Effectiveness of Online Teaching-Learning Practices in Higher Education in a South Asian Country: Students' and Educators' Perspectives

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ABSTRACT

Purpose: The COVID-19 pandemic triggered a major shift in higher education, necessitating a move to fully online teaching and learning. While this transition was essential, it raised significant concerns about student engagement and the overall effectiveness of online education. Our research explores the elements that determine the success of remote learning from both student and educator perspectives.

Design/methodology/approach: The study adopted a quantitative approach with a survey of 200 students and 50 faculty members in Sri Lanka, which serves as a representative sample for the South Asian higher education context.

Findings: From the students' perspective, four factors were identified as critical determinants of online learning effectiveness: Students' desire for physical class attendance, the efficacy of face-to-face lectures, the adaptation of higher educational institutions, and the ability of academic staff. And according to educators' perspectives, several factors significantly influence online teaching-learning effectiveness.

Originality: No prior research has been done on the impact of online learning on students' overall learning experiences and the extent to which online education can effectively support learning and assessment in higher education contexts

Implications: The model developed in this study holds promise for evaluating online education effectiveness, especially in developing countries.

Asian Journal of Marketing Management

ISSN: 2820-2031 (Printed)
ISSN: 2820-2082 (Online)

DOI:
10.31357/ajmm.v5i1.8591.g6371

Received October 2025
Revised February 2026
Accepted February 2026

Keywords:

Effectiveness, Online Higher Education, South Asia, Students' and Academics' Perspective

Introduction

Crises like the global COVID-19 pandemic have fundamentally disrupted traditional teaching methods worldwide, necessitating innovative approaches to sustain academic delivery. Nations worldwide swiftly adapted to novel ways of communication with learners to ensure the continuity of education, particularly in higher education systems (Viner et al., 2020; Mou, 2023). While digitalized educational platforms have existed for decades, the abrupt outbreak of COVID-19 thrust them into the forefront as physical activities became severely restricted. With traditional learning methods disrupted and universities closed, digital education emerged as the solution to bridge the educational

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gap. The ongoing alteration to online learning has ushered in a transformative era of digital education, offering educators and learners unprecedented opportunities. Technology integration into teaching has become a cornerstone of the new knowledge infrastructure.

However, online teaching presents challenges, including limited student engagement and infrastructure gaps, especially in developing countries. Consequently, the need to evaluate the use of online teaching and understand the factors that influence it has become paramount. Notably, previous studies have predominantly explored online teaching effectiveness from either the perspective of educators or students. For example, studies by Rhonda et al. (2020), Malkawi et al. (2021), Coman et al. (2020), Muthuprasad et al. (2021), Kundu and Bej (2021), Baticulon et al. (2021, Jia et al. 2022), Minosky et al. (2022), and Chacon et al. (2023) have focused on students' or teachers' viewpoints separately. However, there remains a distinct lack of comprehensive investigations into the online teaching and learning system in the higher education sector, considering the perspectives of both learners and educators and the contributing factors to its effectiveness. For instance, Du and Hew (2022) and Martin et al. (2023) highlight the need for a comprehensive investigation of the online education system. This study seeks to fill this gap by comprehensively researching the effectiveness of online teaching and learning in higher education and identifying the factors that contribute to this effectiveness from the viewpoints of both learners and educators.

In developing countries, the journey toward online-based education has been marked by challenges, primarily owing to limited experience and supportive infrastructure (e.g., Paudel, 2021). However, these countries have made significant strides in online education, notably higher education (Mittal et al., 2022). To represent this transformative development, we have chosen the higher education sector in South Asian countries as our research context. Specifically, with its 15 state universities, approximately 40 other state and non-state higher education institutions, and notable online teaching initiatives, Sri Lanka is an apt proxy for the broader South Asian region. Comprehensive reviews of online education-related research by Woo et al. (2023) and Martin et al. (2023) reveal the need for more investigations in other regions, as they are mainly focused on the US. The current study addresses such a vacuum in the literature by selecting Sri Lanka as the research context.

This article is structured into five sections, with the following: a summary of significant literature, then an exploration of the methodology employed. Subsequently, we present our analysis and discuss our findings before delving into our study's theoretical contributions and practical implications.

Literature Review

The rapid transition to online education, precipitated by events such as the COVID-19 pandemic, has reshaped the delivery of higher education. This shift has necessitated innovative teaching strategies and assessment methods to ensure students have seamless

and compelling experiences. While online learning offers numerous advantages, it has also presented unique challenges, including maintaining academic integrity during assessments. This study's literature review explores the impact of online learning. It examines factors contributing to online teaching and learning effectiveness from students' and academic perspectives. Grounded in constructivist learning theory, effective learning is understood as an active process in which learners construct knowledge through interaction, reflection, and engagement. Consequently, the sudden move to online learning environments raised concerns regarding students' learning experiences, engagement, and assessment integrity. By delving into existing research, this review aims to give insight into the multifaceted dimensions of teaching and learning online in higher learning institutions.

Effectiveness of Online Teaching-Learning in The Level of Tertiary Education

The abrupt transition from conventional in-person education to online delivery, driven by events like the COVID-19 pandemic, has entirely reshaped the education system. This transformation has placed a substantial burden on educators and institutions to adapt and innovate, requiring the development of novel teaching strategies to engage students amid unprecedented challenges. Consequently, evaluating the impact of this shift to online delivery on students' overall learning experiences has become imperative, leading to a fundamental inquiry into the effectiveness of online learning within the higher education sector (Iyer et al., 2020).

Moreover, despite the necessity of this shift away from face-to-face teaching, it has become paramount to ensure the seamless continuity of online education during the pandemic. According to the Community of Inquiry (CoI) framework, meaningful online learning requires the effective integration of teaching presence, cognitive presence, and social presence. E- learning offers various advantages; however, maintaining the integrity of assessments, especially during examinations, emerges as one of the most formidable challenges. Consequently, many universities grapple with the intricate task of assessing learning objectives with integrity and honesty in this new educational paradigm (Hamid et al., 2020).

Reasons for The Productivity of Online Teaching-Learning in The Higher Education Sector: Students' Perspectives

Challenges experienced by undergraduates with the shift to online learning

Students' perspectives on online teaching and learning effectiveness reveal many challenges in this rapidly evolving educational landscape. Haththotuwa and Rupasinghe (2021) highlighted that while online learning offers opportunities, learners often require access to technological devices to engage fully in the online educational experience; financial constraints have proven to be a significant hindrance, particularly for

underprivileged students who struggle to afford the necessary technology (Rmeez et al., 2020).

