

Research Paper

Factors Influencing Student Satisfaction in Online Learning among Hospitality and Tourism Students in the Philippines

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Abstract: This study examines the factors influencing student performance and satisfaction in an online learning environment. It specifically investigates the relationships between course design, lecturer traits, student traits, technical support, student performance, and student satisfaction. Using a self-administered questionnaire, the study conducted a cross-sectional analysis among hospitality management students (n=256) at Cordillera Career Development College in the Philippines. Structural equation modelling was employed to analyse the proposed hypotheses. The findings indicate that student performance, lecturer traits, and technical support positively influence student satisfaction. The study highlights the students' comfort with online classes and the support they receive from lecturers while acknowledging that technical issues pose challenges to the effectiveness of online education. The study emphasises the increasing importance of the Internet and new technologies in education. The insights from this study can guide educational administrators in improving their strategies and curriculum design to adapt to the new normal.

Keywords: E-learning, lecturer traits, course design, PLS-SEM, student satisfaction

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Introduction

Technology's rapid advancement has significantly shaped global education, propelling its evolution (Johnson & Aragon, 2003). Over recent decades, distance education, particularly online learning in higher education, has gained prominence to enhance accessibility and cater to diverse student needs (Lee, 2017; Ng, 2021; Xiao, 2018). Online learning, facilitated by various technologies, fosters engagement and interaction, encouraging educators to integrate digital tools into teaching processes (Samoylenko et al., 2022). Institutions worldwide have adopted platforms like Google Meet, Blackboard, Microsoft Teams, and Zoom (Muthuprasad et al., 2021) to support their teaching and learning needs. In essence, this integration empowers learners, allowing them to customise their academic journey, monitor progress, and adapt learning to their unique preferences (Zamani et al., 2022).

The quality of Internet access and effectiveness are crucial factors influencing learning outcomes. Virtual learning settings, though different in regard to student motivation, pleasure, and communication compared to traditional classrooms, can be equally satisfying (Adam et al., 2017; Bignoux & Sund, 2018). Research indicates that, when appropriately designed, online learning can be as efficient as conventional classroom education, potentially replacing it (Adam et al., 2017).

The Commission on Higher Education (CHED) in the Philippines advocates expanding distance education and e-platforms for virtual teaching (CHED, 2020). Flexible learning, recommended for State Colleges and Universities (SUCs), does not necessarily mean entirely online education (Moralista & Oducado, 2020; San Juan, 2020). Universities use social media and learning management systems (Aguilar & Torres, 2021). However, challenges include a shortage of qualified online educators and the nation's persistent internet access issues (Cuaton, 2020), despite high internet usage among Filipinos globally (Oducado, 2019).

The central concern is the effectiveness of teaching content in online education, which is crucial for addressing students' challenges and ensuring learning success. This research is significant, considering the limited investigation into online teaching and learning in the Philippines, especially in hospitality and tourism education, which faces challenges in transitioning to an online platform. The study by Lopez and Ramos (2023) explored how Filipino hospitality and tourism students perceive online education to identify factors that can enhance its value. While various studies have emphasised virtual learning's positive impact on comprehension, involvement, and academic performance (Alves et al., 2017; Barker & Gossman, 2013), the Philippines' shift to virtual learning also exposes deficiencies in infrastructure, platform access, and readiness among faculty, students, and parents. Unequal access to devices and an unreliable Internet connection can adversely affect the learning experience, highlighting the need for adequate infrastructure to transition to online learning (Adnan & Anwar, 2020).

This study assessed students' virtual learning experiences to enhance their satisfaction and overall learning. It aims to identify perceptions of e-learning, investigate its impact on the learning process, students' perspectives on e-learning platforms, and the challenges faced in online education. The study recognises the significance of e-learning in providing insights into the effectiveness of teaching practices, time allocation for tasks, course content, and student feedback on instructional methods.

