude; and external factors such as noise, distractors, lack of time, financial implications, and home context (Popescu, E., et. al., 2021). It will be difficult for kids from low-income families to access the internet or even the most basic devices needed to fully engage in online learning. The cost of online learning is high thus, every student needs a laptop and internet access to start learning online (Akpinar, E., 2021). On the other side, Hossain, M. (2021) concluded that the experience of online learning is possible for students who are from better socioeconomic status and living in urban areas with internet access. Students from affluent houses would logically have access to better internet and computer equipment, therefore they are participating more actively in online learning (Hossain, M., 2021).

Currently, much research explored topics on COVID-19 pandemic, learning environment and mental health such as effects of COVID-19 pandemic to education (Huck, C. & Zhang, J., 2021); teaching and learning (Kumar, A., et. al., 2021; Noori, A., 2021); students' mental health (Alyoubi, A., et. al., 2021; Alam, M., et. al., 2022). However, this study using the survey questionnaire measuring learning environment and mental health adapted from Faculty of Language Studies and Human Development, Universiti Malaysia Kelantan gives different perspective in examining online learning environment and mental health since it specifically measures learning environment in terms of classes, assignment, lecturer or friends, facilities & equipment, home & environment, and physical classes. It also measured mental health in terms of stress and suicide ideation. Moreover, the adapted survey questionnaire was originally used by university students in Universiti Malaysia Kelantan and in this study,

participants were from different university and country. Using this adapted measure, the question arises as to how these identified online learning environment contribute to the university students during COVID-19 pandemic. Thus, this paper intends to determine how online learning environment affects the mental health of university students. Results of this study can be a basis for teachers and administrators to look and assess the online learning environment experience of students to help improve academic performance and achieve good mental health.

Specifically, this study sought to answer the following questions:

1. What is the level of online learning environment of university students?

2. What is the level of mental health of university students?

3. Is there significant relationship between online learning environment and mental health of university students?

4. Does online learning environment in terms of assignment, lecturer/friend, facilities & equipment, home & environment and physical class predicts the mental health of university students?

Literature Review

Online Learning Environment and COVID-19 Pandemic. E-learning environment refers to learning using computer where classroom activities are deployed online (Thareja, S., et. al., 2015). Basarmak. U. & Mahiroglu, A. (2016) mentioned that online learning is a student-centered environment that has distance learning and programs, can be easily modified, and organized; facilitates evaluation; and encourages individual learning which can be classified into Learning Management systems (LMS), Learning Content Management Systems (LCMS), Course Management Systems (CrMS) and Virtual Learning environments (VLE). Using online learning environment results to efficient way of learning because it is self-paced, not bounded by geography, can reach greater number of audiences, better contact, enhances internet and computer skills, and it is user friendly. When teachers and students are separated by time, space, or both, the learning process is referred to as virtual learning. The teacher delivers course material using course management software, multimedia materials, the internet, and video conferencing. The teacher provides the students with the content, and they communicate with the

teacher using the same technologies rather than in person (Rashid, A., et al., 2021).

Moreover, using an e-learning is fast, efficient, and scalable; high level of coverage; better learning retention, accessible from anywhere and anytime; and flexible (Thareja, S., et. al., 2015). The online learning platform required at least an Android smartphone, tablet, or laptop, which is typically out of the price range of lower-class households. Most pupils utilize an Android smartphone or tablet for online study. Additionally, they need a reliable internet connection or enough mobile data. Downloading multiple study materials, therefore, uses a lot of mobile internet data. Not all students will have access to enough internet data. These families are put under financial strain, which affects the students (Deshpande, D. & Mhare, K., 2021).