Furthermore, the transition to online education has brought about a series of challenges for university students, including adjustments to changes in learning styles, shifts in financial status, diminished motivation to learn from home, and the need for relevant technological knowledge and skills (Rmeez, Fowsar, & Lumna, 2020). Anderson (2008) identified three primary challenges students face during e-learning: difficulties in self-directed learning, navigating technology, and grappling with the associated costs. Similarly, Arkoful (2014) reported that poor internet connectivity, computer compatibility issues, and technical challenges emerged as critical obstacles in online education.

Furthermore, the nonexistence of in-person interactions, losing control of student groups, and the limited possibility to address these issues have posed significant challenges for teachers in their delivery of online courses, which, in turn, has been noted to decrease students' interest in learning (Kebritchi et al., 2017, Chiu, 2022). Such challenges are exacerbated when students lack proficiency in information and communication technology (Andersson, 2008; Kara, 2022). Educators have suggested overcoming these technological barriers and enhancing students' interest in online learning. These suggestions include stimulating and engaging learners through social networks and enabling the adaptation of teaching strategies (Batista et al., 2021; Butnaru et al., 2021b). Additionally, Kebritchi et al. (2017) recommend providing training to students on proper computer and internet usage to bridge the digital divide and improve online learning experiences. Alamri (2020) and Ding et al. (2023) note that the instructional approach should be supportive, and it should motivate the learners to have a practical experience in the higher education sector.

Physical learning Vs. Online learning

The comparison between physical learning and online learning reveals that students often express a preference for face-to-face education. This preference stems from their belief that online learning inhibits interactions with lecturers, reducing opportunities for valuable feedback. From the students' perspective, when online learning promotes more interaction with technology, it tends to create challenges for lecturers in managing student groups effectively, thereby impacting the quality of teaching and diminishing students' enthusiasm for learning (Kebritchi et al., 2017; Thomas, 2022). Woo et al. (2023) reviewed studies published during 2007 – 2022 on online education and highlighted the importance of teachers' adaptation to facilitate the learners' practical online learning experiences. Students' physical classes will negatively impact their perspective of the effectiveness of online courses.

H2: Learners' opinion on the effectiveness of physical lectures will adversely impact their views on the effectiveness of online classes.

H3: The ability of educational institutions to effectively manage online courses will significantly enhance students' perceptions of the effectiveness of online courses.

H4: The willingness of academics to be less strict will lead to improved views of the effectiveness of online courses.

Factors for The Effectiveness of Online Teaching-Learning in The Higher Education Sector: Academics' Perspectives

Technical, Content, and Pedagogy Know-How of Academic Staff

From academics ' perspectives, the effectiveness of online teaching and learning hinges on several critical factors, including academic staff's technical, content, and pedagogical know-how. Kebritchi et al. (2017) emphasized the importance of providing students and teachers with prior training on the use of technology, encompassing computers and the internet, to facilitate compelling online learning experiences.

To excel in the online teaching environment, educators must possess a well-rounded awareness encompassing pedagogy, content, and technology—the foundational components of the TPACK (Technological Pedagogical Content Knowledge) model (Koehler et al., 2014). Having technological awareness translates to effectively utilizing technology within the context of teaching. Additionally, lecturers should exhibit comprehensive knowledge of the modules they deliver, ensuring the content is complete and practical (Chai et al., 2013). Koehler et al. (2014) and Woo et al. (2023) underscored the need for lecturers to understand relevant theories, models, content, and real-world applications in depth.

Furthermore, educators should be well-versed in how learners construct knowledge and acquire skills, emphasizing awareness of social constructivism learning theories and their application within the teaching context (Koehler et al., 2014), which entails understanding the nature of learners, devising strategies for evaluating learners' comprehension of the modules taught, effective lesson planning and preparation, and resource management—comprising a range of skills categorized under pedagogical knowledge (Chai et al., 2013). In essence, the effectiveness of online teaching and learning relies significantly on academic staff's ability to seamlessly integrate their technical, content, and pedagogical knowledge, ultimately ensuring a rich and productive learning experience for students in the digital realm.

Perception of University Academic Staff on Online Learning Effectiveness

The opinion of lecturers regarding the effectiveness of online learning presents a multifaceted landscape marked by challenges and adaptations. As Rmeez et al. (2020) detailed, lecturers encountered difficulties conducting practical classes and experiments in the online delivery format. A parallel challenge arose in supervising theses online, with online supervision often seen as less effective compared to its physical counterpart within university settings. Moreover, academic staff faced obstacles in the administration of

online exams. However, they resorted to utilizing various technologies such as Zoom, Microsoft Teams, email, and video conferencing tools to adapt to the new educational landscape. WhatsApp chat groups emerged as a valuable tool for thesis supervision. Despite these adaptations, it is noteworthy that university academic staff encountered numerous complaints about online thesis supervision, claiming that online leadership lacked the effectiveness achieved through in-person interactions (Rmeez et al., 2020).

In addition to instructional challenges, academic staff grappled with difficulties in convening essential meetings, including heads meetings, faculty board meetings, council meetings, senate meetings, and other critical gatherings aimed at addressing university students' concerns and making crucial decisions related to continuing teaching and learning in the pandemic (Rmeez et al., 2020). Not all university academic staff members had the competencies and technological skills to switch to online teaching effectively. The sudden imposition of a curfew by the government of Sri Lanka left little time for comprehensive training in online learning methods. Consequently, some academic staff found themselves ill-prepared for the demands of online teaching. Even those with technological proficiency awaited guidance due to the unprecedented nature of the pandemic (Rmeez, Fowsar, & Lumna, 2020). Wagner (2022) highlighted the need for suitable pedagogies and support structures for a practical online learning experience. These challenges underscore the complexities and adaptations faced by academic staff in the higher education system during the transition to online learning, shedding light on the multifaceted nature of the experience.

H5: The usefulness of online education to the institution during the pandemic positively affects its effectiveness.

H6: Access to technology has a positive impact on the effectiveness of online education.

H7: The complexity of online higher education negatively impacts its effectiveness.

H8: The support of senior management in implementing online learning systems during the COVID-19 crisis positively influences the effectiveness of online higher education.

H9: Collaboration among institutions to conduct online learning during the pandemic positively impacts the effectiveness of online higher education.