Literature Review

In today's tech-driven era, organisations must adapt digital content design for effective online learning. Considering students' interests and beliefs is crucial, impacting their readiness for collaborative online engagement (Deri & Ragavan, 2023). Studies show diverse opinions on online learning, influenced by lecturer-student interaction. Advantages include curriculum alignment (Swan et al., 2000), critical thinking enhancement, user engagement (Hay et al., 2004), as well as educational focus, and flexibility (Klingner, 2003). Interactions in virtual environments (Kim et al., 2005), social presence (Kim et al., 2005), academic self-concept (Lim et al., 2019), and technological competencies (Wagner et al., 2002) contribute to successful online learning. Other essential components include a well-crafted curriculum, trained instructors, advanced technology, assessments, and clear guidelines, emphasising the importance of meticulous planning for online classes to succeed (Sun & Chen, 2016).

Conversely, a few previous studies discovered some shortcomings in online learning. Delays in feedback (Petrides, 2002; Vonderwell, 2003), difficulties colluding with co-learners, technical glitches (Song et al., 2004), problems relating to lecturers (Muilenburg & Berge, 2005), higher rate of student dropout (Frankola, 2001), the requirement for better concentration, writing capabilities, and inspiration; and a need for online users to commit to studying are seen to be hurdles or shortcomings of online learning (Rahman & Lee, 2022).

This study included elements such as "Course Design, Lecturer Traits, Student Traits, and Technical Support", considering these as essential to understanding students' perceptions regarding online education. The design of an online course significantly impacts how students engage with the material and the overall learning experience (Vu & Proctor, 2011). Effective course design can enhance comprehension, motivation, and satisfaction among students. Conversely, poor course design can lead to confusion, frustration, and reduced satisfaction (Placencia & Muljana, 2019). Thus, the study of course design helps identify elements that contribute to or hinder the quality of online education.

Similarly, instructors' characteristics significantly shape students' views on online education. Knowledgeable, accessible, responsive, and skilled instructors positively

impact student satisfaction and learning outcomes (Abdul Latip et al., 2020; Ng, 2018). Conversely, inadequate lecturer traits can lead to disengagement and dissatisfaction (Abdul Latip et al., 2020; Ng, 2018). Students' traits, including prior online learning experience, technical proficiency, self-discipline, and motivation, influence their perception and engagement with online education. Understanding these traits is crucial for tailoring online education to meet students' needs and enhance satisfaction (Tovmasyan et al., 2022).

Technical issues and challenges can significantly affect students' experiences with online education. Access to reliable technical support is crucial to addressing and resolving issues promptly. When technical support is lacking, students may become frustrated and dissatisfied with the online learning experience (Ayuni & Mulyana, 2019; Bisen & Deshpande, 2018). Therefore, assessing the availability and effectiveness of technical support is essential for understanding student perceptions (Kakada et al., 2019). The following sections explain the constructs' definitions, the theoretical foundation, and the hypotheses.

Course Design

In higher education e-learning, a shift to a student-centred approach is emphasised (Debattista, 2018). An effective e-learning course design prioritises energetic learning and learner engagement (Ashwin & McVitty, 2015). Thus, designing an appropriate course is essential for successful e-learning outcomes (Little & Knihova, 2014). Akyüz and Samsa (2009) recommended incorporating assignments, quizzes, and projects in the online course design to enhance learners' analytical and conceptualising abilities. An organised and visually engaging e-learning course design can improve learning outcomes for online students (Oh et al., 2020), considering students' competence and understanding levels (Ricart et al., 2020). E-learning, in terms of temporal flexibility and space, outperforms traditional classroom and self-directed learning (Ong & Manimekalai, 2015). Multimedia resources in e-learning courses enhance student interest and understanding (Khamparia & Pandey, 2017). Consideration of different learning styles, promotion of teamwork, and creating a fun learning environment are crucial in online course creation (Liao et al., 2019). Jenkins (2015) suggested developing and utilising course design attributes to improve student achievement. Based on these findings, it is hypothesised that:

H1. There is a positive relationship between course design and students' satisfaction with the e-learning quality in higher education.

