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Investigating Effects of Online Learning Environment on Academic Stress among MBA Students in Sri Lanka Mediated by Lecturer Support

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ABSTRACT

Abundant MBA students are experiencing academic stress as a result of the rapid growth of online learning, which has revealed new issues with student retention. With a focus on online MBA students from Sri Lanka, this study investigated the relationship between academic stress and different retention techniques. This study investigated the relationship between online learning and academic stress, proposing lecturer support as a mediating factor. This research employs a quantitative methodology through a structured self-completed survey administered to 429 MBA students from accredited Sri Lankan universities using convenience sampling. Modern theories of education, such as the Technology Acceptance Model (Davis, 1989) and the Transactional Model of Stress (Lazarus & Folkman, 1984), serve as the foundation for these variables. This study used SmartPLS-structural equation modeling (SEM) to examine the data and assess whether the developed hypotheses were correct. In this study, a systematic methodology was used to evaluate both direct and mediated relationships. The results that reveal the effect of lecturer support on academic stress on an individual level gave thorough insight. Institutions and lecturers can use the study's findings to reduce academic stress and create retention tactics that students are motivated to employ. Furthermore, the study's results provided a foundation for an effective and stimulating learning environment. Moreover, this study added to the expanding corpus of research on online education by emphasizing the need for teacher support and tailored interventions to improve student well-being and retention rates in online learning settings.

1. Introduction

The transition to online education presents distinct issues associated with academic stress. Although it offers chances for skill development and innovation-oriented learning, it requires adapting to the latest technological tools, thereby increasing stress for students and instructors (Bates, 2015). The rapid transition to online education has ensured the persistence of educational activity under extraordinary conditions. Nonetheless, because of its practicality, cost-

effectiveness, and innovation, online learning has gained prominence. Online education offers numerous advantages compared to traditional classroom instruction, such as minimal resource requirements, global accessibility for students, and the facilitation of implementation through information technology (Palvia et al., 2018). Given these benefits, online education has ascended in prominence and become the favored mode of learning. Conversely, students' stress, worry, despair, and even suicidal tendencies have increased as a result of the online education system despite its advantages (Husky et al., 2020). As the educational landscape evolves, it is essential to analyze the correlation between online learning and academic stress. This research aimed to determine the factors contributing to academic stress among MBA students in Sri Lanka enrolled in online programs and to offer effective strategies for alleviating this stress and enhancing their learning environments.

This study examines the online learning environment and academic stress, highlighting the increasing scholarly interest in the interplay between these two concepts, particularly emphasizing lecturer support as a mediating factor. Fonseka et al. (2020) assert that the online learning environment can be both a cause of stress and a stress mitigator, contingent upon the design and facilitative conditions of the technological platform utilized. Well-designed online environments equipped with communication and navigation capabilities can reduce student congestion and alleviate mental stress. Poorly constructed platforms exacerbate stress levels by presenting convoluted frameworks and a lack of user-friendliness. Consequently, our findings underscore the necessity to further investigate how specific environmental factors influence the relationship between online learning and academic stress. Nonetheless, it is essential to further examine the influence of certain environmental conditions on the relationship between online education and academic pressure. This study underscores the absence of prior research investigating the function of lecturer support as a mediator between the online learning environment and the academic stress encountered by MBA students in Sri Lanka. This study enhances our theoretical understanding of online learning and elucidates the implementation of recommended practices by addressing deficiencies in the previous literature and offering a more comprehensive insight into the articulated relationships.

Higher education remains largely inaccessible for several Sri Lankans. Many families' ability to satisfy their financial obligations has diminished since the COVID-19 pandemic. A significant proportion of students expressed that their family's income had substantially diminished. The economic downturn significantly impaired students' ability to access education. Ilangarathna et al. (2022) observed that the prior study exclusively concentrated on undergraduate online education and examined teacher-student relationships. Further research at the graduate level is essential to identify a solution for the academic pressures linked to online education. Further study is necessary to formulate precise and comprehensive practice suggestions, as the function of achieving objectives in this new setting has been examined in only a limited number of studies (Daumiller et al., 2021). Rameez et al. (2020) assert that a study is necessary to address issues pertaining to student support systems in online learning.

Notwithstanding the increasing prevalence and convenience of remote education, further research is imperative to enhance infrastructure, secure backing from potential instructors, and collect feedback from graduate-level students to render online learning more accessible and effective (Adnan & Anwar, 2020; Daumiller et al., 2021; Ilangarathna et al., 2022; Mulenga & Marbán, 2020; Perera & Gamage, 2021). The absence of clear norms for online assessments has exacerbated the situation in Sri Lanka (Gomez, 2019).

A quantitative research methodology was utilized to conduct this comprehensive analysis. The present study sought to provide an online learning environment that prioritizes the holistic well-being of MBA students under academic stress. This study investigated the moderating role of lecturer assistance in the link between the online learning environment and academic stress.

1.1 Research Questions

The research questions are formulated and examined by referencing prior studies that seek to address the objectives of this investigation.

RQ 01: What impact does the online learning environment have on academic stress in MBA students?

RQ 02: Does lecturer support act as a mediator in the relationship between the online learning environment and academic stress among MBA students?

1.2 Research Objectives

The primary objectives of this study are to:

RO 01: Examine the influence of the online learning environment on the academic stress of MBA students.

RO 02: Investigate the mediating effect of lecturer support in the relationship between the online learning environment and academic stress.

2. Literature Review

2.1 Academic Stress

Researchers utilize their perspectives to elucidate the complexities of stress encountered by students in academic environments. Comprehending the definition of academic stress can assist educators, legislators, and professionals in formulating measures to alleviate academic stress and enhance student well-being. Academic stress denotes the emotional, physiological, and behavioral reactions individuals may encounter due to the pressures of academic settings (Córdova et al., 2023). Similarly, academic stress is a multifaceted phenomenon encompassing cognitive, social, and emotional elements. It may lead to anxiety, depression, and other mental health concerns, highlighting the necessity for comprehensive strategies for student well-being (El Ansari, Stock, & Mills, 2013). Various research enhances the comprehension of academic stress, emphasizing its multifaceted characteristics. Research by Misra & McKean (2000) indicates that academic stress arises from the perceived gap between the demands imposed on individuals in an academic setting and their perceived capacity to manage these demands. A comprehensive survey of more than 2,000 students to examine the mental health effects of extended online education (Patel & Singh, 2024). The survey revealed that 58% of students had heightened worry and stress following the shift to online learning. The consequences of academic stress are severe, affecting all aspects of students' lives, including psychological strain, academic achievement, and overall well-being. These issues are exacerbated by the lack of specialized programs for postgraduate students in the Sri Lankan context.