H10: The degree of competition among universities does not significantly affect online learning effectiveness.

H11: Universities' Technical competence and preparedness positively impact online higher education's effectiveness.

H12: Information density has a positive impact on online education effectiveness.

H13: Flexibility of work positively impacts the effectiveness of online higher education.

Research Problem

The rapid transition from traditional face-to-face education to online learning, precipitated by the COVID-19 pandemic, has significantly transformed higher education and exposed critical challenges within existing teaching and assessment frameworks. While institutions were compelled to adopt online delivery to ensure educational continuity, this sudden shift placed considerable pressure on educators to implement effective instructional strategies capable of maintaining student engagement and learning quality. Despite the acknowledged advantages of e-learning, concerns have emerged regarding the effectiveness of online learning in supporting positive student learning experiences, as well as the ability of higher education institutions to uphold assessment integrity and accurately evaluate learning outcomes in virtual environments. In particular, ensuring fairness, honesty, and reliability in online assessments has proven problematic, highlighting a gap in understanding how effectively online learning meets educational objectives. Consequently, there is a clear need to investigate the impact of online learning on students' overall learning experiences and the extent to which online education can effectively support learning and assessment in higher education contexts (Iyer et al., 2020; Hamid et al., 2020).

Conceptual Framework

Figure 1 shows the model used in measuring the effectiveness of online learning from students' perspectives and the respective factors contributing to the same.

Figure 1
Conceptual Framework for the success of online learning from the perspective of students

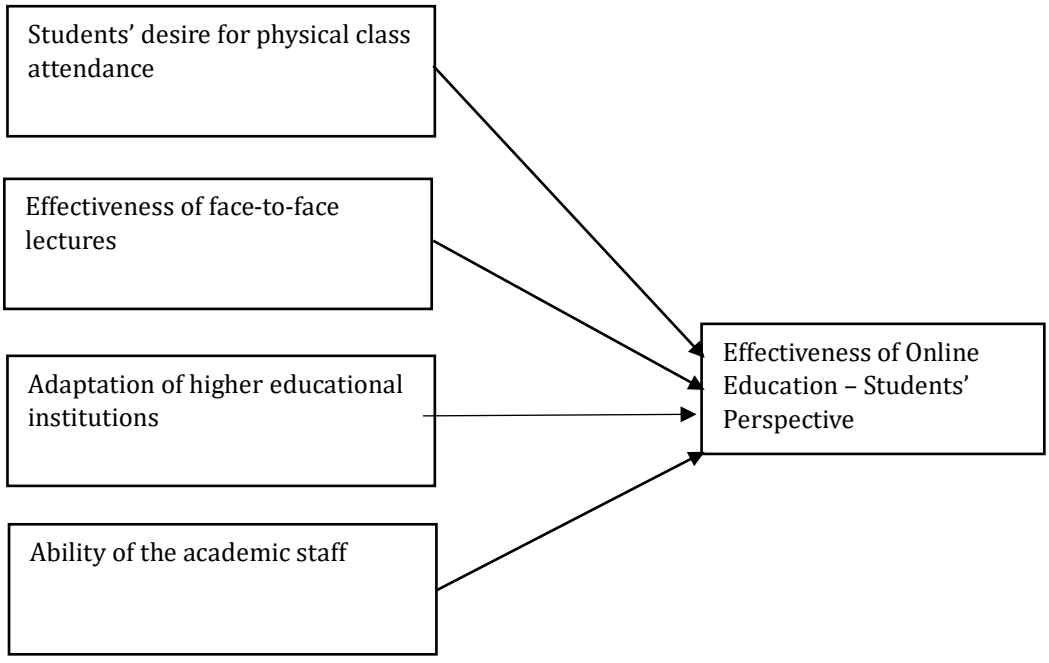
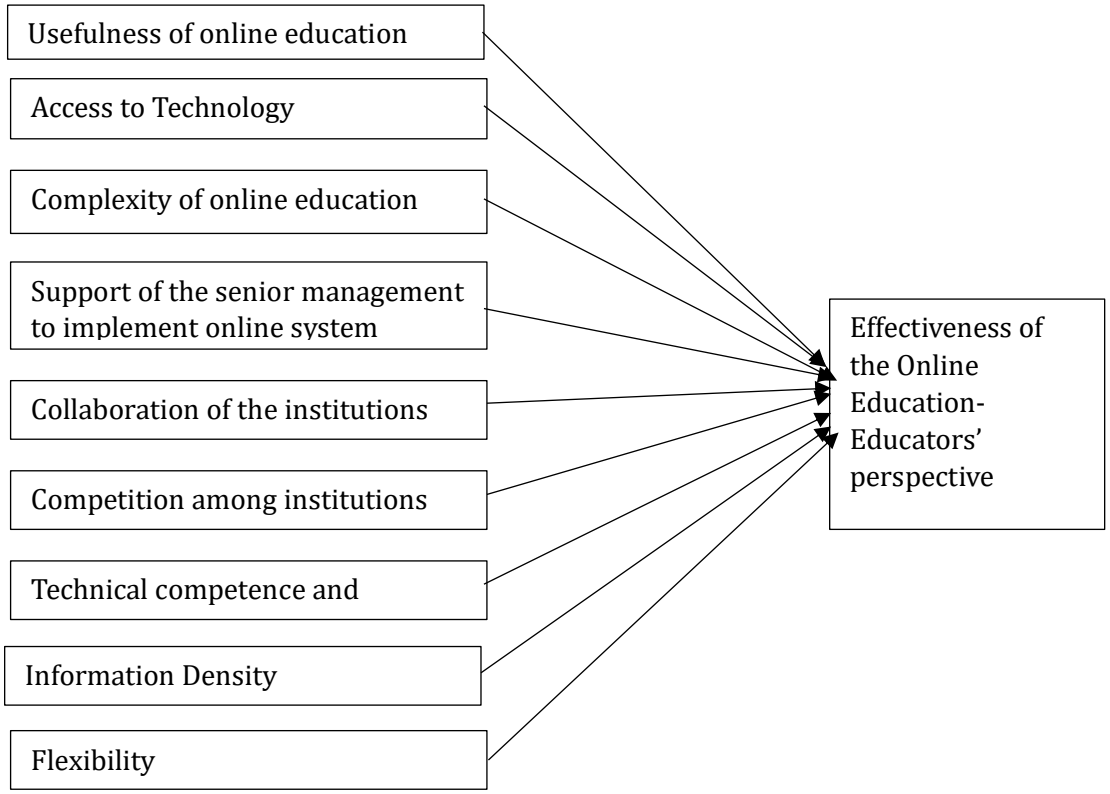


Figure 2 shows a conceptualization of the model used in measuring the effectiveness of online learning from the perspective of educators and the respective factors contributing to the same.