Lecturer Traits

According to Arambewela and Hall (2009), lecturer quality significantly impacts student satisfaction and overall educational outcomes. Passionate and dedicated

lecturers positively influence student satisfaction with the education process. Abbasi et al. (2020) recommended steps for lecturers to enhance e-learning quality and accessibility. Empowering teachers to incorporate diverse ideas and practices into online course content is essential for effective higher education e-learning (Kebritchi et al., 2017). Timely and suitable feedback from lecturers is advised to enhance e-learning quality. Taha et al. (2020) proposed forming a team of experts to plan, execute, observe, and evaluate the shift to e-learning. Assessing lecturer performance and satisfaction through peer evaluations and surveys is also vital for improvement. Evaluation techniques, especially related to information and communication technology (ICT), are crucial in teaching-learning methodologies (Malik et al., 2018). Therefore, the following hypothesis is proposed:

H2. There is a positive relationship between lecturer characteristics and students' satisfaction with the e-learning quality in higher education.

Student Traits

Online courses are becoming increasingly common in higher education, but not every learner will benefit from their universal application. Learners' specific traits significantly impact how satisfied they are with their overall learning experience. Different teaching strategies evoke different student reactions depending on their personality characteristics (Baruth & Cohen, 2022). Becker et al. (2017) contended that automated gadgets, collaborative learning, blended learning, and measuring learning outcomes enhance higher education skills and knowledge. Similarly, Cheng et al. (2019) recommended successful e-learning through solid communication, well-designed courses, engaging content, high-quality teaching, and administrative support. In virtual learning, diverse multimedia options contribute to achieving learning outcomes (Sarabadani et al., 2017), and peer communication enhances education quality, unlike traditional classrooms (Goh et al., 2017; Martínez-Argüelles & Batalla-Busquet, 2016). Insufficient attention has been devoted to exploring the influence of personality traits on online learning, necessitating further investigation. This study aims to bridge this gap by analysing the connection between students' personality traits and their attitudes toward online learning. Based on this information, it is anticipated that:

H3. There is a positive relationship between learner characteristics and students' satisfaction with the e-learning quality in higher education.

Technical Support

Chivu et al. (2018) highlighted the importance of course design and content for e-learning quality, emphasising the potential benefits of e-learning platforms in online higher education classes. However, learners need technological proficiency to benefit

from online learning, as noted by Rodriguez et al. (2008). Ali et al. (2018) as well as Goh et al. (2017) recommended uncomplicated technological platforms for desired learning outcomes. Kimathi and Zhang (2019) stressed the importance of easy-to-establish and manage e-learning applications. Further, computer accessibility, internet speed, and a straightforward application structure can influence online learning (Al-Rahmi et al., 2019). According to Roddy et al. (2017) and Shahmoradi et al. (2018), adequate training in technical skills is crucial for both students and educators before transitioning to online courses. Based on these findings, it is proposed that:

H4. There is a positive relationship between technical support and students' satisfaction with the e-learning quality in higher education.

Student Performance

Biner et al. (1996) asserted that satisfaction with e-learning is linked to various aspects of student performance, encompassing motivation, learning, assurance, and retention. According to Mensink and King (2020), student achievement results from student and lecturer dedication, reflecting students' enthusiasm for their studies. Singh et al. (2016) proposed that student academic performance significantly contributes to a country's socioeconomic growth, a primary concern for faculty members. Enhancing knowledge and skills hinges on student academic performance, as highlighted by Narad and Abdullah (2016), who emphasised the necessity of regular evaluations or examinations for better outcomes. Essentially, student performance is a central pillar around which the entire education system revolves. Thus, it is hypothesised that:

H5: There is a positive relationship between students' performance and students' satisfaction with the e-learning quality in higher education.

Student Satisfaction

Satisfaction with virtual learning is influenced by an educational institution's performance and the fulfilment of intended goals, particularly regarding students' admiration. Virtual learning satisfaction is tied to experiences in the online classroom, with quality teaching, time flexibility, and interactive course design being crucial (Rodriguez et al., 2008; Song et al., 2004). Quality interactions between teachers and students, effective course material, and learners' perceptions of their educational journey also contribute to satisfaction (Malik et al., 2018; Martínez-Argüelles & Batalla-Busquets, 2016). Further, the anticipation of the overall usability of hospitality and tourism courses likely links to student satisfaction and learning outcomes (Chandra et al., 2022).