Olpin and Hesson (2016) characterize stress as 'A demand placed on the adaptive capabilities of the mind and body.' This term elucidates three critical facets of stress. Primarily, the manner in which one perceives Stress is contingent upon an individual's perception of the stressor and can be regarded as both a beneficial and detrimental element in life. Secondly, it is the response to life events, rather than the events themselves, that dictates whether the outcome is stressful. Ultimately, stress constitutes a demand on the body's capacity; when an individual's ability to manage stress is robust and healthy, the result is favorable, whereas a deficiency in coping skills leads to adverse outcomes. While humans often see stress as detrimental, it may be invigorating and beneficial, as life would lack excitement without changes and challenges that facilitate learning and growth (Deng et al., 2022; Olpin & Hesson, 2016).

Research indicates that students encounter stress stemming from academic activity, university life, or socio-environmental demands. Adapting to online learning can also induce stress for novice learners who are accustomed to conventional educational approaches. Research indicated that tertiary students have both mental and physical symptoms, including headaches, weariness, and sadness (Kwaah & Essilfie, 2017). The excessive stress levels experienced by students can result in diminished academic performance, criminal behavior, addiction, and school dropout. Some authors have emphasized that persistent stress leads to anxiety or depressive thoughts, which in turn can cause examination cheating, negligence, inappropriate behavior, increased errors, and fraud. Prior research in industrialized nations has established the correlation between stress and the academic performance of higher education students (Kwaah & Essilfie, 2017). However, there is limited knowledge concerning the stressors affecting online students in poor contexts, such as Sri Lanka.

Alongside other identified variables, such as insufficient student motivation, researchers express concern regarding the absence of critical contextual information (Carneiro et al., 2013). Typically, when an educator assesses the circumstances of their students, they examine more factors than merely the evaluation outcomes. He constructs in a semi-instinctual manner, embodying a student who incorporates the subjects with which he feels most at ease, as well

as the degree of this comfort, among other factors. He accomplishes this by everyday access to information regarding attitudes, actions, reactions, and behaviors both within and outside the classroom, as well as occasional brief narratives. This crucial information is not accessible on an e-learning platform. These difficulties must be addressed in an e-learning context, as student performance in learning is significantly correlated with their emotional state during the process (Carneiro et al., 2013).

Instructor training is essential for providing students with excellent online education. Insufficient training may result in suboptimal course design, exacerbating students' stress levels. Antičević et al. (2018) investigate the relationship among academic achievement, study satisfaction, success, and personality traits. Mandernach et al. (2006) executed a semester-long investigation on content-focused instructor training for online courses. Additionally, Brown (2018) addresses the significance of improving assessment in the online educational environment. Assessments are essential for evaluating pupils' comprehension and abilities. Well-structured evaluation procedures can yield significant feedback and diminish ambiguity and anxiety around course expectations. A crucial element in alleviating stress in online education is the creation of evaluations that effectively evaluate learning results (Gomez, 2019). Assessments must be both accurate and valid to possess significance (Thomas, 2018). Erroneous evaluations can induce unwarranted stress and impede students' educational experiences. Likewise, investigating novel evaluation methods can offer pupils a more stimulating and less anxiety-inducing educational experience. Innovative methodologies may diminish the predictability of evaluations, alleviating stress (Thompson, 2019).

Comprehending the correlation among academic performance, educator training, the efficacy of online education, and the establishment of a nurturing online learning community is essential. Furthermore, assessment methodologies, social presence, and instructional presence significantly influence the success and stress levels of online learners. Educators and institutions must consider these insights to provide a constructive and efficient online learning environment for all students.

2.2 Online Learning Environment

Online learning interactions are divided into three primary categories: learner-learner interaction, learner-teacher interaction, and learner-content interaction. Learner-learner interaction refers to the engagement between one learner and another, occurring in either individual or group contexts, with or without the presence of an instructor. Examples of activities for learner-learner contact include cooperation on discussion boards, group discussions, group projects, and the exchange of ideas and themes with peers in the course. Learner-teacher interaction refers to the collaboration between the educator and the student in an online environment. Lecturing, engaging in discussions with students, responding to inquiries, motivating students, and offering feedback and assistance are the predominant methods of learner-teacher engagement (Moore,1989, cited in Yoo, Kim & Young, 2014). This conversation is begun by learners seeking supplementary assistance or clarification regarding their uncertainties. Learner content interaction refers to the engagement of learners with the materials in the online learning program. To augment their comprehension of the course subjects, learners' cognitive development and the assimilation of many views transpired through engagement with the information. Additionally, online library resources that provide access to books, academic materials, lecture notes, games, quizzes, media, web links, and software exemplify learner-content interactions.

Wang et al. (2022) examined the psychological effects of social isolation on online learners. Their research showed that students with limited connections with peers and instructors experienced elevated levels of stress and anxiety. The study advocated for the integration of additional interactive components in online courses, including collaborative projects and live sessions, to cultivate a sense of community and mitigate feelings of isolation.

However, while building a learning environment, it is essential to acknowledge cultural differences, as learners' interactions with context, material, experts, interfaces, and instructors may vary at the national level. Consequently, culturally varied accommodations are essential in the design of virtual learning environments to deliver a distinctive experience for learners (Yoo, Kim & Young, 2014). However, there is a paucity of research pertaining to cultural differences in online learning; hence, cross-sectional studies should be implemented to elucidate and analyze the influence of culture in virtual learning environments. Analyzing the learning experience will enable educational

providers to create online learning environments that address learners' demands. Moreover, educators can engage learners from many countries globally with modern technology and remote learning capabilities.