Figure 2
Conceptual framework for the effectiveness of online learning from the perspective of academics



Methodology

This study adopts a quantitative research approach using a survey method to examine the effectiveness of online teaching and learning within Sri Lankan higher education, which is considered representative of the broader South Asian context. The study focuses on two key stakeholder groups in the higher education sector: undergraduate students and academic staff. A stratified sampling technique was employed to ensure adequate representation across major higher education institutions and universities in Sri Lanka. The sample comprises undergraduates enrolled in management faculties that actively implement online teaching practices, as well as permanent academic staff with experience in online-based instruction. Data were collected using structured questionnaires, with responses obtained from 200 undergraduate students and 50 academic staff members. The questionnaire constructs were adapted from established

and validated models, drawing on Butnaru et al. (2021a) for the student perspective and Al-Karaki et al. (2021) for the academic perspective. Appropriate statistical techniques were applied to analyse the data, test the proposed hypotheses, and examine relationships among the study variables. This methodological approach enables the study to effectively address its research objectives and identify key factors influencing the effectiveness of online education in the higher education sector.

Findings and Analysis

Validation of the Measurement Properties

The validation of measurement properties in this study involves several key steps. First, unidimensionality is confirmed through exploratory factor analysis. Additionally, convergent validity is established using a combination of statistical tests and measures, including the Kaiser-Meyer-Olkin (KMO) index, Bartlett's Test of Sphericity (BTS), Extracted Average Variance (AVE), and Composite Reliability (CR). These rigorous validation procedures ensure the robustness and reliability of the measurement instruments used in the study. As per the results presented in Table 1, it is evident that all variables achieved KMO values exceeding the threshold of 0.5, thus satisfying the KMO test requirements.

Table 1
Factors for Effectiveness from students' perspective
Source: Authors' own

Dimension / Variable	**Convergent Validity Test**				
	KMO > 0.5	BTS		CR >	AVE > 0.5
		Significance < 0.05	Chi - Square		
Students' desire for physical class	0.762	0.000	337.532	0.876	0.647
Attendance					
Effectiveness of face-to-face courses.	0.710	0.000	207.867	0.891	0.732
Adaptation of educational	0.583	0.000	75.921	0.795	0.566
Institutions					
Adaptation of teaching staff	0.661	0.000	107.406	0.834	0.627
Effectiveness of online courses.	0.500	0.000	120.557	0.822	0.698

Furthermore, the significance values obtained from Bartlett's Test of Sphericity (BTS) for all variables were less than 0.05, indicating the suitability of the data for factor analysis. Additionally, each variable's Average Variance Extracted (AVE) values surpassed the

recommended threshold of 0.5, confirming convergent validity. Moreover, the Composite Reliability (CR) values for all variables surpassed the acceptable level of 0.7, as stipulated by Hair et al. (2012). These results together affirm the reliability and validity of the measurement instruments employed in the study.

Table 2
Factors for Effectiveness of lecturers' perspective
Authors' Own

Dimension / Variable	Convergent Validity Test				
	KMO > 0.5	BTS		CR > 0.7	AVE > 0.5
		Significance < 0.05	Chi - Square		
AOL	0.709	0.000	93.290	0.901	0.694
ATC	0.702	0.000	56.711	0.866	0.750
COL	0.714	0.000	62.635	0.899	0.620
SMS	0.500	0.000	30.688	0.916	0.845
CWFH	0.677	0.000	73.439	0.875	0.638
DC	0.809	0.000	89.920	0.905	0.706
TCP	0.500	0.000	5.461	0.798	0.665
DI	0.676	0.000	33.780	0.857	0.667
FW	0.500	0.000	20.942	0.888	0.799
E	0.831	0.000	105.289	0.875	0.545

The results presented in Table 2 demonstrate the robustness of the measurement properties. Specifically, the KMO values for all variables surpass the threshold of 0.5, affirming the satisfaction of the KMO test criteria. Furthermore, Bartlett's Test of Sphericity (BTS) significance values for all variables are less than 0.05, indicating the relevance of the data for factor analysis. Convergent validity is confirmed as all variables exhibit Average Variance Extracted (AVE) values greater than 0.5. In contrast, Composite Reliability (CR) values for each variable exceed 0.7, following the criteria outlined by Hair et al. (2012).

Table 3a
Reliability values for effectiveness from students' perspective
Authors' Own

Variable	Cronbach's Alpha Value	No of Items
Students' consent for physical class attendance	0.817	04
Effectiveness of in person Courses.	0.816	03
Effectiveness of Online Courses	0.809	02
Adaptation of educational institutions	0.894	03
Adaptation of teaching staff	0.891	03
Adaptation of teaching staff	0.892	03

Discriminant validity is established by comparing the square correlations of the constructs with the AVE values of the relevant constructs, as per Fornell and Larcker (1981). Additionally, reliability is ensured by assessing Cronbach's alpha values (Hair et al., 2012). As indicated in Tables 3a and 3b, the alpha values exceed the threshold of 0.60, indicating reliability. Moreover, the skewness and kurtosis values, which fall in the range of -2 to +2, ensure the normality of the data. These comprehensive analyses collectively support the validity, reliability, and normality of the data and measurement instruments employed in the study.

Table 3b
Reliability values for effectiveness from academics' perspective
Source: Authors' Own

Variable	Cronbach's Alpha Value	No of Items
AOL	0.853	04
ATC	0.792	04
COL	0.832	03
SMS	0.815	02
CWFH	0.806	04
DC	0.860	04
TCP	0.742	02
DI	0.748	03
FW	0.746	02
E	0.843	06

Factors for The Effectiveness of The Online Teaching-Learning Practices in The Higher Education Sector

In this study, the multiple linear regression analysis was employed to assess the impact of various factors on the effectiveness of the higher education sector. As revealed in Table 4a, the adjusted R-squared (R^2) value stands at 0.327. This result signifies that approximately 32.7% of the variance in the effectiveness of online higher education can be accounted for by the selected factors, which include the Effectiveness of Traditional Courses, Student's desire for physical class attendance, the ability of the academic staff, and adaptation of higher educational institutions. The adjusted R-squared value serves as an essential indicator of the extent to which these factors collectively explain the observed variations in the effectiveness of online higher education in the study's context.

