

Stress, Anxiety and Satisfaction in Online Learning: The Moderating Role of Instructor Support

Nurfatihah Mazlan & Norzuwana Sumarjan

Faculty of Hotel and Tourism Management, Universiti Teknologi MARA, Selangor, Malaysia

Corresponding Author's Email: fatihahmazlan@uitm.edu.my

To Link this Article: <http://dx.doi.org/10.6007/IJARBS/v12-i11/15611> DOI:10.6007/IJARBS/v12-i11/15611

Published Date: 05 November 2022

Abstract

Online learning which combines technology and education for the students has shown significant growth over the years. Despite its numerous advantages, students still struggle with stress and anxiety in the online learning process. This study examined the moderating role of instructor support in helping students to overcome the anxiety and stress in online learning, thus leading to course satisfaction. Online questionnaires measuring online course satisfaction, academic stress, online learning anxiety and instructor support were deployed to undergraduate students from a public university in Malaysia. A total of 207 responses were analysed using multiple linear regression and Process by Hayes. The findings showed a significant negative relationship between academic stress, online learning anxiety and online learning satisfaction. However, instructor support did not moderate the relationship between academic stress, online learning anxiety and online learning satisfaction. The findings provide insights into how instructors and institutions can modify teaching and guiding approaches without physical interaction to improve engagement with students in online learning.

Keywords: Online Learning, Academic Stress, Online Learning Anxiety, Instructor Support, Online Learning Satisfaction

Introduction

Online learning is an alternative to face-to-face learning (Lockee, 2021). Even though it has been utilised long before the COVID-19 pandemic, face-to-face learning remains the primary choice in multiple learning deliveries in universities (Lockee, 2020; Maloy et al., 2020; Okada & Sheehy, 2020). The emergence of Covid-19 has forced instructors and students to quickly adapt and fully utilise online learning (Lockee, 2021). Online learning will likely stay in the future (Karupiah, 2022). However, most students perceived online learning as challenging, especially first-time online learners (Demuyakor, 2020).

Although online course offerings continue to increase to fulfil student demand and higher learning institutions (Tareen & Haand, 2020), computer-related or technology anxiety remains an issue for students (Saade et al., 2017). Students must have digital skills and

competencies to understand online learning (Al-Nasa'h et al., 2021). Additionally, Favale et al (2020) claimed that students are frustrated with universities' online platforms due to high traffics and the tendency to crash, thus leading to anxiety and stress in handing in assessments on time. Challenges linked with using technology in online learning may cause anxiety, subsequently affecting students' satisfaction with online learning (Fawaz & Samaha, 2020).

Besides that, there is a rise of academic-related stress in high-learning institutions due to competition in class, course-related stress, the difficulty of tertiary education and adapting to the new education system such as online learning (Ramachandran & Dhanapal, 2018). Most students claimed that during online learning, they have to deal with more emails, assignments and requirements to cover the courses, which contributes to higher stress and a heavier workload (Quillen, 2020). Mental distress like stress will subsequently affect their performance in the study (Grotan et al., 2019), leading to dissatisfaction with online learning (Naeem et al., 2019).

The challenges presented in online learning can be encountered by offering student support to ensure high engagement, motivation and success in higher learning education (Muljana & Luo, 2019; Rotar, 2020). Particularly, interaction with families, instructors and peers will affect students' learning interests and outcomes (Xu et al., 2021). Student's readiness for online learning also depends on their ability to commit to education, provided they receive sufficient support and guidance (Tareen & Haand, 2020). As such, support from students' social circle is vital to online learning success (Rotar, 2022).

Particularly, engagement with instructors assists students in overcoming challenges during online learning (Rajabalee & Santally, 2021). This support includes dialogues (answering the question, correcting mistakes and providing feedback) and designing effective course structures to encourage students to learn, master the course and accomplish learning objectives (Sang et al., 2011). Instructor support also includes providing tutoring, counselling, and academic advising to students (Sang et al., 2011). Nonetheless, students did not get proper instructors to support them during online learning, such as not getting instant feedback and must wait for the instructor to be available (Tareen & Haand, 2020). To help institutions better understand the importance of instructors' support and to enhance the role of instructors in the success of online learning, there is a great need to investigate the role of instructors' support in online learning.