Yoo, Kim, & Young (2014) observed a significant rise in Korean universities adopting online learning for their undergraduate programs while analyzing online learning interactions in cross-cultural contexts. Consequently, it is apparent that akin to the USA, Korea is adopting a similar strategy to foster and advance self-directed learning within its borders. Although the countries are adapting to comparable virtual learning settings, their resources and infrastructures, relative to the internet user population, differ in expectations influenced by their cultural values.

2.3 Lecturer Support

Online instructors possess a diverse position that transcends the limitations of conventional classrooms. They are assigned the essential duty of both delivering topic knowledge and navigating students through the complexities of online education. This entails overseeing their advancement, cultivating engagement, and promoting significant exchanges within the course. Teacher-Student interactions are fundamental to the educational process, as they establish strong teacher-student relationships (Englehart, 2009). The classroom environment and the quality of Teacher-Student interactions significantly impact these relationships (Adewale & Tahir, 2022; Englehart, 2009; Lampi, 2006).

In the domain of online education, where physical presence is constrained, educators face a unique challenge: fostering authentic connections and personalizing interactions with their students. Fostering a robust human connection is essential, as it is crucial for enhancing student performance and attaining academic achievement (Harper, 2018). Consequently, it is essential to ensure that students feel at ease and self-assured in the online classroom to promote effective learning (Englehart, 2009).

In the realm of online education, educators assume the position of facilitators. They undertake several roles, such as lesson design, content delivery, and supervision of student interactions in the virtual environment (Garrison, 2003). To flourish in these complex responsibilities, educators must have a deep comprehension of their students' distinct issues, concerns, and requirements in the online learning environment. Moreover, educators necessitate assistance to improve the educational experience for their pupils. This requirement corresponds with the suggestions presented in the U.S. Department of Education's National Education Technology Plan (quoted in Zweig & Stafford, 2016), which emphasizes the imperative of reforming teacher education and offering continuous professional development. This enables instructors to proficiently utilize technology for educational objectives.

Due to a lack of comprehensive research on professional development for online instruction, administrators of online learning programs frequently seek help from educational organizations. These organizations regularly promote student support regarding technology and facilitation alongside the integration of individualized, job-embedded, and ongoing professional development (Zweig & Stafford, 2016). This collaborative initiative seeks to establish a setting in which online educators can prosper, hence improving the entire educational experience for their students.

The presence of instructors is a crucial element in online learning environments. Richardson et al. (2017) investigate the significance of instructor presence in online courses. The study highlights the significance of proactive communication, feedback, and engagement tactics utilized by educators. It emphasizes how these factors enhance a favorable online learning experience and facilitate student achievement. Rydell et al. (2003) offer insights on the assessment of social competence dimensions during middle childhood. Social competency, encompassing proficient communication and interpersonal abilities, is essential in online learning contexts. Students who effectively engage with peers and instructors are likely to encounter reduced stress levels. Educators can contribute to the development of students' social skills in the digital environment.

Instructor support is essential in alleviating academic stress in online education. Kim and Park (2022) examined the influence of instructor-student interactions on student stress levels. Research indicated that students perceiving support from their professors exhibited diminished levels of academic stress. The study advised teachers to implement a proactive strategy by providing prompt feedback and being accessible for consultations to foster a friendly online learning atmosphere.

In online education, students originate from varied backgrounds and exhibit differing degrees of technological proficiency. Proficient online educators excel in delivering personalized assistance and direction to address the distinct requirements of every student. Personalized feedback, virtual office hours, and individual interactions are

critical components of this position (Khan, 1997). Another essay underscores the necessity for online educators to adeptly manage their time and resources. This entails developing and revising course materials, facilitating conversations, and delivering prompt feedback while managing their workload efficiently. Efficient time management is essential for sustaining a superior learning experience (Anderson, 2008).

Online educators must be abreast of technological advances and adjust to emerging tools and platforms. Means et al. (2013), in the "Journal of Online Learning and Teaching," emphasize the necessity for educators to perpetually refine their technological competencies to adeptly maneuver through the always-changing online learning environment. Educators in virtual environments are tasked with creating equitable and dependable evaluation techniques. They must guarantee that assessment methods correspond with learning objectives and can be efficiently implemented online. A research study published in the Journal of Online Learning underscores the significance of formative assessment and the utilization of diverse methods to evaluate student development (Palloff & Pratt, 2008).

Garrison and Arbaugh (2007) underscore the importance of online educators in cultivating a feeling of community among students in the journal "Computers & Education." This can be accomplished via consistent communication, facilitating peer engagement, and fostering a friendly educational atmosphere. Competent online educators have expertise in several pedagogical strategies suited for online instruction. This research examines the importance of constructivist, collaborative, and learner-centered methodologies in improving the online learning experience (Garrison, 2011).

Huang (2018) examines the roles of educators in online learning, highlighting their significance in establishing efficient virtual learning environments. The instructor's job transcends mere information delivery; they also serve as facilitators, assisting students through the intricacies of online learning (Huang, 2018). This proactive involvement helps mitigate academic stress, particularly for inexperienced learners (Anderson, 2008).

3. Hypothesis Development

3.1 Online Learning Environment and Academic Stress

The descriptive research findings indicate that most students reported experiencing increased stress, which was mostly attributed to online learning. Some of the themes encompass essentialization through insufficient peer connection, the workload, and the challenges posed by technology. These observations align with Bao's (2020) assertion that the process of meaning-making during the COVID-19 pandemic heightened stress levels among students, particularly when the modalities of online learning were altered and students were ill-equipped for the virtual academic setting. Yang et al. (2021) indicated that limited access to technology and inadequate digital skills may exacerbate stress, especially among primary pupils in underdeveloped countries. The present study offers evidence of these issues within such a system, indicating the need for intervention strategies to mitigate the stressors associated with online education.