Table 4 a
Effectiveness from student's perspective
Sources: Authors' Own

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.584[a]	.341	.327	.79286

a. Predictors: (Constant), TS, PCA, FFC, AI
b. Dependent Variable: EOC

Table 4 b
ANOVA
Sources: Authors' Own

Model		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
1	Regression	63.357	4	15.839	25.197	.000[b]
	Residual	122.581	195	.629		
	Total	185.939	199			
a. Dependent Variable: EOC						
b. Predictors: (Constant), TS, PCA, FFC, AI						

The findings presented in Table 4b are significant, as indicated by an important level (sig. value) $p < .001$, which is less than the conventional threshold of 0.05. Furthermore, the F-statistic value of 25.197 underscores the model's significance. These results collectively affirm the statistical importance of the regression model. Consequently, it can be concluded that a meaningful model can be constructed to find the key reasons for the effectiveness of online higher education.

Table 4 C
Coefficients
Sources: Authors' Own

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	Std. Error	Beta		
1	(Constant)	2.689	.528		5.096	.000
	PCA	-.111	.099	-.084	-1.117	.265
	FFC	-.338	.087	-.294	-3.866	.000
	AI	.414	.119	.285	3.481	.001
	TS	.234	.124	.156	1.888	.060
a. Dependent Variable: EOC						

The coefficient analysis, as depicted in Table 4c, provides valuable insights into the factors affecting the effectiveness of online teaching and learning from students' perspectives. Notably, the analysis reveals the following outcomes for the hypotheses:
Hypothesis 1 (H1): Students' desire to attend physical classes is not accepted, indicating that students who strongly prefer physical classes tend to view online teaching and learning as less effective.

Hypothesis 2 (H2): The Student's perception of the effectiveness of face-to-face lectures negatively impacts their perception of online class effectiveness. This hypothesis is accepted, indicating that students who consider traditional face-to-face lectures more effective will likely perceive online classes as less effective.
Hypothesis 3 (H3): The ability of educational institutions to conduct online courses significantly improves students' perceptions of online teaching and learning effectiveness. This hypothesis is accepted at a 95% confidence level.
Hypothesis 4 (H4): The ability of academic staff to be more lenient also enhances students' perceptions of online teaching and learning effectiveness. This hypothesis is accepted at a 90% confidence level.
In summary, university students' perceptions regarding the effectiveness of face-to-face courses, the management capabilities of educational institutions in delivering online courses, and the adaptability of academic staff are identified as prominent factors influencing the effectiveness of online teaching and learning practices from students' perspectives. These findings shed light on online higher education's key drivers and challenges.
The findings in Table 5a are significant, with an adjusted R-squared (R^2) value of 0.773. This result indicates that the factors considered in the model explain approximately 77.3% of the variance in the effectiveness of online teaching and learning practices in higher education.

Table 5 a
Effectiveness of lecturers' perspective: Model Summary
Sources: Authors' Own

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.903[a]	.815	.773	.26150

Predictors: (Constant), FW, SMS, DI, ATC, COL,CWFH, TCP, DC, AOL
Dependent Variable: E

Table 5 b
ANOVA
Sources: Authors' Own

Model		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
1	Regression	12.032	9	1.337	19.551	.000[b]
	Residual	2.735	40	.068		
	Total	14.767	49			

Furthermore, as indicated in Table 5b, the significant F value confirms the model's significance, and it underscores the importance and statistical validity of the regression model in explaining the observed variations in the effectiveness of online teaching and learning practices in higher education. These results collectively highlight the substantial explanatory power of the model and its significance in knowing the factors impacting online education in the higher education sector.

Table 5 C
Coefficients
Sources: Authors' Own

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	**(Constant)**	1.332	.405		3.287	.002
AOL		1.285	.694	1.460	1.850	.002
ATC		1.101	.644	1.209	1.710	.005
COL		-.748	.423	-1.014	-1.768	.005
SMS		.410	.271	.496	1.514	.138
CWFH		1.255	.686	1.445	1.829	.005
DC		.982	.594	1.185	1.653	.106
TCP		.547	.282	.637	1.937	.010
DI		-.684	.069	-.814	-9.850	.000
FW		.082	.061	.112	1.348	.005

a. Dependent Variable: E

According to coefficient analysis (Table 5c), the usefulness of online education during the crisis, e.g., the COVID pandemic, collaboration of institutes to conduct online teaching-learning practices, access to technology, teaching competency and preparedness of the universities, and flexibility of work have a significantly positive impact on the effectiveness of the online teaching-learning practices. The complexity of online teaching-learning practices and the information density negatively impact the effectiveness of online teaching-learning practices. Accordingly, H8 and H10 are rejected while accepting H6, H7, H9, H11, H12, and H13. The usefulness of online teaching-learning practices, the collaboration of institutes to conduct online teaching-learning practices, access to technology, the complexity of online teaching-learning practices, information density, and flexibility of work are the salient factors, respectively, according to educators' perspectives.

Discussion

Unanticipated disruptions such as the COVID-19 pandemic necessitated a rapid shift to online teaching and learning, prompting sustained debate regarding its effectiveness in higher education. This debate is particularly important as it incorporates the perspectives of both students and educators, thereby enabling a comprehensive understanding of the factors that influence the success of online education.

Students' Perspectives

This study examined several factors affecting the perceived effectiveness of online teaching and learning from the students' viewpoint. One of the key findings indicates that students' preference for attending physical classes negatively influences their perception of the effectiveness of online learning. This finding is consistent with prior research suggesting that many students favour traditional face-to-face education due to perceived shortcomings of online learning, such as limited interaction with lecturers and peers (Mokgolodi, 2019; Venkatesh et al., 2003). The results support the hypothesis that a strong inclination toward physical classes diminishes students' perceptions of online education effectiveness. Moreover, student engagement—widely recognised as a crucial component of effective learning—was reaffirmed as essential for developing practical learning skills in online environments (Chiu, 2022; Jia et al., 2022; Kara, 2022).

In addition, students' favourable perceptions of face-to-face lectures were found to have a significant negative effect on their evaluation of online class effectiveness. This highlights the influence of students' preconceived expectations regarding the quality of traditional classroom instruction (Larkin et al., 2017). Students who strongly prefer in-person lectures tend to evaluate online learning as less effective, thereby supporting Hypothesis H2. The findings also reinforce arguments by Alamri (2020) and Ding et al. (2023) that online instructional approaches must be supportive and motivating to foster meaningful learning experiences. Furthermore, the study corroborates existing literature emphasising the importance of effective teaching strategies in reshaping negative perceptions of online learning (Batista et al., 2021; Kara, 2022; Ding et al., 2023).