Student satisfaction depends on the interactions with peers, instructors and course content (Elshami et al., 2021). As the frequency of interaction within the learning context increases, online learning satisfaction will also improve (Miyazoe & Anderson, 2010). Vice versa, students with poor relationships with their peers and instructors, developed negative feelings and inadequate online learning experiences (Rajabalee & Santally, 2021). In promoting successful and effective education, ensuring students' satisfaction with online learning is crucial (Elshami et al., 2021). Considering that online learning could supplement or even replace offline education (Guo & Wan, 2022), it is necessary to examine challenges and online learning satisfaction among students. Hence, this study aims to investigate the relationship between academic stress, online learning anxiety and online course satisfaction and to examine the moderating effect of instructor support.

Literature Review

Online Learning

Online learning is one type where physical interaction between teachers and students is absent, and face-to-face meetings occur virtually (Prasetyo et al., 2021). Online learning can

be conducted through the internet or other digital platforms (Jamilah & Fahyuni, 2022). Globally, the emergence of online learning has grown steadily even before the COVID-19 pandemic due to new digital technologies, which have improved the internet adoption (Mheidly et al., 2020). The development of information and communication technology (ICT) has supported the expansion of online learning in recent years (Guo & Wan, 2022). When the COVID-19 pandemic hit worldwide, the adoption of online learning further accelerated as all students were required to self-isolate (Mheidly et al., 2020).

Online learning has many advantages compared to conventional, offline learning (Guo & Wan, 2022), such as cost-effectiveness, greater access to quality education and convenience (Baum & Pherson, 2019; Lynch & Kim, 2017). Thus, it is no surprise that online learning has gained popularity in schools, universities, and companies (Koksal, 2020). Particularly in higher learning institutions, a survey by Coursera in 2021 found an increase in students pursuing higher education courses through remote, online learning (Wood, 2022). Nonetheless, the impacts of online learning may vary from person to person (Guo & Wan, 2022). Past studies have highlighted that online learning has an immediate and long-term impact on students' physiology, psychology and life (Dodd et al., 2021; Jiang et al., 2021).

Academic Stress

The shift from conventional learning to online learning may cause psychological effects (Al Jhani et al., 2022), particularly stress to the students (Moawad, 2020). Academic stress can be defined as subjective problems associated with various aspects of academic learning (Wang et al., 2022), which may cause depression, anxiety, and other mental and physical distress to students (Leung et al., 2010). Academic stress stems from the expectation of academic excellence from parents, teachers and peers (Sari, 2019), and uncertainty about examinations, semesters and assessments (Moawad, 2020). Past studies claimed that online learning has further increased academic stress due to sudden shifts in the learning method and excessive academic assignments which are unrelated to the online learning platform used (Berrio-Quispe et al., 2021; Morales-Mota et al., 2021).

A high level of academic stress is due to the inability to manage workloads, assessments and deadlines, which is linked to poor academic performance. Consequently, it will lead to lower student learning satisfaction (Shelton Jr, 2017). Unsatisfied students cannot manage the impact of academic stress and thus have difficulty meeting academic demands (Sari, 2019). Moreover, studies on the relationship between stress and program-level satisfaction remain scarce. (Naeem et al., 2020). As satisfaction is related to academic success in higher education, it is important to investigate the relationship between academic stress and students' satisfaction in the program (Hodge-Windover, 2017).

H1: There is a negative relationship between academic stress and online learning satisfaction

Online Learning Anxiety

Nowadays, the utilisation of modern information technology (IT) devices and methods in online classes has increased significantly to make teaching and learning more interactive and interesting (Kira et al., 2018). Despite advancements in technology and students' savviness, technophobia and anxiety remain an issue, including taking online courses (Elshami et al., 2021; Saade et al., 2017; Yunus et al., 2016). Long exposure to screen time also affects students' stress and anxiety levels (Mheidly et al., 2020). Past studies found that computer-related anxiety, self-efficacy, self-regulation, need for affiliation, and learning orientations are crucial to students' satisfaction and success in online learning (Seiver & Troja, 2014).

Ghaderizfreh and Hoover (2018) also mentioned that most studies about online learning and students' emotions found that technology anxiety is one-factor affecting students' satisfaction.