Additionally, Mousavi, A. et. al. (2020) identified the six factors of e-learning educational atmosphere. These factors are the programmed effectiveness, teaching quality, ethics and professionalism, learner support, safety and convenience, and awareness of the rules. The first factor is programmed effectiveness which includes the learnings during the course, career direction, academic-related skills, interaction thru cyberspace, availability of resources, assignment and contents, assessments, and programmed satisfaction. Second factor is teaching quality which refers to the use of variety of online teaching strategies, on time performance feedback, assignments and activities, and lessons covered within LMS. Third factor is ethics and professionalism which cover copyright and intellectual property of resources, social and cultural issues, relations within educational environment, responsiveness of teachers, and academic motivation. Fourth factor is learner support such as academic counseling, technical and educational staff, digital library, administrative process, and how services are provided to students. Fifth factor is safety and convenience which include user-friendly LMS and pleasant experience in e-learning setting. Lastly, awareness of the rules refers to administrative regulations and processes and clear educational research guides (Mousavi, A., et. al., 2020).

Blended learning, computer-mediated learning, e-learning, distance education, distance learning, m-learning, open learning, and web-based learning are all types of learning environments that are delivered using technological devices that are connected to the internet in either a synchronous or asynchronous settings. In these circumstances, regardless

of where they are located, students can still learn in tandem with their instructors and peers (Lemana, J., 2022). Walter, T., et. al. (2022) emphasized that classroom activities are important for both education and information acquisition as well as for fostering social relationships, which are important for both personal and professional development. Building self-esteem, self-confidence, and the capacity to collaborate and produce results with peers all benefit from interpersonal skills, such as interaction with teachers and other students (Walter, T., et. al., 2022).

An online learner can communicate with other learners and instructors in real time on the same platform thanks to synchronous settings. Asynchronous learning, on the other hand, enables students to learn at their own convenience and pace. Additionally, there are different types of online learning courses. For example, a partially online course combines printed resources with some online learning features, while a fully online course involves teaching and learning that takes place primarily online (Lemana, J., 2022). In an online learning environment, there is little face-to-face interaction. Students were given the chance to express their thoughts and engage in dialogue, which is essential for learning. Additionally, because they can get feedback right away, students are more engaged when learning in person. A lack of intrinsic motivational factors in a daily school routine also contributes to kids' decreased enthusiasm to learn. Additionally, based on parents' observations that their kids' lack of motivation in online classes is caused by the instructor's presence and their extended exposure to screens (Walter, T., et al., 2022). As cited by Lemana, J. (2022) online classes have led students to experience challenges that are related to increased screen time such as headaches, fatigue, and feelings of isolation due to restricted physical socialization.

Mental Health and Covid-19 Pandemic. Health is now referred to as a resource for daily life in modern concepts of health. Physical health, social health, and mental health are the three main pillars of a quality life that affect an individual's subjective health. It emphasizes these aspects of health as well as physical capability and personal and social resources. Mental health with the capacity to cope with environmental difficulties along with individual development and cognitive evaluation is the main factor of the wellbeing model of health concept (Sipeki, I., et al., 2022). According to Bhugra, D., et. al. (2013) mental health is a significant part of overall health which can be an absence of disease, a state which allows full performance of all its functions, and a physical and social environment. Thus, it provides an individual to feel their worth, control, as well as

understanding of internal and external functioning. These factors are all necessary for maintaining quality of life.

Sipeki, I. (2022) cites Keyes' statements from 2002 that persons with great psychiatric functioning also achieve high levels of emotional, psychological, and social wellbeing. It is said that this situation is flourishing. In more detail, emotional well-being is defined as happiness, positive feelings, and a lack of negative feelings, whereas psychological well-being includes self-acceptance, a sense of personal growth, life goals, a sense of efficiency, independence, and positive relationships with others. Social integration, social coherence, social acceptance, and social actualization are also components of social wellbeing. Individuals with poor levels of emotional, psychological, and social well-being are referred to as languishing (Sipeki, I., 2022).

The emergence of COVID-19 pandemic resulted in academic disruption and later leads to psychosocial consequences. Students reported increased fear and anxiety as well as low level of academic motivation due to increased concerns about academic, social, and economic well-being. Moreover, students claimed that they struggle with loneliness and isolation because of disconnection from friends and uncertainty in job market availability (Idris, F., et. al., 2021). Likewise, Visser, M. & Law-van Wyk, E. (2021) found out that most of the students expressed fear of getting the virus, felt discomfort during lockdown due to pandemic, and had trouble coping with the situation. Similarly, Alam, M., et. al. (2022) revealed that more knowledge of COVID-19 leads to depression and depression results in low mental health in students. Additionally, Sifat, R., et. al. (2022) found out that majority of the student participants feel moderate stress, mild anxiety, and mild depression due to Covid-19. Thus, it can be concluded that students experience more stress, anxiety, loneliness, and depression (Idris, F., et. al., 2021), low level of resilience (Alyoubi, A., et. al., 2021).