Conversely, the findings reveal that institutional capacity to manage online courses effectively and the flexibility demonstrated by academic staff significantly enhance students' perceptions of online learning effectiveness. This underscores the critical role played by both institutions and educators in facilitating successful online learning experiences (Sife et al., 2007; Sun et al., 2008; Wagner, 2022; Kara, 2022). These results support Hypotheses H3 and H4, indicating that strong institutional support and adaptable teaching practices positively influence students' perceptions of online class effectiveness. Overall, while students' preference for physical classes and traditional lectures negatively shapes their views of online learning, institutional support and instructional flexibility emerge as key factors in promoting more positive perceptions of online education.

Educators' Perspectives

The study also explored factors influencing the effectiveness of online teaching and learning from educators' perspectives. The findings indicate that access to adequate technological resources plays a crucial role in shaping educators' perceptions of online teaching effectiveness. Educators with sufficient technological support are better positioned to deliver interactive and engaging online courses (Huang & Hong, 2016;

Wagner, 2022; Ding et al., 2023). This finding supports Hypothesis H6, confirming that access to technology positively influences perceptions of online education effectiveness.

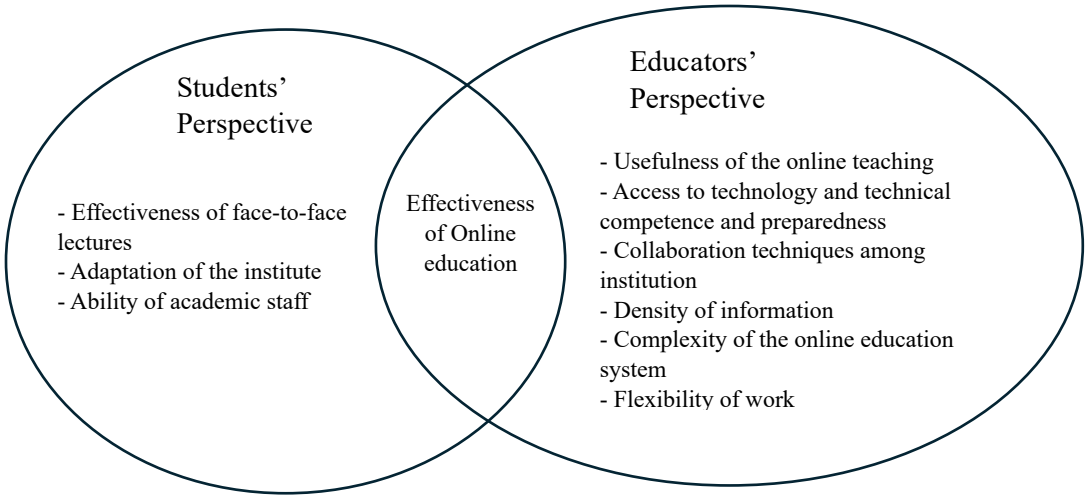
In contrast, the complexity of online teaching and learning practices was found to negatively affect educators' perceptions of effectiveness. This result aligns with previous studies highlighting the challenges associated with complex course designs and technologically demanding online platforms (Means et al., 2013; Strother et al., 2017; Batista et al., 2021; Kara, 2022; Ding et al., 2023). Such complexity can impede educators' ability to deliver content effectively and engage students, thereby supporting Hypothesis H7.

The findings further highlight the importance of inter-institutional collaboration in online teaching and learning. Collaborative initiatives promote the sharing of knowledge, resources, and best practices, which in turn enhance teaching effectiveness (Bates & Sangra, 2011; Wagner, 2022). The study supports Hypothesis H9, indicating that collaboration positively influences educators' perceptions of online teaching effectiveness. Additionally, institutional technical competence and preparedness were found to positively affect educators' perceptions, reinforcing the importance of institutional readiness and support in online education (Bates & Poole, 2003; Moore & Kearsley, 2011; Wagner, 2022; Ding et al., 2023). These findings support Hypothesis H11.

Finally, flexible work arrangements associated with online education were shown to positively influence educators' perceptions of online teaching effectiveness. This finding aligns with principles of flexible learning, which emphasise accommodating diverse needs and schedules (Keegan, 1996). The results support Hypothesis H13, demonstrating that flexible work arrangements enhance educators' perceptions of online education effectiveness. Collectively, these findings suggest that educators' perceptions are shaped by access to technology, course complexity, collaboration, technical competence, and work flexibility. These insights offer valuable guidance for higher education institutions seeking to strengthen online education initiatives and better support academic staff. The findings further extend the arguments of Wagner (2022) and Ding et al. (2023) regarding the importance of effective teaching–learning arrangements, while addressing both student and educator perspectives.

To address this gap comprehensively, a model integrating both student and educator perspectives is proposed to evaluate the effectiveness of online education in higher education. Figure III illustrates this conceptual model, providing a holistic framework for understanding online education effectiveness.

Figure 3



Conclusion

The current study significantly contributes to examining factors influencing online effectiveness, incorporating perspectives from both lecturers and students. While previous research has explored online teaching or learning effectiveness from one perspective, this study fills a critical gap by comprehensively investigating this effectiveness, as highlighted by scholars such as Almaiah et al. (2020), Du and Hew (2022) and Martin et al. (2023), who called for more extensive investigations. This study has introduced a model for evaluating the effectiveness of online teaching-learning practices in higher education that integrates both learners' and educators' viewpoints. Further, as the current study investigates the South Asian experience by taking Sri Lanka as a proxy destination, the need for more online education-based studies in other regions beyond the US, highlighted by Woo et al. (2023) and Martin et al. (2023), is addressed. Consequently, the current study makes two main contributions to existing knowledge. First, comprehensive investigations of the effectiveness of online education by taking both students' and educators' perspectives and, consequently, developing a model that can be used to enhance the effectiveness of online education in the higher education sector. Second, disclose the insights on the online higher education system in the developing countries, extending the knowledge beyond developed countries.