Research has explored the impact of online learning settings on student perceptions of course organisation, learner engagement, and instructor involvement,

influencing their learning experiences and contentment (Gray & Diloreto, 2016). Several studies have demonstrated a robust correlation between student satisfaction and interactions in virtual learning environments (Dziuban et al., 2015). Additionally, studies have shown that online courses may be tailored to meet the needs of each learner depending on their personality type and preferred mode of instruction (Denphaisarn, 2014). Undoubtedly, student satisfaction is essential and should be considered when evaluating the effectiveness of courses (Bolliger & Erichsen, 2012).

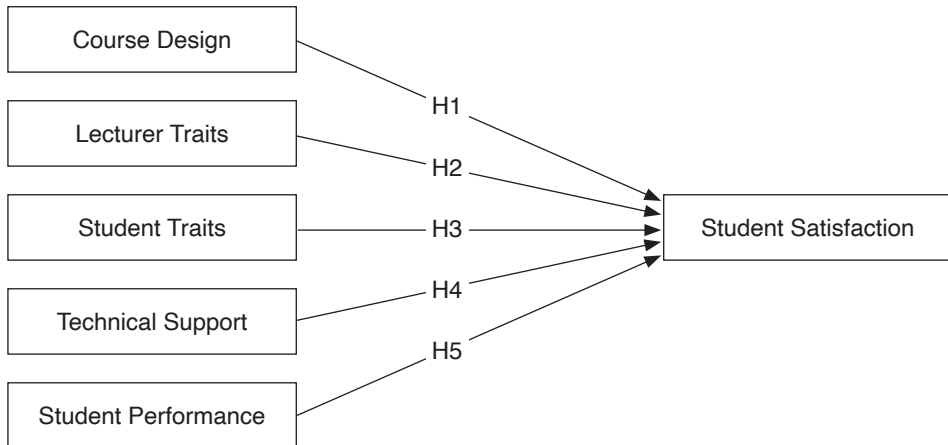


Figure 1. Conceptual framework

Methodology

The research objectives were accomplished by employing a deductive approach. This approach involves developing hypotheses based on existing theories (Graneheim et al., 2017). The study applied a quantitative approach through a non-probability convenience sampling with a self-reported survey questionnaire for information gathering. An online survey was developed, and 304 responses were received from hospitality and tourism students at Cordillera Career Development College in Benguet, Philippines. However, 48 responses were omitted from the analysis: 35 respondents offered similar answers across all Likert scale questions, and 13 responded only partially to the questionnaire items. After data refining, the remaining 256 responses were analysed further.

A structured questionnaire was utilised to gather data, employing a 5-point Likert scale ranging from 1 representing “strongly disagree” to 5 representing “strongly agree”. The questionnaire encompassed six variables: Course Design (9 items), Lecturer Traits (10 items), Student Traits (10 items), Technical Support (8 items), Student Performance (9 items), and Student Satisfaction (11 items). A total of 57 items were used to measure these variables, which were derived from previous

studies conducted by Amir et al. (2020), Elumalai et al. (2020), Gopal et al. (2021), Makokha and Mutisya (2016), Queiros and De Villiers (2016), as well as Yin and Wang (2015).

For data analysis, the SmartPLS 4 software was selected to perform a Partial Least Squares (PLS) analysis. This choice was made because PLS analysis, compared to covariance-based techniques, imposes fewer constraints on sample size, data distribution, and normality. Additionally, PLS analysis is increasingly recognised and utilised in hospitality and tourism management research (Ali et al., 2017). The study used a two-step technique to evaluate the hypotheses (Anderson & Gerbing, 1988). The measurement model was analysed first, and then the structural model was examined. PLS path modelling was also selected since it is well-suited for exploratory and predictive research (Hair et al., 2016).