Digital literacy is a vital component of the educational landscape. The discourse on digital literacy's significance in online education highlights the necessity of providing students with the skills and tools required to proficiently traverse online platforms. This corresponds with previous research highlighting the connection between digital literacy and student motivation and well-being (Al-Kumaim et al., 2021).

It emphasizes the significance of course design, implementation, and engagement for an effective learning environment (Woldeab, Yawson & Osafo, 2020). The aspects of method, purpose, people, instructor-learner interactions, and elevated interaction levels align with existing work that highlights the intricacy of establishing an effective online learning environment. An effectively structured online learning environment that incorporates these characteristics can markedly alleviate academic stress by offering a helpful and engaging educational experience.

The research conducted by Setiakarnawijaya et al. (2022) revealed that students encountered differing degrees of academic stress throughout online education. A considerable number of students deemed online learning distasteful and expressed reluctance to persist with it, suggesting that the online format may exacerbate academic stress. Increased unpleasantness of the online learning experience correlates with elevated stress levels in pupils. This corresponds with H5, indicating that the online learning environment directly influences academic stress.

Li & Wang (2024) emphasize that the adoption of e-learning tools offers flexible and accessible educational options, hence alleviating stress related to scheduling and transportation. This corroborates the idea that online learning settings influence academic stress, as the intrinsic flexibility and accessibility of e-learning mitigate stress levels and enhance mental well-being.

Nath & Yadav (2023) classify online learning into three categories: entirely web-based, blended, and traditional courses augmented by web-based supplements. Each format provides varying degrees of flexibility, interactivity, and organization. Completely online courses may elevate stress levels due to their dependence on technology and self-regulation, while blended learning offers a combination of virtual and face-to-face interactions, potentially alleviating stress. Conventional courses with online enhancements may provide the least stress, as they preserve classroom structure while using digital resources. This hypothesis utilizes their categorization to investigate how the distinct characteristics of each environment affect academic stress. Utilizing Nath & Yadav's (2023) findings, these hypotheses are well rooted in the literature and offer a systematic framework for examining the intricacies of online learning and academic stress.

This study proposes the following hypothesis:

H1: Online learning environment positively influences academic stress.

3.2 Lecturer Support and Academic Stress

The study posits that lecturer support serves as the mediating variable in the relationship between the online learning environment and academic stress. Lecturer support is classified into three categories: emotional support, informational support, and instrumental support, providing students with the necessary aid for various academic tasks. Support during lectures is especially crucial for MBA students, many of whom must balance additional career obligations and academic pursuits.

The formulation of research questions about lecturer support is essential for evaluating the critical function of instructors in the online learning context. These questions have been meticulously crafted to encompass multiple aspects of lecturer support. The initial inquiry, "The lecturer advises on doing exercises," explores the counsel offered by educators regarding practical learning tasks. The second question, "The lecturer helps students to analyze the learning content," assesses the degree to which instructors facilitate understanding of course topics. The final topic, "The lecturer recommends supplementary study resources, including websites, to students," examines instructors' roles in facilitating resourceful learning. The lecturer's explanation elucidates the clarity of the learning materials, highlighting the instructor's involvement in clarifying. The fifth question, "The teacher assists students in correcting mistakes," examines the assistance provided in rectifying errors and misconceptions. The statement, "The lecturer was available and helpful in facilitating the use of the platform," examines the accessibility and technical support offered by teachers. These inquiries establish a thorough framework for assessing the complex support functions of lecturers in the online learning environment.

Moreover, the relevance of instructor presence, emphasized by Richardson et al. (2017), reinforces the necessity of instructor support and engagement in online courses. This reinforces the notion that instructor support is an essential component of good online education.

The research underscores the diverse function of online educators and their crucial responsibilities in navigating students through the intricacies of online learning (Allen & Seaman, 2017). Online educators are portrayed as more than mere subject matter specialists; they are facilitators responsible for ensuring that students feel at ease, engaged, and self-assured in the virtual classroom (Dabbagh & Kitsantas, 2012).

Teacher-student interaction is acknowledged as a fundamental element of the educational process, impacting the quality of teacher-student interactions and overall learning results (Garrison, 2011). This contact is especially crucial in online education when physical presence is constrained.

Nonetheless, instructors play crucial roles not just in content dissemination but also in offering essential assistance and support to alleviate stress among online learners. The study underscores the necessity for continuous professional development and support for online educators in accordance with the requirements specified in the U.S. Department of Education's National Education Technology Plan (quoted in Zweig & Stafford, 2016).

The study emphasizes the influence of lecturer support in alleviating academic stress, introducing a distinctive aspect to the discourse on online learning efficacy. The results highlight that students' perceptions of instructor support substantially affect their stress levels. This differs from earlier studies, which frequently concentrated on general elements of course design and student participation, lacking a specific focus on the impact of instructor support in alleviating stress.

The results validate the substantial and affirmative correlation between the learning environment and the management of academic stress in online education. Elements including digital literacy, resource accessibility, explicit instructions, technological integration, and communication tools collectively enhance the quality of the learning environment. As online education progresses, comprehending and refining the learning environment are crucial for improving students' experiences and alleviating academic stress.

Lecture Support (LS) serves as a crucial intermediary in the association between Online Learning Environment (OLE) and Academic Stress (AS). The discourse enhances comprehension of the vital function of online educators in fostering a supportive and engaging educational atmosphere. The integration of findings and academic concepts underscores the significance of successful teacher-student interactions, tailored support, and continuous professional development for educators in the online learning environment. The advancement of online education necessitates the cultivation of lecture assistance to mitigate academic stress and promote student success.

This supports the development of the following hypothesis:

H2: Lecturer support mediates the relationship between the learning environment and academic stress.