Schools should promote a structured learning environment, follow the course schedule, promptly communicate changes or updates, adapt assignments to the learning environment, use campus, local, state, and national resources, practice self-care, and extend grace to support students who struggle with anxiety and stress. The most typical sign of sadness and anxiety in these situations is unhappiness with students' academic performance, which falls off during online learning. During quarantine, students who live alone are more likely to experience sadness (Nuryana, Z., et al., 2023). The tertiary setting significantly affects the mental health and

wellness of students. According to Limpus, W., and Carlyon, T. (2019), anxiety and depression significantly affect mental health and wellbeing.

Online Learning Environment and Mental Health. The utilization of online learning and students' psychological stress are strongly correlated (Akpinar, E., 2021). Positively, Idris, F., et. al. (2021) found out that students gain more independence and easily adapt to online learning. Further, Balta-Salvador, R., et. al. (2021) found out that factors such as quality of online education, adaptation of the course, workspace conditions, connections with students and teachers can lead to academic success of students. Furthermore, positive emotion of students is highly linked to interaction with teachers and students (Balta-Salvador, R., et. al., 2021). As cited by Popescu, E., et. al. (2021) well-being of students has a direct influence on the learning process, and it includes students' experiences which include emotional state, self-regulation processes, interaction with technology, communication and relations with instructors and other students, the interaction with didactical material, and perception on the physical working context.

Moreover, students who have healthy social connections are happier and more mentally healthy. Students can feel good when their interactions with other classmates are facilitated through teamwork and social skills activities. Higher resistance to symptoms of depression and anxiety in students who engaged in partnerships and activities to get to know their peers (Morin, A., 2022). Because of their inability to relate to their classmates on a human basis, students who used online learning were suffering from peer-related burnout (Akpinar, E. 2021). As mentioned by Akpinar, E. (2021) interaction skills with classmates and teachers are crucial for better engagement in educational activities.

On the other hand, Alibudbud, R. (2021) stated that online learning leads to negative mental health such as increased anxiety and frequent absenteeism. This is due to sudden change in academic demands such as technological skills, online productivity and acquired online information (Alibudbud, R., 2021). Moreover, Hassan, S., et. al. (2021) confirmed in their study that students admitted that online distance learning has a negative effect on their daily lives. According to Lemana, J. (2002) eye tiredness and online schooling had a good correlation. Students with average academic performance are more likely to experience emotional signs of stress because they are not reporting physically to school, and they are dealing with change in their routine life (Hassan, S., et. al., 2021).

Additionally, students reported that they experience more distractions and felt uncertain about academic success while they are studying online at home (Idris, F., et. al., 2021). Online learning has caused some students to feel frustrated and confused, which has led to tension and anxiety. These negative feelings affect how well students interact in the virtual classroom, which could make them less likely to succeed (Lemana, J., 2022).

Since the COVID-19 pandemic pushed schools all around the world to switch to online instruction, the educational sector has undergone considerable changes. Students have found this shift difficult, and it has also raised stress and anxiety levels (Yagshi, A., 2022). Because of the pressure to complete their tasks quickly and submit them, learners who participate in virtual learning from home may endure stress, anxiety, depression, panic attacks, self-harm, and sleep deprivation (Tangonan, M., et al., 2023). It suggests a rise in mental health problems during the pandemic (Akpinar, E, 2021). They are already stressed out due to dealing with this new instructional environment. The fundamental issue here is the lack of social connection brought on by the pandemic-related lockdown. Due to the numerous issues that arise when students study online, their mental health is being negatively impacted (Tangonan, M., et al. 2023) because when students are not in the appropriate frame of mind, they tend to view negativity as the good things that destroy their mood and consequent conduct (Gu Z, L., et al., 2022).