Findings and Analysis

The demographic traits of the participants are presented in Table 1. The research examined the gender distribution of the responding students, revealing that 80.1% were female, 15.6% were male, and 4.3% preferred not to disclose their gender. Regarding age, most respondents (78.1%) fell within the range of 18 to 33 years, while the lowest percentage (0.4%) represented individuals above the age of 33.

Table 1. Respondents’ profile (n = 256)

Variable	Category	Frequency (F)	Percentage (%)
Gender	Male	40	15.6
	Female	205	80.1
	Prefer not to say	11	4.3
Age	18 – 21	200	78.1
	22 – 25	44	17.2
	26 – 29	8	3.1
	30 – 33	3	1.2
	Above 33	1	0.4

Measurement Model

Utilising the Smart PLS 4 software and survey data, a model was constructed. The Partial Least Squares (PLS) model comprised 46 affecting factors grouped into five categories as exogenous variables. These factors were interconnected with a single group representing student satisfaction, the endogenous variable, measured by 11 criteria. The model included the measurement model (outer component) and the structural model (inner component), evaluated based on three criteria for the

measurement model — indicator reliability, convergent validity, and discriminant validity — and four criteria for the structural model — structural model path coefficients (β), coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2).

The measurement model assesses construct reliability and validity using Cronbach’s alpha (α) and composite reliability (CR), as suggested by Hair et al. (2021). Results in Table 2 indicate that both α and CR values exceeded the recommended level of 0.7, signifying high reliability. Moreover, the average variance extracted (AVE) value, indicating convergent validity, surpassed the acceptable score of 0.5.