H2: There is a negative relationship between online learning anxiety and online learning satisfaction

Social Support

Even though online learning provides flexibility and convenience, lack of social connection may lead to students feeling isolated and lonely due to disconnection from their peers and instructors (Arslan, 2021). Past studies claimed that interaction with peers and faculty creates a supportive environment and improves student well-being (Naeem et al., 2020). Vice versa, poor social support will lead to stress associated with lower satisfaction in a program (Eicher et al., 2014; Hodge-Windover, 2017).

Among many supports, instructor support is vital to enhance students' online learning (Oyarzun et al., 2018). This is because instructor support and presence affect students' engagement in study and lead to better achievement, satisfaction and retention (Hegarty & Thompson, 2019). Instructors' accessibility and availability inside and outside class also contributed to students' satisfaction (Suwantarathip, 2018). Interaction with instructors through many platforms, such as email and social media, can provide feedback on students' performance (Suwantarathip, 2018), thus reducing uncertainty and anxiety in online learning. Supportive instructors can affect students' learning experiences, such as engagement and satisfaction (Park & Kim, 2020). This shows the importance of instructor support in overcoming stressful circumstances (Julal, 2016).

H3: Instructor support moderates the relationship between academic stress and online learning satisfaction

H4: Instructor support moderate the relationship between online learning anxiety and online learning satisfaction

Methodology

This was a cross-sectional study that utilised a quantitative approach through the deployment of questionnaires. The study sample was undergraduate students from a public university in Selangor, Malaysia, who underwent online learning. Students at higher learning institutions often experience higher stress levels (Carton & Goodboy, 2015; Pedersen & Jodin, 2016). Multiple linear regression and Process by Hayes in SPSS software version 22 were utilised for hypotheses testing.

The questionnaires were distributed online through a google form. The online questionnaire consisted of closed-ended questions with a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), which was adapted from previous studies. Online course satisfaction items were adapted from (Bolliger and Martindale, 2004). This 24-item scale addresses the students' satisfaction elements such as instructor, technology, course setup, interaction, outcomes, and overall satisfaction. Academic stress items were adapted from (Bedewy and Gabriel, 2015). This 18-item academic stress scale comprised three sources of stress; academic expectations, examination and academic self-perceptions. Online learning anxiety items were adapted from (Bolliger and Halupa, 2012). This 18-item scale is related to nervousness, anxiety, relaxation, apprehension, excitement, enjoyment, fear, confusion,

confidence and empowerment. Instructor support which consists of ten items was adapted from (Lee et al., 2011). The author developed demographic items consisting of four items; gender, locality during online learning, states of origin and faculty. Two screening questions were also included to ensure the respondents are active undergraduate students from public universities who are currently undergoing online learning.

Prior to questionnaire distribution, a questionnaire review was conducted by two lecturers from the public university. Their reviews were significant to ensure the structure of questions was highly understandable, correctly communicated to respondents, and provided subjective judgement on how these items accurately represented the study's objective. Then, a pilot test was conducted with 30 undergraduate students from various faculties who were later exempted from the actual data collection. Five positive items from academic stress and seven positive items from online learning anxiety were recorded prior to reliability analysis. The result of the reliability analysis achieved a Cronbach alpha of more than 0.7, deemed acceptable (Sekaran & Bougie, 2009). The list of students was derived from the academic register of each faculty. The author contacted faculty lecturers to explain and seek assistance in distributing a questionnaire to target respondents. The online questionnaire was distributed, and after four weeks, only three faculties managed to provide feedback, bringing 207 valid responses for data analysis.

Findings

The demographic profile demonstrates a higher response from female compared to male students. According to the Ministry of Higher Education Malaysia, the statistics in university admission show a higher number of females than male students (Idris, 2020). Most of the respondents were from Selangor and were at home during online learning. Half of the respondents were from the hotel and tourism management faculty, followed by business management and art and design.

Demographic Profile

The demographic profile of 211 respondents is analysed in Table 1.