There is a serious problem with student stress during online learning. Students who learn in an online environment might not progress as quickly as those who learn in a regular classroom. Many students report higher stress levels because of the unfamiliarity of the online environment, their anxiety about the future, and their difficulty adjusting to distance learning. They run a very real risk of being more depressed and worried about their schooling and future. Fear of students may also increase since they lack practical education and skill development that they can use as a springboard when looking for jobs in the future. It has been discovered that student tension during online learning has a detrimental effect on mental health (Yagshi, A., 2022). According to Zhao, Y. & Du, X. (2020), students who were under more stress during the COVID-19 epidemic had worse outcomes in terms of their mental health, including higher levels of anxiety and sadness. Additionally, there are times when schoolwork seems never-ending, which might result in a mental breakdown.

A serious mental illness that affects students is anxiousness. Many times, anxiety disorder symptoms are mistaken for normal stress or are written off as the result of excessive anxiety. When faced with difficult circumstances and hurdles in life, students who are depressed may feel sad, helpless, helpless, and overwhelmed. Students' struggles with reading comprehension, paying attention, and task completion are also associated with depression. Since students frequently minimize or decline to share things that trouble them, it might be challenging to identify these issues in others (Van, N., et. al., 2021).

Students have poor opinions of online learning. The psychological anguish that has been linked to the growing use of online learning could be its cause. Due to the lack of a classroom-like setting, tertiary students have acquired a negative outlook on online learning environment. Their mental health is being impacted by the pressure they feel to study everything in the online classes. The effects of excessive screen time on one's mental health are negative. They start using their gadgets for extended periods of time to be able to comply with the requirements to pass all of the subjects since they are terrified of failing their courses. Additionally, internet issues including a lack of software support and incompatibility are preventing the efficient use of the learning platforms. Due to these circumstances, students are now facing a variety of difficulties that they have never encountered in a typical classroom setting (Akpinar, E. 2021).

Conceptual Model and Operational Framework

Anderson's Online Learning Model. According to this theory learners and teachers interact with each other and with content. It explains that learners can interact directly with content in different formats but, many learners choose to interact with content through the assistance of a teacher in which their learnings are sequenced, directed, and evaluated. Interaction between learner and teacher can take place using an online-based synchronous and asynchronous activities which will enhance learning of social skills, collaborative learning, and development of personal relationships among participants. When learners choose independent learning, they use common tools such as computer-assisted tutorials, drills, and simulations (Picciano, A. G., 2017). The model also highlights the importance of the learner, knowledge, evaluation, and community in interactive online learning. The instructional process for online learning includes interaction types such as student-student, student-teacher, student-content, teacher-content, content-content, and teacher-teacher interactions.

Teachers coordinate and start cooperative activities within this learning community, encourage student dialogue, and offer learning direction. As a result, community members are involved in a relevant learning process, and academic objectives are met (Huang, M., 2021).

The usability of online learning environment is tested due to COVID-19 pandemic wherein there is sudden transition to online learning which raised several concerns from students. Positively, Zheng, M., et al. (2021) stated that students' have good attitude toward online learning, are satisfied with live-based lectures, and wanted to continue online instruction even after pandemic. On the other hand, students reported that their learning and engagement like student-instructor interactions had decreased. Further, it is reported that students' performance is influenced by sense of belonging, feeling of being connected and supported by instructors and classmates (Zheng, M., et. al., 2021). Furthermore, Zhang, J. & Zhang, J. as cited by Li, J., et. al. (2021) identified the four influencing factors of e-learning, and these are learners, teachers, online courses, and learning environment. Children who take online classes spend more time on screens, which causes stress, a variety of anxiety, mood swings, and mental health issues like melancholy. Finances, technological issues, student motivation, and instructors' prior experience with online learning are other elements that may have a negative impact on the physical and emotional health of online learners. The unfamiliar learning environment of the kids may cause them to become frustrated (Lemana, J. 2022). Thus, the researchers hypothesize:

H1. Online learning environment positively predicts mental health of university students.

Conceptual Framework

The conceptual framework illustrates that university students' learning environment such as assignment, lecturer/friend, equipment & facilities, home & environment, and physical classes affects their mental health. One headed arrow showing the influence of independent variable to dependent variable.