Teacher-student contact is acknowledged as a fundamental element of the educational process, impacting the quality of teacher-student relationships and overall learning results (Garrison, 2011; Arianpoor & Khayoon, 2022). The research underscores the significance of instructor assistance in the realm of online education. Considering that online learning environments present distinct obstacles that exacerbate academic stress, the provision of competent lecturer assistance is paramount. The works of Allen & Seaman (2017) and Dabbagh & Kitsantas (2012) underscore the crucial role of online instructors in facilitating student engagement and fostering confidence. Furthermore, the research conducted by Richardson et al. (2017) and Chyung et al. (2019) emphasizes the importance of instructor presence in online courses. By offering substantial support, professors can assist students in managing the intricacies of online learning, therefore alleviating academic stress. This investigation, therefore, proposes the following hypothesis based on the previously described studies:

H3: Lecturer support has a positive impact on academic stress.

4. Methodology

Qualitative research utilizes numerical data to clarify patterns and trends within a large sample size (Creswell & Creswell, 2017). The researcher adopted a positivist methodology, employing quantitative techniques to collect data and utilizing existing data to augment the study and investigate new insights into online learning and its effects on academic stress. The research employs a cross-sectional methodology, utilizing a quantitative survey with a carefully crafted questionnaire. This choice demonstrates the commitment and aggregated real-time data from 429 MBA students in Sri Lanka. Generalizability enables the development of broader recommendations and conclusions. Surveys are an economical method for data collecting, especially when compared to resource-demanding techniques like in-depth interviews or case studies. This research utilized non-probability sampling. Krejcie and Morgan's (1970) sample size determination table specifies that a minimum of 429 respondents is necessary to ensure adequate analytical power. Recruitment was executed through the institutional mailing list and a pre-existing internet platform that included a varied demographic. This research utilized convenience sampling to investigate academic stress and mental health among MBA students in Sri Lanka during online education. The questionnaire was adapted from validated instruments employed in prior research, including the Academic Stress Scale (ASS) developed by Kohn & Frazer (1986). Standardized scales were utilized to ensure the reliability and validity of the measurements (Field, 2018). A five-point Likert scale was employed to evaluate the degree of agreement with each subject, facilitating

comprehensive data analysis. The data was analyzed using Structural Equation Modeling (SEM), which is crucial for evaluating the measurement quality of latent variables (Kline, 2015).

5. Analysis and Results

5.1 Data Preparation

In the data collection phase, the study garnered 429 responses from an overall pool of 450 participants. The gathered data was further refined to ensure adherence to the required format. In the data purification phase, the researcher systematically deleted unwanted missing values and removed unreported data outliers from the dataset.

5.2 Test of Normality

Skewness and kurtosis are essential measures used to assess the degree of normalcy in a distribution (Tabachnick & Fidell, 2014). Various threshold values are included for statistical evaluations, including the Kolmogorov-Smirnov Test and the Shapiro-Wilk Test. The Shapiro-Wilk Test is commonly recommended for small sample sizes, typically consisting of fewer than 30 observations. However, it is also pertinent to larger sample sizes, including those surpassing 2000. Thus, the Shapiro-Wilk test was employed to objectively evaluate normalcy. Hair et al. (2006) recommend a skewness and kurtosis range of -1.169 to +1; however, Garson (2009) suggests a range of -2.00 to +2.00 for both parameters. West and Cho (1995) contend that a skewness value is deemed significantly skewed if its absolute magnitude surpasses 3. A kurtosis value greater than 10 is deemed problematic. The dataset exhibits skewness values from -0.077 to 1.095 and kurtosis values from -1.044 to 1.944. The dataset satisfies the skewness and kurtosis criteria laid out by Garson (2009). Consequently, it may be inferred that the normality criteria have been satisfied for the study, and the dataset is expected to conform to a normal distribution.

Table 5.1: Normality Test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
OLE	.162	10	.200*	.952	10	.829
AS	.182	10	.200*	.897	10	.206
LS	.139	10	.200*	.970	10	.894

The assessment of normality, commonly known as the "Test of Normality," is a conventional method employed to ascertain if a specific dataset conforms to a normal distribution. The assumption of normalcy holds considerable significance in several statistical analyses. The researcher conducted normality testing using two different methods: the Kolmogorov-Smirnov test and the Shapiro-Wilk test. The subsequent part will present an analysis and explanation of the acquired results.

The Kolmogorov-Smirnov test is a statistical technique employed to evaluate the test statistic, degrees of freedom (df), and significance level (Sig.) are presented for each group (OLE, AS, LS). The null hypothesis (H0) asserts that the data distribution adheres to a normal distribution. The alternative hypothesis (H1) asserts that the data distribution deviates from normality.

The p-values (Sig.) for all groups (OLE, AS, LS) above the conventional significance level of 0.05, as indicated by the asterisk (*). This indicates that the researcher does not possess adequate evidence to dismiss the null hypothesis that the data conforms to a normal distribution. The results of the Kolmogorov-Smirnov test suggest that the data for all groups approximates a normal distribution.

Like the Kolmogorov-Smirnov test, the Shapiro-Wilk test also assesses the conformity of the data to a normal distribution. Each group is accompanied by statistical data on degrees of freedom (df) and significance level (Sig.). According to the Kolmogorov-Smirnov test, the p-values (Sig.) for all groups (OLE, AS, LS) are above the threshold of 0.05. This indicates that the researcher does not possess adequate evidence to dismiss the null hypothesis, asserting that the data conforms to a normal distribution.

The results of the Shapiro-Wilk test suggest that the data demonstrates a tendency towards normal distribution in all groups. The Kolmogorov-Smirnov and Shapiro-Wilk tests indicate that the data for all groups (OLE, AS, LS) do not

significantly deviate from a normal distribution. Therefore, it is justifiable to assume that the data adheres to a normal distribution when conducting subsequent statistical analysis.

5.3 Multicollinearity

Multicollinearity indicates a substantial connection across predictor variables, implying that these variables may represent a shared notion or phenomenon (Hair et al., 2006). Variance inflation factors (VIF) and correlation matrices are often employed metrics for detecting multicollinearity (Kaplan, 1994). Substantial multicollinearity between the two constructs is often identified when the correlation coefficient reaches 0.90 or above. This may affect the validity and reliability of statistical analysis. To evaluate multicollinearity in multiple regression analysis, it is advised that tolerance values remain below 10 and VIF (Variance Inflation Factor) values surpass 0.10 (Tabachnick & Fidell, 2014).