From the students' perspective, four factors were identified as critical determinants of online learning effectiveness: Students' desire for physical class attendance, the efficacy of face-to-face lectures, the adaptation of higher educational institutions, and the ability of academic staff. Notably, this study reveals that the desire for physical class attendance does not contribute to the effectiveness of online teaching-learning practices. It also demonstrates that the effectiveness of face-to-face lectures negatively affects online education while the adaptation of higher educational institutions and the ability of

academic staff positively impact online teaching-learning practices. Conversely, according to educators' perspectives, several factors significantly influence online teaching-learning effectiveness. These include the usefulness of online learning during the pandemic, access to technology and communication methods, collaboration among institutions, technical competence and preparedness of universities, and work flexibility. On the other hand, the complexity of the online education system and information density are identified as significant constraints on effectiveness.

Implications of the Study

This study offers valuable implications for decision-makers, including policy-makers, public and private sector universities, and educational institutes. It underscores the importance of students embracing online education as a positive alternative to traditional face-to-face lectures. Educational institutions, both public and private, should design and implement online education systems that emphasize usefulness and accommodate flexibility for both students and academics. Collaboration among institutions is essential for the effective use of online education resources. Institutional adaptation, including developing and upgrading technology and communication infrastructure, is crucial for effective online education delivery. Government support, particularly in public universities, and cooperation with telecommunication providers to enhance communication capacities for the education sector are recommended. Continuous improvement of the technical competency of academic staff is essential, but it should not be at the expense of complicating the online system or overloading it with unnecessary information.

Future Directions

The model developed in this study holds promise for evaluating online education effectiveness, especially in developing countries. Future scholars can explore the applicability of this model in other countries and refine it to address context-specific challenges. Further research can delve deeper into the nuances of each factor's impact on the effectiveness and investigate additional variables that may influence the effectiveness of online teaching-learning practices. Additionally, longitudinal studies can provide insights into the evolving landscape of online education as technology and teaching methods continue to advance.

Funding Statement

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. The authors conducted this study independently without external financial support.

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References

Al-Karaki, J. N., Ababneh, N., Hamid, Y., & Gawanmeh, A. (2021). Evaluating the effectiveness of distance learning in higher education during COVID-19 global crisis: UAE educators' perspectives. Contemporary Educational Technology, 13(3), ep311. https://doi.org/10.30935/cedtech/10945

Alamri, H., Lowell, V., Watson, W., & Watson, S. L. (2020). Using personalized learning as an instructional approach to motivate learners in online higher education: Learner self-determination and intrinsic motivation. *Journal of Research on Technology in Education*, *52*(3), 322–352. https://doi.org/10.1080/15391523.2020.1728449

A.S. Sife, E.T. Lwoga, & Sanga, C. (2007). New technologies for teaching and learning: Challenges for higher learning institutions in developing countries. *The International Journal of Education and Development Using Information and Communication Technology*, *3*(2). https://www.researchgate.net/publication/225188645_

Bates, A. W., & Sangra, A. (2011). Managing technology in higher education: Strategies for transforming teaching and learning. John Wiley & Sons.

Bates, T., & Poole, G. (2003, January 1). *Effective Teaching with Technology in Higher Education: Foundations for Success.* https://www.researchgate.net/publication/44831751_Effective_Teaching_with_Technology_in_Higher_Education_Foundations_for_Success

Butnaru, G. I., Niţă, V., Anichiti, A., & Brînză, G. (2021a). The effectiveness of online education during the COVID-19 pandemic—a comparative analysis between the perceptions of academic students and high school students from Romania. Sustainability (Sd), 13(9). https://doi.org/10.3390/su13095311

Butnaru, G. I., Niţă, V., Anichiti, A., & Brînză, G. (2021b). The effectiveness of online education during the COVID-19 pandemic—a comparative analysis between the perceptions of academic students and high school students from Sustainability (Switzerland), 13(9). https://doi.org/10.3390/su13095311

Chacon, M., Levine, R. S., & Bintliff, A. (2023). Student perceptions: How virtual student-led talking circles promote engagement, social connectedness, and academic benefit.

Active Learning in Higher Education, 0(0). https://doi.org/10.1177/14697874231179238

Chai, C. S., Hwee, J., Koh, L., & Tsai, C.-C. (2013). A Review of Technological Pedagogical Content Knowledge MyCLOUD (My Chinese Language ubiquitOUs learning Days) View project Analysis of Patterns in Time (APT) View

Chiu, T.K.F. (2022). Applying the self-determination theory (SDT) to explain student engagement in online learning during the COVID-19 pandemic, Journal of Research on Technology in Education, 54(1), 14-30, DOI: 10.1080/15391523.2021.1891998

Coman, C., Țîru, L. G., Meseșan-Schmitz, L., Stanciu, C., & Bularca, M. C. (2020). Online teaching and learning in higher education during the coronavirus pandemic: Students' perspective. Sustainability, 12(24), 10367. https://doi:10.3390/su122410367

Ding, L., Zhao, Z., & Wang, L. (2023). Does online teaching strategy matter: exploring the effect of online teaching strategies on students' ambidextrous innovation capacities based on the online teaching situation in China, Journal of Research on Technology in Education, 55(5), 817-840, DOI: 10.1080/15391523.2022.2038315

Du, J., & Hew, K.F.T. (2022). Using recommender systems to promote self-regulated learning in online education settings: current knowledge gaps and suggestions for future research, Journal of Research on Technology in Education, 54(4), 557-580, DOI: 10.1080/15391523.2021.1897905

Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research, 18*(3), 382–388. https://doi.org/10.2307/3150980

Gan, C., & Li, H. (2018). Understanding the effects of gratifications on the continuance intention to use WeChat in China: A perspective on uses and gratifications. Computers in Human Behaviour, 78, 306–315. https://doi.org/10.1016/J.CHB.2017.10.003

Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A., (2012). An assessment of the use of partial least squares structural equation modelling in marketing research. Journal of the Academic Marketing Science, 40, pp. 414-433

Hamid, Y., Al-Karaki, J. N., Nseobot, i. R., Effiong, a. I., Dinnoo, v., & Edet, a. U. (2020). A simple and predictive model for COVID-19 evolution in large-scale infected countries. Journal of Theoretical and Applied Information Technology, 98(24), 3961- 3971

Haththotuwa, P. M. P. S., & Rupasinghe, R. A. H. M. (2021). Adapting to Online Learning in Higher Education System during the Covid-19 Pandemic: A Case Study of Universities in Sri Lanka. Sri Lanka Journal of Social Sciences and Humanities, 1(2), 147. https://doi.org/10.4038/sljssh.v1i2.46

Huang, L., & Hong, J. C. (2016). An exploration of real-world internet access using wireless technologies for online learning. Computers in Human Behavior, 55, 944-951.