Methodology

Research Design.

This study utilized causal research design to determine how online learning environment predicts the mental health of university students. Analytical studies that provide explanations are known as causal studies. It explores the basic causal relationships between two or more variables. Typically, researchers looked at how changes in one variable affected changes in related variables (Good, H., 2023).

Participants.

This study used cross-sectional survey to explore the online learning environment and mental health of three hundred sixty-seven (367) university students from a private university in Manila, Philippines who voluntarily answered the survey questionnaire. They were selected using the non-random convenience sampling strategy where participants may be found quickly and are willing to participate in the study (Hassan, M., 2022).

Procedures.

were collected using google form. Prospect participants were identified through the help of their course teachers. They received the google form link and allow them to read the informed consent and allow them to decide if they wish to participate or not to participate by clicking the agreement or disagreement statement. Those who wanted to completely answer the survey questionnaire proceed to the items but those who did not want to participate in the study led to end of the survey form. Data from the accomplished google form were undergone data cleaning before it was analyzed using statistical software.

Measures.

The adapted survey questionnaire from Faculty of Language Studies and Human Development, Universiti Malaysia Kelantan measured online learning environment specifically assignment, lecturer/friend, facilities & equipment, home & environment, physical class as well as mental health.

The survey questionnaire for online learning environment composed of thirty-two items: 6 items form classes; 4 items for assignment; 9 items for lecturer/friend; 3 items for equipments & facilities; 5 items for home & environment; 5 items for physical classes. Sample of items from online learning environment survey questionnaire are the following: *"the difficulty in attending online classes makes me quit studying"* (classes); *"my lecturer gives me too many*

assignments during online classes" (assignment); *the lecturer's attitude during online classes stresses me out"* (lecturer/friend); *"I have experiences problems regarding the equipment needed to attend the online classes"* (equipment & facilities); *"my current family condition is not convenient for the execution of my online classes"* (home & environment); *"physical and face to face classes make me stressed"* (physical classes).

Moreover, the mental health survey questionnaire composed of twelve items with 7 items for stress and 5 items for suicide ideation. However, the current study only considered the total mental health scores and did not include the two subscales under the mental health. Samples of items from mental health questionnaire are the following: *"The current online classes make me stressed"* and *"I thought of suicide since the implementation of online classes*".

The mean scores determine the online learning environment and mental health. Median in each subscale was used to interpret the mean scores. Since the items were written in a negative statement, the higher the mean scores in online learning environment, the negative the view of university students. Likewise, the high mean score in mental health means negative mental health. Moreover, items from online learning environment and mental health were found to be internally consistent: assignment (.874); lecturer/friend (.744), facilities & equipment (.695); home & environment (.821), physical class (.886) and mental health (.903) respectively. Online learning environment in terms of classes was found to have low reliability thus, this subscale was not included in the analysis.

Data Analysis

The hypotheses were analyzed using bivariate correlations to determine if there is a significant relationship between online learning environment and mental health while multiple linear regression analysis to answer if online learning environment as to assignment, lecturer/friends, facilities & equipment, home & environment, physical class predicts mental health of university students. Additionally, Cronbach's alpha coefficient was checked to determine the reliability indices of the measures.

Results and Discussion

Online Learning Environment of University Students.

Table 1 shows the mean and standard deviation of online learning environment which answers statement of the problem 1: "What is the level of online learning environment of university students. Based on the findings, mean scores of online learning environment in terms of assignment, home and environment, and physical class were lower than the median. This means that the

participants had lesser negative view in online assignments, home and environment, and physical class. On the other hand, in terms of lecturer/friend and facilities and equipment mean scores are higher than the median which means that university students had an unpleasant encounter with his/her teacher during online class as well as use of gadget and internet connection. Moreover, in terms of degree of variability of the scores, all subscales of online learning environment are not dispersed which means that responses of participants in terms of assignment. lecturer/friends, home & environment, and physical class are homogenous except equipment and facilities.