Table 1
Analysis of Demographic Profile

	n	%
Gender		
Male	42	20.3
Female	165	79.7
States of Origin		
Johor	11	5.3
Kedah	7	3.4
Kelantan	11	5.3
Melaka	6	2.9
Negeri Sembilan	7	3.4
Pahang	8	3.9
Penang	8	3.9
Perak	12	5.8
Perlis	3	1.4
Selangor	106	51.2

Terengganu	8	3.9
Wilayah Persekutuan Kuala Lumpur	10	4.8
Sabah	7	3.4
Sarawak	3	1.4
Locality during online learning		
House	160	77.3
University	47	22.7
Faculty		
Hotel & Tourism Management	122	58.9
Business Management	63	30.4
Art & Design	22	10.7

Multiple linear regression was carried out to determine the relationship between academic stress, online learning anxiety and online learning satisfaction. The results demonstrated a significant negative relationship between academic stress and online learning satisfaction ($r = -0.239$, $p = 0.000$). Similarly, online learning anxiety and satisfaction also showed a significant negative relationship ($r = -0.425$, $p = 0.000$), as illustrated in Table 2. Hence, H1 and H2 were supported.

Table 2

Relationship between academic stress, online learning anxiety and online learning satisfaction

		Academic stress	Online learning anxiety
Online learning satisfaction	R	-0.239	-0.425
	R ²	0.057	0.181
	p-value	0.000	0.000

The moderating effect of instructor support was tested via Process by Hayes by using model 1 with 5,000 bootstrap samples for bias correction and 95 percent confidence intervals. Table 3 demonstrated that instructor support did not moderate the relationship between academic stress and online learning satisfaction. The model was found to be not statistically significant as the interaction term $M \times X$ ($\beta = -0.1682$, $[-0.3919, 0.0555]$) showed that the effect of moderation is not significant ($p = 0.1397$). While Table 4 shows that instructor support did not moderate the relationship between online learning anxiety and online learning satisfaction. The model was found to be not statistically significant as the interaction term $M \times X$ ($\beta = -0.0739$, $[-0.2702, 0.1223]$) showed that the effect of moderation is not significant ($p = 0.4583$). Thus, H3 and H4 were not supported.

Table 3

Moderation effect of instructor support on the relationship between academic stress and online learning satisfaction

	β	SE	t	p	LL	UL
Instructor support (M)	0.5888	0.0612	9.6203	0.000	0.4681	0.7094
Academic stress (X)	-0.1450	0.0813	-1.7842	0.0759	-0.3053	0.0152
M x X interaction term	-0.1682	0.1134	-1.4829	0.1397	-0.3919	0.0555

Table 4

Moderation effect of instructor support on the relationship between online learning anxiety and online learning satisfaction

	β	SE	t	p	LL	UL
Instructor support (M)	0.5210	0.0582	8.9525	0.000	0.4063	0.6357
Online learning anxiety (X)	-0.3185	0.0693	-4.5947	0.000	-0.4551	-0.1818
M x X interaction term	-0.0739	0.0995	-0.7430	0.4583	-0.2702	0.1223

Discussion

Academic stress and online learning satisfaction

The result found that H1 is supported. Online learning comes with higher demand as students are required to navigate new technologies such as Zoom or Learning Management Systems (LMS), thus increasing stress levels. Additionally, the difficulty of focusing during online learning compared to face-to-face learning also leads to stress and affects students' satisfaction (Oducado & Estoque, 2021). In Malaysia, some parts of the country have poor connectivity and low access to digital devices, which may affect the online course delivery (Azahar, 2021) and thus affect students' satisfaction. It is also claimed that online learning increases students' workload and having to adapt to various types of assignments (Berrio-Quispe et al., 2021; Oducado & Estoque, 2021). All of these factors build up a level of stress among students and lead to learning dissatisfaction. The finding is similar to other past studies, which found that stress is negatively related to online learning satisfaction and academic performance (Cofini et al., 2022; Oducado & Estoque, 2021).

Online Learning Anxiety and Online Learning Satisfaction

The result demonstrated that online learning anxiety is negatively related to online learning satisfaction; hence H2 is supported. This finding is aligned with past studies which tested similar variables (Abdous, 2021; Bolliger & Haluga, 2012; Pelucio et al., 2022). Some students still struggle with using technology for learning (Saade et al., 2017). Lack of infrastructure and

connectivity is also associated with online learning anxiety (Cleofas & Rocha, 2021). This is because, due to their underprivileged, they feel left behind compared to other classmates, thus triggering anxiety in online learning. Additionally, instructors commonly use different approaches to online learning delivery to encourage audiences' responsiveness (Cook & Sonnenberg, 2014). Indirectly, students at the receiving end are required and expected to learn all types of software and platforms used in every subject they take. This may cause the students to feel overwhelmed and anxious about adapting to too many technologies. Students who take part in online learning also reportedly became anxious due to a lack of social interaction with peers and instructors (Szopinski & Bachnik, 2022). Lesser or delay in direct feedback from peers and instructors may cause the students feeling lost and thus will affect students' satisfaction with online learning.