Table 5.2: Multicollinearity

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	OLE	.580	2.010
	LS	.592	1.890

The table purports to present a concise summary of collinearity data pertaining to a regression model. Collinearity denotes the extent of correlation among the predictor variables, or independent variables, in a regression model. Tolerance is the reciprocal of the Variance Inflation Factor (VIF). A tolerance value of 0.580 indicates that roughly 58% of the variability in the dependent variable OL remains unexplained by the independent predictor variables in the model.

The variance inflation factor (VIF) of 1.890 signifies that the variable OL exhibits a moderate degree of collinearity with the other predictor variables. A Variance Inflation Factor (VIF) value below 5 is typically deemed acceptable, and for OL, its VIF is beneath this limit. The model includes additional predictor variables, each with associated tolerance and VIF values. Tolerance may be regarded as analogous to the concept of orthogonalization (OL). In the context of tolerance values, these values indicate the extent of variance in a certain variable that is not explained by the other predictor variables. The Variance Inflation Factor (VIF) values for these variables reflect the extent of their collinearity with other predictor variables. Typically, VIF readings under 5 are deemed acceptable.

The variables OLE and LS display VIF values below the threshold of 5, indicating a lack of significant collinearity between them. Nevertheless, OL exhibits diminished tolerance compared to the other variables, suggesting a potentially more robust correlation with the other predictor factors. The presence of high condition indices and declining eigenvalues signifies a substantial correlation among the model's independent variables. This relationship affects the understanding of the individual impacts of these variables and may result in unstable coefficient estimations and a normal distribution.

5.4 Reliability and Validity

5.4.1 Reliability

The study used exploratory factor analysis and reliability evaluations to analyze the strength and consistency of the chosen measuring items. The subsequent sections provide a comprehensive summary of the findings. Cronbach's alpha is a widely utilized statistic in academic research due to its simplicity of calculation and its frequent application

in scholarly investigations (Tabachnick & Fidell, 2014). The minimum acceptable threshold for Cronbach's alpha is 0.70 (Nunnally, 1978).

Table 5.3: Reliability Test

Dimension	Reliability	
	Cronbach's alpha standard > 0.7	Number of items
OLE	0.792	5
LS	0.864	6
AS	0.873	5

The table indicates that the internal consistency dependability of all dimensions is good to exceptional, as seen by their Cronbach's alpha values, all surpassing the standard threshold of 0.7.

5.4.2 Exploratory Factor Analysis

The factor loading matrix is an essential outcome of Exploratory Factor Analysis (EFA), as it clarifies the association between observable variables and latent factors. The loading value for each observable variable is determined, indicating the degree of connection between the variable and the factor. Elevated loading values signify a more robust association between the variable and the factor. The identification of factors is contingent upon the arrangement of variable loadings. Variables with significant loadings related to a certain collection of items can be considered indicative of a shared underlying dimension.

Table 5.4: Validity Test

Test	Validity			
	KMO	BTS Sig	CR	AVE
Standard	0.5<	0.05>	0.7<	0.5<
OLE	0.827	0.000	0.980	0.632
LS	0.854	0.000	0.943	0.735
AS	0.858	0.000	0.923	0.706

The table presents statistical information concerning the validity and reliability of the measurement model. The KMO (Kaiser-Meyer-Olkin) statistic is utilized to assess the appropriateness of the study sample. A KMO number greater than 0.5 is generally regarded as satisfactory. The table demonstrates that all values above 0.5 indicate the dataset's appropriateness for factor analysis. Bartlett's Test of Sphericity (BTS) is a statistical method used to evaluate the significance of the difference between a correlation matrix and an identity matrix. This test demonstrates the correlation between variables. A commonly accepted significance level (Sig) is below 0.05, indicating that the data is appropriate for component analysis. The table demonstrates that all significance (Sig) values are below the 0.05 threshold, indicating a positive outcome.

Composite Reliability (CR) is a statistical metric used to assess the internal consistency or reliability of latent components, known as factors, inside a particular model. Values exceeding 0.7 are frequently deemed acceptable. The table displays CR values exceeding 0.7, signifying advantageous internal consistency levels. The Average Variation Extracted (AVE) metric is utilized to evaluate the extent to which latent variables explain variation in comparison to the variance attributed to measurement error. AVE values beyond 0.5 are often deemed acceptable, as

they suggest that the underlying constructs may account for a substantial proportion of the variability in the observed variables. The table demonstrates that all Average Variance Extracted (AVE) values surpass the 0.5 threshold, indicating a favorable outcome.

The findings suggest that the measurement model exhibits sufficient validity and reliability. The KMO and BTS statistics indicate that the data is appropriate for factor analysis. The results of CR and AVE demonstrate satisfactory internal consistency and construct validity, respectively.

5.4.3 Discriminant Validity

The degree of differentiation between a particular notion and other concepts is ascertained by its discriminant validity. Awang (2016) and Kline (2015) assert that the correlation between constructs must not exceed 0.85. The provided source dates back to 2005. None of the constructs exhibited a correlation over 0.90. Consequently, this model has successfully satisfied the requirements for discriminant validity. The Average Variance Extracted (AVE) surpasses 0.5, while a threshold of 0.4 is acceptable. Despite the Average Variance Extracted (AVE) being below 0.5, the construct's convergent validity is deemed sufficient if the composite reliability exceeds 0.6 (Fornell & Larcker, 1981). The composite reliability (CR) of the construct is 0.82, much beyond the acceptable threshold of 0.7. This indicates that the indicators are accurately evaluating the concept. While the ideal AVE value is 0.5 or higher, an AVE of 0.4 may be considered acceptable if supported by high composite reliability, significant factor loadings, robust content validity, consistent AVE values across constructs, empirical validation from previous studies, and an overall well-fitting measurement model. A high composite reliability (CR) indicates that the construct indicators are consistent and reliable, potentially compensating for a somewhat lower average variance extracted (AVE) (Lam, 2012).