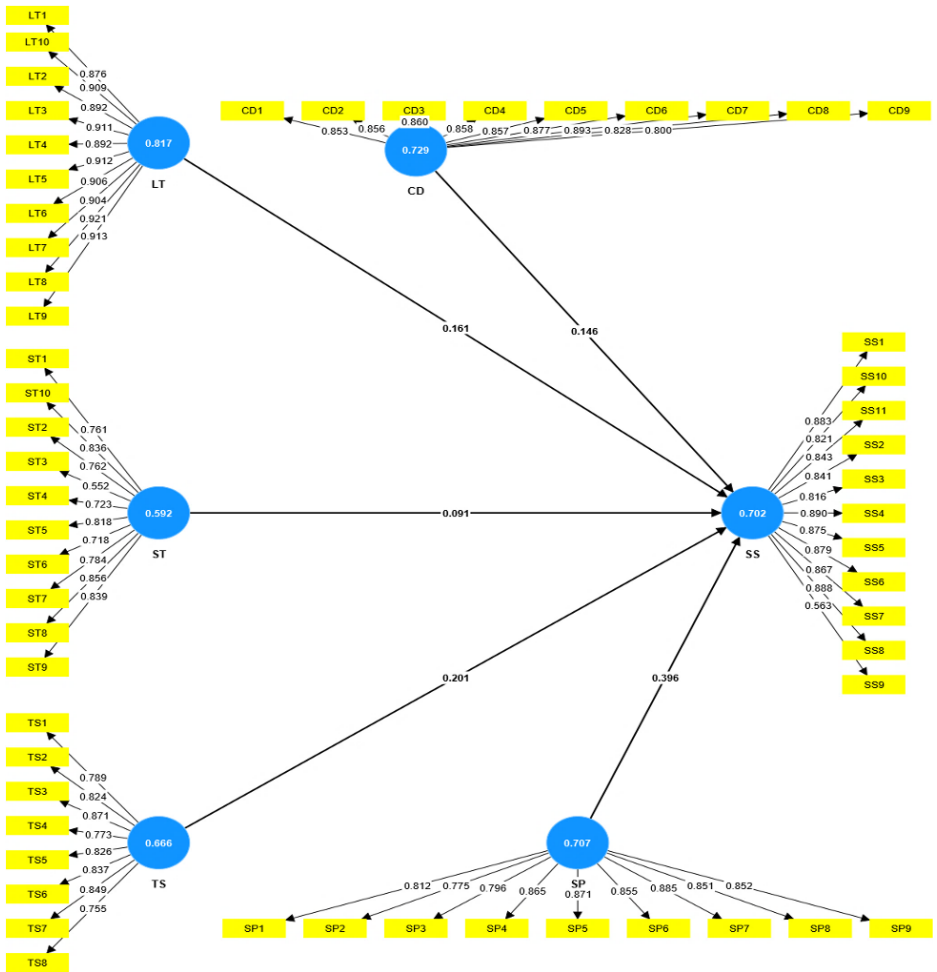


Figure 2. The constructed model

Table 2. Factor loadings, reliability and validity

Constructs	Factor Loadings	Cronbach's Alpha (α)	Composite Reliability (CR)	Average Variance Extracted (AVE)
Course Design		0.953	0.960	0.729
CD1	0.853			
CD2	0.856			
CD3	0.860			
CD4	0.858			
CD5	0.857			
CD6	0.877			
CD7	0.893			
CD8	0.828			
CD9	0.800			
Lecturer Traits		0.975	0.978	0.817
LT1	0.876			
LT2	0.909			
LT3	0.892			
LT4	0.911			
LT5	0.892			
LT6	0.912			
LT7	0.906			
LT8	0.904			
LT9	0.921			
LT10	0.913			
Student Traits		0.922	0.935	0.592
ST1	0.761			
ST2	0.836			
ST3	0.762			
ST4	0.552			
ST5	0.723			
ST6	0.818			
ST7	0.718			
ST8	0.784			
ST9	0.856			
ST10	0.839			

Table 2. (cont)

Constructs	Factor Loadings	Cronbach's Alpha (α)	Composite Reliability (CR)	Average Variance Extracted (AVE)
Technical Support		0.928	0.941	0.666
TS1	0.789			
TS2	0.824			
TS3	0.871			
TS4	0.773			
TS5	0.826			
TS6	0.837			
TS7	0.949			
TS8	0.755			
Student Performance		0.948	0.956	0.707
SP1	0.812			
SP2	0.775			
SP3	0.796			
SP4	0.865			
SP5	0.871			
SP6	0.855			
SP7	0.885			
SP8	0.851			
SP9	0.852			
Student Satisfaction		0.956	0.963	0.702
SS1	0.883			
SS2	0.821			
SS3	0.843			
SS4	0.841			
SS5	0.816			
SS6	0.890			
SS7	0.875			
SS8	0.879			
SS9	0.867			
SS10	0.888			
SS11	0.563			

Additionally, model fit adequacy was assessed using four criteria: standardised root mean square residual (SRMR), unweighted least squares discrepancy (dULS), geodesic discrepancy (dG), and normal fit index (NFI). Acceptable fit is indicated by SRMR below 0.08 (Wright et al., 2021), dULS below the 95% bootstrap quantile (H195 of dULS) with a critical value less than 0.05, dG below the 95% bootstrap quantile (H195 of dG) with a critical value less than 0.05, and NFI above 0.90.

Table 3 presents the results, indicating that the structural model achieved SRMR values of 0.071 and 0.063, both below the critical threshold of 0.08, demonstrating an excellent model fit. For dULS and dG, the results for the saturated model were 0.0001 (dULS) and 0.0038 (dG), and for the estimated model, they were 0.0002 (dULS) and 0.0064 (dG), all well below the critical 0.05 threshold, confirming the well-fitted structural model. The NFI value was 0.96, surpassing the criterion value of 0.90, further confirming the excellent fit of the structural model. In summary, the analysis supports the conclusion that the structural model in this study is well-fitted.

Table 3. Exact fit tests

	Saturated model	Estimated model
SRMR	0.071	0.063
d_ULS	0.0001	0.0002
d_G	0.0038	0.0064
NFI	0.96	0.96

Note(s): Criteria: Standardised root mean square residual (SRMR): critical value (<0.08); unweighted least squares discrepancy (dULS): critical value (<0.05); geodesic discrepancy (dG): critical value (<0.05); normal fit index (NFI): critical value (>0.90)

The present study utilised the Fornell-Larcker criterion and heterotrait-monotrait (HTMT) ratios for validity assessment (Hossain et al., 2021). The Fornell-Larcker criterion requires the square root of the extracted average variance (AVE) for each construct to be greater than the correlation between that construct and all others in the model. Validity is further demonstrated by HTMT values below either 0.90 (HTMT0.90) or 0.85 (HTMT0.85). Table 4 results indicate that all constructs meet the discriminative validity criteria, with HTMT0.90 acceptance levels satisfied for all constructions.