The findings were supported by Selvaraj, A., et. al. (2021) stating that direct student-teacher interaction is needed for effective learning but, inadequate attention and the delay in response from teachers contribute to negative experiences of students during online class. Moreover, Zheng, M., et. al. (2021) confirmed that students' perceived engagement with teachers and classmates leads to effectiveness of the online course. In terms of equipment and facilities, Selvaraj, A. et. al. (2021) revealed that it is possible that devices in household is not enough because there was more than one student who needs to attend online class. These reasons added to the negative experience of students in an online learning environment. They identity the teachers' attitude and behavior during online classes, communication with other students as well as length of online lectures and online assignments (Deshpande, D., and Mhare, K. 2021) made them realized that learning through online is full of challenges.

Table 1.

Online Learning Environment, Mental Health, and Relationships

Variable	M	SD	1	2	3	4	5	6
1. assignment	3.38	.98	-	.443	.183	.173	.267	.431**
2. lecturer/friend	2.80	.67		-	.369	.396	.200	.575**
3. equipment & facilities	3.15	1.04			-	.599	.003	.471**
4. home & environment	2.87	.98				-	-054	.609**
5. physical class	2.82	.87				-	.139**	
6. mental health	2.78	.87					-	

** Correlation is significant at the 0.01 level, NOTE: assignment >3.5=high; lecturer/friend>2.78=high; equipment & facilities>3.0=high; home & environment>3.0=high; physical class>3.0=high; mental health>2.76=high

Mental Health of University Students.

Table 1 shows the mean and standard deviation of mental health which answers statement of the problem 2: "What is the level of mental health of university students". Based on the result, mental health mean score is higher than the median which can be interpreted as university students were anxious during the conduct of online classes. Moreover, in terms of degree of variability of the scores, mental health is not dispersed. The finding was supported by the study of Chen, T. & Lucock, M. (2022) that undergraduates show higher level of depression during online class. Additionally, Son, C., at. al., (2020) identified the major contributors to depressive thoughts and these were loneliness, insecurity, or uncertainty (Akpinar, E. (2021), powerlessness or hopelessness, concerns about academic performance (Gogoi, M., et. al., 2022) and overthinking. Further, Tangonan, M., et.al. (2023) confirmed that online learning's restrictive setting inevitably led to greater stress and other undesirable outcomes. Stressors as identified by the university students were online class, attitude of the lecturer, stable internet connection at home, home condition, not enough sleep, feeling burdened, and decline of physical health. These stressors have a significant impact on the education sector due to the limited individual freedom to solve problems and make strategies because of various policy changes in different sectors (Nuryana, Z., et. al., 2023).

Relationship between online learning environment and mental health.

Table 1 shows the relationship between online learning environment and mental health. This answers statement of the problem 3: "Is there a significant relationship between online learning environment and mental health". Based on the results, online learning environment as to assignment; lecturer/friend; facilities & equipment, home & environment, and physical classes were strongly correlated to mental health. Since the questionnaire items were written in negative statements, these mean that the more university students negatively viewed online learning environment specifically classes, assignment, lecturer/friend, facilities & equipment, home & environment, physical classes the more they have bad mental health.

According to Van, N. et. al. (2021), students experience of online classes using a digital platform from home was never easy. This can affect the students' time management skills, focus, learning strategies, and academic freedom ((Alshammari, T., et. al., 2022). They encountered difficulties in learning environment; internet connections; struggle with technology (Tangonan, M., et. al., 2023); use of excessive digital devices (Sifat, R. et. al. (2022); as well as online assessments which lead to psychological distress among students. Moreover, the need to provide appropriate equipment and facilities for online class adds to

financial worries which can influence depression (Alam, M., et. al., 2022). Further, poor level of communication with families and friends can predict depression and anxiety among students (Chen & Lucock, 2022; Visser, M. & Law-van Wyk, E., 2021). Furthermore, as stated by Akpinar, E. (2021) that the incapacity to converse and communicate with teachers and classmates leads to stress.

College students' psychological endurance and quality are significantly tied to their mental health (Jin, Y. 2022). However, if the situation is out of control like too many assignments; miscommunications with teachers and classmates; additional expenses for the gadgets and internet; distractions during online class; and uneasy physical and face-to-face communication between teachers and students can lead to higher depression, anxiety, and stress level of students. According to Davis, C. et. al. (2020), these Long-term stressors that don't go away could become the new norm.