Table 5.5: Heterotrait-monotrait ratio (HTMT) – Matrix

	AS	OLE	LS
AS			
OLE	0.637		
LS	0.650	0.661	

The Heterotrait-Monotrait (HTMT) ratio is a statistical metric employed in academic research to evaluate the discriminant validity of constructs within a structural equation model (SEM) or confirmatory factor analysis (CFA). This aids researchers in assessing the degree of difference between two conceptions, indicating whether they embody unique underlying notions. The HTMT matrix consists of three components: Academic Stress (AS), Online Learning Environment (OLE), and Lecturer Support (LS). The entries in the matrix denote the HTMT ratio for each construct pair. The HTMT ratio between LS and OLE is 0.661. The HTMT ratios indicate that seven out of eight construct pairs fall below the established threshold of 0.85. To comprehensively evaluate discriminant validity, acquiring the absent HTMT ratio is crucial.

5.5 Descriptive and Correlation Analysis

Table 5.6: Demographic Statistics (Duration of Study)

Descriptive Statistics							
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Online Learning Environment	429	1.00	5.00	3.7939	.58330	-.892	.118
Lecturer Support	429	1.00	5.00	3.7980	.56667	-.599	.118

Academic Stress	429	1.00	5.00	3.6890	.71407	-.858	.118
Valid N (listwise)	429						

The table above presents descriptive data pertaining to various variables associated with distinct elements of a research study or survey. This analysis entailed the scrutiny and assessment of the statistical data pertaining to each variable. This study reveals the direct and mediated links between online learning usage and academic stress among MBA students in Sri Lanka. The findings presented here align with and enhance the theoretical model outlined in the literature review, establishing a clear link between the observed patterns in the study and theoretical concepts, as well as previous empirical research.

5.6 Regression

Linear regression is a statistical technique that delineates the association between variables. This method is employed when researchers seek to forecast the assessment of one variable based on the assessment of another.

Table 5.7: Regression Test Results

	Unstandardized coefficients	Standardized coefficients	SE	T value	P value
OLE	0.315	0.258	0.066	4.786	0.000
Intercept	0.324	0.000	0.221	1.472	0.141

The results of multiple regression from SPSS and those obtained by Smart PLS exhibit consistent outputs that validate the hypothesis of this investigation. All P-values are below 0.05 (alpha level). It signifies that all associations are pertinent to the dependent variable, Academic Stress (AS). All alternative hypotheses indicating direct linkages are accepted at a 95% confidence level.

5.7 Mediation and Structural Models

5.7.1 Indirect Effect

Table 5.8: Indirect Effect

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
OLE -> LS -> AS	0.170	0.180	0.037	4.462	0.000

The concept of indirect effects is commonly employed in mediation research to evaluate the degree to which an independent variable (referred to as OL in this context) influences a dependent variable (AS) via one or more mediating variables (LS and SEF). The table presents pertinent statistical data for evaluating these indirect effects.

This study reveals a statistically significant indirect influence of OLE on AS, mediated by the intermediary variable LS. The estimated indirect effect is 0.170, and the statistical analysis demonstrates that this effect is very significant and improbable to arise from random variation ($p < 0.001$). The examination of the H1 hypothesis indicates a statistically significant indirect effect of OLE on AS. This effect is exhibited through the mediating variable LS. The calculated indirect impact is statistically significant, indicating that LS serves as a partial mediator in the link between OLE and AS.

Table 5.9: Indirect (Mediating) Effects with Independent Variables

Relationships	Indirect (Mediating) Effects
OLE -> LS -> AS	0.003

The research indicates that Online Learning Environments exert significant indirect impacts on diminishing Academic Stress, chiefly by improving Lecturer Support (LS). An online learning environment is crucial, and it has a substantial influence on LS. These findings underscore the complex nature of academic stress and the significance of several educational factors in alleviating it. An online learning environment is essential for cultivating lecturer support and delivering requisite assistance, hence alleviating academic stress among students.

5.8 Summary and Interpretation of Hypotheses

All of the hypotheses and their findings can be summed up as follows.

Table 5.101: Summary of Hypotheses

Hypothesis	Impact	Status	Justification α= 0.05
H1	Learning environment has a positive impact on academic stress.	H5 Accepted	P- Value/Sig= 0.000 Sig. < 0.05
H2	Lecturer support mediates the relationship between the learning environment and academic stress.	H16 Accepted	P- Value/Sig= 0.030 Sig. < 0.05
H3	Lecturer support has a positive impact on academic stress.	H17 Accepted	P- Value/Sig= 0.000 Sig. < 0.05

6. Discussion

The findings of the study are comprehensively presented, emphasizing their importance in tackling the research issues and objectives. Following the precise definition and validation of the measurement model, the structural model was developed to investigate the interrelationships between the exogenous and endogenous variables. All ten assumptions were assessed using the SEM instrument, and all were validated.

The growing conviction that online learning environments enhance job quality reflects a broader recognition of their potential to elevate professional skills and outcomes. It highlights the transformative potential of this learning mode in improving the practical aspects of an individual's profession. The acknowledgment that online learning enhances the whole educational experience and delivery underscores the essential importance of engagement and happiness in the virtual classroom.

Instructors play a pivotal role in influencing the online learning experience since their pedagogical strategies, assessments, and course materials serve as fundamental components. The quality of course content, communication techniques, and the nature of student-teacher interactions profoundly influence the effectiveness of online education. An effective technological infrastructure supports online learning environments, ensuring seamless access to essential tools and resources that facilitate a productive learning experience for students.

Academic stress is a critical component of every student's educational journey, and its assessment encompasses various key factors that elucidate the student experience. Interactions with colleagues are essential in this context. Collaborative learning fosters an environment that clarifies doubts and alleviates academic stress through mutual support and insights. This mutual exchange of knowledge and inspiration adds a personal aspect to the learning experience.

Online education, with its vast resources and databases, significantly facilitates stress management. It provides students with easily available materials, reducing the stress associated with resource identification. This access to comprehensive material enriches the learning experience and empowers students to explore and expand their knowledge.