Table 4. Discriminant validity using Fornell–Larcker criterion and HTMT

	1	2	3	4	5	6
Fornell–Larcker criterion						
Course Design	0.854					
Student Performance	0.704	0.841				
Student Satisfaction	0.770	0.823	0.838			
Student Traits	0.742	0.758	0.766	0.770		
Technical Support	0.696	0.735	0.765	0.736	0.816	
Lecturer Traits	0.857	0.668	0.749	0.736	0.650	0.904
<i>Heterotrait–monotrait ratio (HTMT)</i>						
Course Design						
Student Performance	0.740					
Student Satisfaction	0.803	0.864				
Student Traits	0.789	0.808	0.805			
Technical Support	0.736	0.779	0.805	0.790		
Lecturer Traits	0.890	0.694	0.774	0.774	0.679	

Structural Model

According to Hair et al. (2021), a higher path coefficient signifies a more significant influence of predictor exogenous variables on the endogenous variable. In this study’s structural model, five direct hypotheses were examined. Path coefficient values shown in Table 5 indicate that student performance has the highest β value of 0.396, surpassing the threshold of 0.1, and the p-value is 0.000, supporting hypothesis 5. This implies that student performance has the most substantial impact on student satisfaction. Technical support follows with a β value of 0.201, and the p-value (0.001) supports hypothesis 4. Similarly, the β value for the relationship between lecturer traits and student satisfaction is 0.161, and the p-value (0.051) supports hypothesis 2 (Figure 3).