Jia, C., Hew, K.F., Bai, S., & Huang, W. (2022). Adaptation of a conventional flipped course to an online flipped format during the Covid-19 pandemic: Student learning performance and engagement, Journal of Research on Technology in Education, 54(2), 281-301, DOI: 10.1080/15391523.2020.1847220

Iyer, P., Aziz, K., & Ojcius, D. M. (2020). Impact of COVID-19 on dental education in the United States. Journal of Dental Education, 84(6), 718-722. https://doi.org/10.1002/jdd.12163

Kara M. (2022). Revisiting online learner engagement: exploring the role of learner characteristics in an emergency period, Journal of Research on Technology in Education, 54(1), 236-252, DOI: 10.1080/15391523.2021.1891997.

Kara, M. (2020). Distance education: a systems view of online learning. *Educational Review*, 1–1. https://doi.org/10.1080/00131911.2020.1766204

Kebritchi, M., Lipschuetz, A., & Santiague, L. (2017). Issues and Challenges for Teaching Successful Online Courses in Higher Education. Journal of Educational Technology Systems, 46(1), 4–29. https://doi.org/10.1177/0047239516661713

Keegan, D. (1996). Foundations of distance education. Routledge.

Koehler, M. J., Mishra, P., Kereluik, K., Shin, T. S., & Graham, C. R. (2014). The technological pedagogical content knowledge framework. In Handbook of Research on 73 Educational Communications and Technology: Fourth Edition (pp. 101–111). Springer, New York. https://doi.org/10.1007/978-1-4614-3185-5_9 Sudusinghe,

Larkiduringld, C., & Pennington, R. (2017). The impact of assessment methods on the learning of accounting: A comparison of online and in-class assessment outcomes. Accounting Education, 26(6), 559-574.

Malkawi, E., Bawaneh, A., & Bawa'aneh, M. S. (2021). Campus off, education on: UAEU students' satisfaction and attitudes towards e-learning and virtual classes during the COVID-19 pandemic. Contemporary Educational Technology Journal, 13(1), ep283. https://doi.org/10.30935/cedtech/8708

Martin, F., Bacak, J., Polly, D., & Dymes, L. (2023). A systematic review of research on K12 online teaching and learning: Comparison of research from two decades, 2000 to 2019, Journal of Research on Technology in Education, 55(2), 190-209, DOI: 10.1080/15391523.2021.1940396

Means, B., Toyama, Y., Murphy, R., & Baki, M. (2013). The effectiveness of online and blended learning: A meta-analysis of the empirical literature. *Teachers College Record, 115*(3), 1–47. https://doi.org/10.1177/016146811311500307

Minosky, S. A., Wiechers, M., & Landaverde-Umana, L. (2022). The impact of course format on student perceptions of the classroom learning environment and teamwork. Active Learning in Higher Education, 0(0). https://doi.org/10.1177/14697874221128023

Mou, T.-Y. (2023). Online learning in the time of the COVID-19 crisis: Implications for the self-regulated learning of university design students. Active Learning in Higher Education, 24(2), 185–205. https://doi.org/10.1177/14697874211051226

Mittal, A., Mantri, A., Tandon, U. & Dwivedi, Y.K. (2022), "A unified perspective on the adoption of online teaching in higher education during the COVID-19 pandemic", Information Discovery and Delivery, Vol. 50 No. 2, pp. 117-132. https://doi.org/10.1108/IDD-09-2020-0114

Mokgolodi, H. (2023). Decolonizing Evaluation of Indigenous Guidance and Counselling Approaches: A Review of Selected Evaluated Programs: Journal of MultiDisciplinary Evaluation. *Journal of MultiDisciplinary Evaluation*, *19*(44), 231–246. https://doi.org/10.56645/jmde.v19i44.779

Muthuprasad, T., Aiswarya, S., Aditya, K. S., & Jha, G. K. (2021). Students' perception and preference for online education in India during the COVID-19 pandemic. Social Sciences & Humanities Open, 3(1), 100101. https://doi.org/10.1016/j.ssaho.2020.100101

Paudel, P. (2021). Online education: Benefits, challenges and strategies during and after COVID-19 in higher education. International Journal on Studies in Education, 3(2), 70-85. https://doi.org/10.46328/ijonse.32

Rhonda NT. Nese, Paul Meng, S, Sarah Breiner, Erin Chaparro, & Robert Algozzine (2020). Using stakeholder feedback to improve online professional development opportunities, Journal of Research on Technology in Education, 52:2, 148-162, DOI: 10.1080/15391523.2020.1726233

Strother, J. A., Wu, S. T., Wong, A. M., Nern, A., Rogers, E. M., Le, J. Q., Rubin, G. M., & Reiser, M. B. (2017). The Emergence of Directional Selectivity in the Visual Motion Pathway of Drosophila. *Neuron*, *94*(1), 168–182.e10. https://doi.org/10.1016/j.neuron.2017.03.010

Sun, P.-C., Tsai, R. J., Finger, G., Chen, Y.-Y., & Yeh, D. (2008). What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & Education*, *50*(4), 1183–1202. https://doi.org/10.1016/j.compedu.2006.11.007

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). *User Acceptance of Information Technology: Toward a Unified View*. ResearchGate; University of Minnesota, Management Information Systems Research Centre. https://www.researchgate.net/publication/220259897_User_Acceptance_of_Information_Technology_Toward_a_Unified_View

Wagner, C.J. (2022). PK-5 teacher perspectives on the design of remote teaching: pedagogies and support structures to sustain student learning online, Journal of Research on Technology in Education, 54(1), 132-147, DOI: 10.1080/15391523.2021.1888340

W. S., & Kumara, W. (2021). 13th International Research Conference General Sir John Kotelawala Defence University Allied Health Sciences Sessions. Thandevaraj, E. J., Gani, N. A. N., & Nasir, M. K. M. (2021). A Review of Psychological Impact on Students' Online Learning during COVID-19 in Malaysia. Creative Education, 12(06), 1296–1306. DOI:10.4236/ce.2021.126097

Woo, L.J., Archambault, L., & Borup, J. (2023). Exploring the evolution of field experiences in 12 online settings: a systematic review of studies from 2007-2022, Journal of Research on Technology in Education, DOI: 10.1080/15391523.2023.2237612