Moderating Role of Instructor Support

The study also found that H3 and H4 were not supported in which instructor support did not moderate the relationships between academic stress, online learning anxiety and online learning satisfaction. Despite virtual instructors virtually in an online classes, students still feel a lack of connection with them. This is because students face confusing instructors' instructions and feedback in an online setting (Hara & Kling, 2001). Moreover, online class organisation, effectiveness and productivity rely heavily on instructors' skills and knowledge in making online classes enjoyable and highly impactful. However, past studies claimed that instructors involved in online learning have little or no training in navigating online classes (Kulal & Nayak, 2020). Additionally, with the lack of nonverbal cues in an online setting, it is understandable that students did not recognise the role of the instructor in making online classes enjoyable and impactful, thus reducing students' satisfaction with online learning. It is known that instructor support reduces students' stress and anxiety in class (Hsu & Goldsmith, 2021). However, interaction during online classes is insufficient for students to gain instructor support and presence (Kaufmann & Vallade, 2020). Offline and outside-of-class interaction is much needed to enhance instructors' support towards students' learning experience. Students' factors in online learning also may influence the role of the instructor in online learning. For instance, Kulal and Nayak (2020) found that students have difficulty concentrating for a long time in an online class. Due to that, instructors might lack engagement and response from the students during an online class. Thus, some instructors perceive online learning as a more passive and individual experience (Kaufmann & Vallade, 2020). This kind of perception reduces the role of the instructors.

Conclusion

In conclusion, this study explained how academic stress and online learning anxiety reduced online learning satisfaction among undergraduate students. Although technological advancement brings numerous benefits in empowering the learning experience, instructors and institutions must also consider the impact of online learning towards students who will be at the receiving end. Too much or a sudden shift of technology to replace conventional learning can pill up students' stress in addition to existing academic stress, such as examination and assignment deadlines. Not forgotten, 20% of areas in Malaysia are still dealing with poor digital connectivity and IT facilities (Abidin, 2020), and 1.7 million students are facing 'digital poverty' (Teo, 2020). So, their inability to have a proper connection to online learning apart from individual factors such as low tech-savvy and long exposure to screen time will trigger anxiety, affecting students' satisfaction with online learning.

The government is working hard to improve connectivity and facilities for online learning. However, it might take some time to ensure that all parts of Malaysia have adequate access to the internet. Thus, instructor support is much needed to provide fast and effective assistance to students in online learning. Although students contribute to engagement in both conventional and online learning, instructors ultimately set the classroom's communicative tone and encourage students' interactions (Kaufmann & Vallade, 2020). As instructor-student physical interaction and presence are absent, instructors' support needs to be extended beyond classroom time. Institutions should also consider making online learning easier by implementing standardised LMS platforms for everyone. Training must also be provided to instructors on how to use LMS, so the instructors can educate the students to fully utilise the functions of LMS in creating engaging and effective online learning.

Limitation and Recommendation

The study came with several limitations, which can be addressed in future research. First, the study was conducted in a public university in Malaysia's central region. Future research is suggested to focus on private universities with different capabilities or funds to accommodate online learning. Additionally, future studies can be conducted in other regions of Malaysia, such as Borneo, which face more challenges with digital connectivity and facilities. Additionally, the success of online learning depends on the social support of students (Sulistiyorini & Roswiyani, 2021). As this study focused on the role of instructor support, future studies may focus on peer support or family support. A qualitative approach is also encouraged for future studies to explore the in-depth struggles of students who participate in online learning.

Acknowledgment

The authors would like to acknowledge the support of Malaysia Research Assessment (Myra) [(Grant number: 600-RMC/GPM SS 5/3 (102/2021))] for the provision of funds in conducting this study and publishing this paper.

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