Table 2.

Online Learning Environment Prediction of Mental Health

Variable	*B*	95% CI	ß	t	p	
Assignment		.180	[.110-.250]		.202	-2.624
.009						
Lecturer/friend	.378	[.267-.490]		.288	5.032	.01
Equipment & Facilities	.070	[-.003.144]		.084	6.692	.01
Home & Environment		*.373*	*[.293-.452]*		*.419*	*9.222*
.01						
Physical Classes	.050	[-.008.108]		.063	1.684	.093

Note: R^2 = *.56 (367, p<.01) CI* = Confidence interval for *B*

***Online Learning Environment predicts Mental Health*.**

Table 2 illustrates the how online learning environment predicts mental health. This answers the problem 4: Does online learning environment affects the mental health. Result of the study revealed that the online learning environment such as assignment; lecturer/friend; and home & environment significantly predicts mental health scores. This implies that assignment, lecturer/friend, and home & environment contribute to the level of mental health of university students. Specifically, the number of academic requirements that students need to fulfill, the less support and communication from teachers and classmates, the less space at home for online class, and high tendency for distractions result in students' negative mental health. Moreover, table 2 shows the beta regression coefficient to ascertain which of the independent factors has the greatest impact on the dependent variable. Findings suggest that among the independent variables significantly predicted mental health, it is the subscale home & environment which is identified as the strongest predictor and the most important independent variable in the regression model.

The findings supported the study of Idris, F., et. al. (2021) that studying at home caused students to feel more distracted (Lischer, S., et. al., 2021) with a feeling of uncertainty towards examinations. According to Locion, J. et. al. (2022), students encountered stressors like noise, household duties, and lack of drive and this influence how they performed academically. Similarly, Mesghina, A., et. al. (2021) confirmed that those who were distress learned less and paid less attention to the lesson.

Perception of students to current family condition as well as family arguments home environment, and distractions from family member revealed to be a factor for negative mental health. Being unable to focus on online classes because of home environment brings frustrations to students and leaves them feeling distressed. The results imply that students need a certain space at home to be able to concentrate on fulfilling academic tasks. Moreover, teachers must be aware that not all students have good learning space at home and consider giving ample time to students in finishing assignments and academic requirements. Further, school administrators ask feedbacks from students regarding online learning environment experience to create academic policy on how to lessen the burden on students during attending online classes.

Conclusion and Recommendations

Based on the results, online learning environment in terms of assignment, lecturer/friend, equipment & facilities, and home & environment predict mental health among university students. These aspects of learning environment provide an overwhelming experience because of COVID-19 pandemic. Adjustment problems encountered by students make them difficult to fulfill academic tasks because of limited time to work on academic tasks, limited freedom to ask questions to teachers and collaborate with classmates; limited resources to attend online class; and limited study area free of noise and distractions. These challenges faced by students during online classes pull them away from achieving academic success and better mental health. Moreover, experiencing divided attention between fulfilling tasks at home and attending online classes result in frustrations on the part of the students. These challenges brought by controlled situations led them to think, feel, and act negatively when it comes to their academic performance during online class.

Therefore, it is recommended that school administrators monitor, evaluate, modify the current implementation of online learning to make the online learning experience less stressful. The result of the study may also help the teachers understand the negative experiences of students in online class and may check and assess if syllabus content considers the needs of college students to ensure student engagement during the conduct of online classes. Moreover, students may choose

the best time to work on academic task at home. Further, it is best to communicate concerns to teachers and parents so proper intervention may be implemented.

This study has identified limitations. The study identified the aspects of online learning environment that may cause high stress level among university students; thus, it is recommended that future researchers may explore resiliency and coping techniques of university students during pandemic. Future researchers may also investigate social support that university students received during online class. Moreover, future researchers may examine the effectiveness of intervention plans given by the schools. Lastly, they may study the demographic profile such as gender and academic status of students associating with online learning environment as well as mental health and compare it during pandemic and post-pandemic.

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