The ability to complete assignments on time in an online learning environment is a significant source of relief for students. It cultivates a sense of accomplishment and serenity, alleviating the stress often linked to approaching deadlines.

The intrinsic adaptability of online education offers essential assistance to students seeking to effectively organize their schedules. This adaptability aligns with their own needs and preferences, ultimately resulting in reduced stress levels. It customizes the educational experience by enabling students to oversee their learning, facilitating a harmonious balance between academic pursuits and personal lives.

Three hypotheses were formulated to evaluate the impact of the online learning environment on academic stress, emphasizing the correlation between the online learning environment and lecturer support.

7. Conclusion

Lecturer support fosters a positive learning atmosphere, particularly in response to external pressures such as job-related stress. This study corroborates these findings by demonstrating that lecturer support, both directly and indirectly, alleviates academic stress through its mediation of the link between teaching style and learning interaction. The study's findings highlight the crucial mediation function of lecturer assistance in the connection between the online learning environment and academic stress. This fresh insight enhances the existing knowledge in online education and presents numerous significant similarities and contrasts relative to prior studies.

This study has revealed substantial insights into the evolving dynamics of education. This study effectively achieved its research objectives and inquiries through a systematic amalgamation of a literature review and primary research. The findings provide substantial insights into the beliefs, challenges, practices, influences, coping strategies, and practical consequences related to e-learning in Sri Lanka, hence improving understanding of this field. This research underscores a comprehensive analysis of the research objectives, principal topics, limitations, and strengths, indicating that online learning, especially among MBA students in Sri Lanka, is a multifaceted and dynamic area of inquiry.

The study illustrates the influence of online education on the academic stress encountered by MBA students in Sri Lanka. The results closely correspond with the designated study subjects and are both descriptive and analytical, substantiated by existing literature and policy. The aforementioned data offer a thorough analysis of the correlations between learner problems in online education and stress levels, along with practical rationales for the conclusions reached. This study has shown that online learning, including professor help, affects academic stress levels, with the main stressors being workload, technological difficulties, and isolation. This research supports Bao (2020) and Yang et al. (2021), emphasizing that insufficient preparedness for disruptions resulted in heightened stress levels in online learning due to escalating academic demands. These insights clarify the need for universities to confront structural and psychological obstacles in digitally mediated learning environments.

The findings underscore the importance of synchronizing national policies with the actions of academic institutions to tackle the identified challenges. The findings correspond with Sri Lanka’s National Policy on E-Learning, highlighting technology advancement, educator professional growth, and measures to reduce academic stress.

7.1 Model Development

The proposed theoretical model examines the complex relationship between online learning and academic stress, taking lecturer support into account. In this theoretical approach, lecturer support mediates. It shows a student's confidence in online learning. Lecturer-supported initiatives help students manage better with academic stress. This concept links online learning to academic stress. The model suggests that the online learning environment affects academic stress. Specific hypotheses about how each sub-variable affects stress were tested. Students with more confidence can handle problems; therefore, the lecturer’s help can reduce the stress of online learning. The hypothesis proposes that online learning directly affects academic stress through lecturer support. The intricacy of the online learning environment and lecturer support all contribute to student stress, according to this model. These findings support Kline's (2015) proposal to include indirect paths when interpreting relations when using structural equation

modeling (SEM). The findings also contribute to the expanding literature about discretionary post-COVID educational processes in which the delivery of content over the internet is most common.

7.2 Policy Implications

Policymakers should consider how online learning and the educational environment affect MBA students in Sri Lanka's academic stress. Policymakers must invest in digital infrastructure to provide all students with high-speed internet and necessary gadgets. This inclusive approach reduces digital divide stress (Dhawan, 2020).

Online educators need mandatory faculty development policies. This ensures instructors are ready to create a helpful learning environment (Means et al., 2013; Adewale & Tahir, 2022). Additionally, student support standards must include counseling, career advising, and academic aid. These services are essential for stress management.

Schools should assess online courses systematically. Quality assurance processes are needed to ensure online education meets requirements and improves (Adewale & Tahir, 2022). Higher education institutions should develop and implement flexible learning methodologies to meet MBA students' needs (Ahmady et al., 2021). To fund online learning and academic stress management, research and innovation must be prioritized (Raja & Nagasubramani, 2018). Research can inform legislation and new stress-reduction methods. Policies are needed to raise mental health awareness and reduce stigma. This encourages students to seek stress-related help (Cleofas, 2019 & Zhu et al., 2021).

To protect students' personal and academic data online, the government must implement strict privacy and data security policies (Dhawan, 2020). They should support policies that include all pupils, regardless of background. Online learning policy must consider diversity (Goczek et al., 2021). They must also set standards for using technology that improves learning and reduces stress (Raja & Nagasubramani, 2018). These practical and policy changes can help Sri Lanka create a supportive and less stressful online learning environment for MBA students, boosting education and well-being.

7.3 Limitations

The investigation of the influence of the online learning environment on academic stress among Sri Lankan MBA students mediated by lecturer support uncovers certain limitations. The utilization of a cross-sectional research strategy in this work is a notable limitation. A longitudinal study would have been more suitable for understanding the evolving nature of academic stress responses in online learning environments. The study's restricted sample size, consisting of Sri Lankan MBA students, represents a tiny and specific segment of the broader population of online learners. Furthermore, selection bias may exist due to the study's restriction to college students, predominantly MBA applicants in Sri Lanka. The study's emphasis on academic stress is likewise limiting.

7.4 Recommendations for Future Research

This study has notably established a positive association between online learning and the management of academic stress; nonetheless, numerous avenues for further research remain. Further investigation into the impact of culture on online learning interactions is essential. Examining the impact of cultural factors on the correlation between pedagogical approaches and academic stress represents a crucial avenue for future inquiry. Qualitative methods, such as interviews, focus groups, and content analysis of student reflections, help clarify the intricate dynamics of academic stress and reveal students' coping strategies. Moreover, examining specific pedagogical strategies that enhance learning interactions and reduce academic stress is crucial. Future research may examine the effectiveness of various online teaching methods, communication platforms, and collaborative efforts in promoting positive learning interactions.

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