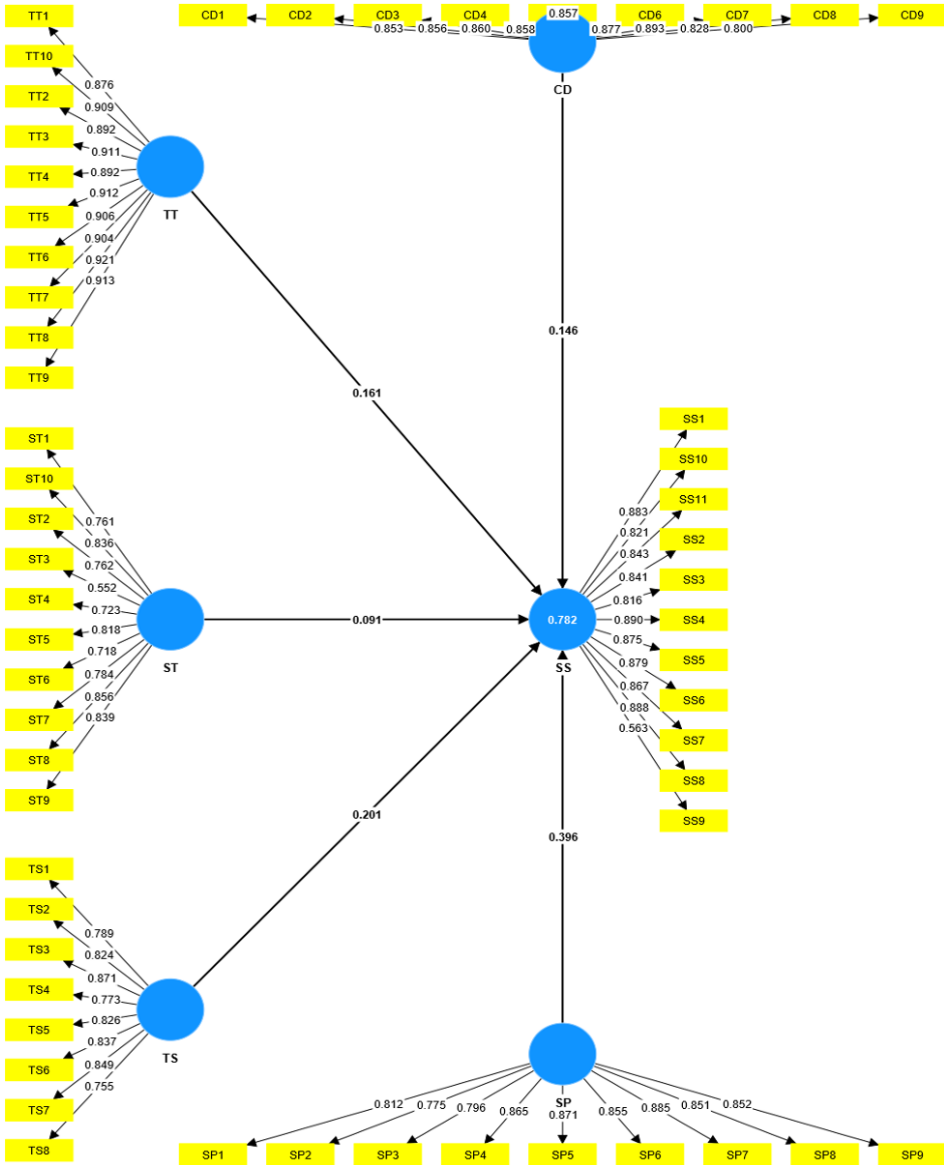


Figure 3. Structural model

To assess the significance of each relationship, a bootstrapping process was conducted, estimating the distribution of samples, including their spread and shape (Hair et al., 2021). This process is crucial for testing the hypothesis and determining

whether the connections between constructs are statistically significant (Banerjee et al., 2009). The bootstrapping approach in this study utilised 5,000 resamples and two-tailed tests with a significance level of 1.96 ($p=0.05$) to obtain and evaluate t-values (Hair et al., 2021). The results of this procedure are detailed in Table 5.

Table 5 reveals that student performance, lecturer traits, and technical support strongly correlate with student satisfaction. Constructs with t-values below the specified threshold are deemed to lack a significant relationship with satisfaction. The path coefficient analysis underscores student performance, lecturer traits, and technical support exert the most robust and statistically significant influence on student satisfaction. These findings align with previous studies by Mensink and King (2020), Narad and Abdullah (2016), as well as Singh et al. (2016), supporting a positive impact of student performance on satisfaction. Lecturer characteristics emerge as crucial factors influencing satisfaction and educational outcomes, consistent with Abbasi et al. (2020), Kebritchi et al. (2017), Malik et al. (2018), and Taha et al. (2020). Similarly, technical support significantly affects satisfaction, as indicated by Ali et al. (2018), Chivu et al. (2018), Kimathi and Zhang (2019), Roddy et al. (2017), and Shahmoradi et al. (2018).

The coefficient of determination is used to assess a model’s prophetic explanatory ability or reliability, with a value around 1 indicating higher predictive accuracy (Hair et al., 2021). The R^2 value for the structural model is 0.782 (Figure 4). This value implies that the created model has significant explanatory power in capturing the influence of the five categories of factors on student satisfaction (Cohen, 1988).

Cohen (1988) categorised effect sizes of 0.02, 0.15, and 0.35 as indicating modest, medium, and high effects of the model’s omitted exogenous variable, respectively. The PLS algorithm was iterated five times in this study with five exogenous constructs, yielding effect size values detailed in Table 5. Student performance stands out with the most substantial effect size of 0.244, while course design, technical support, and lecturer traits have smaller effect sizes of 0.021, 0.068, and 0.029, respectively. The remaining exogenous constructs exhibit effect sizes below the 0.02 cut-off, suggesting minimal individual influence on the model. In summary, student performance has the most significant effect size. In contrast, course design, technical support, and lecturer traits, though relatively small, contribute substantively to the endogenous construct or the overall model.

Table 5. Hypotheses results (direct and indirect)

Relationships	Mean	SD	β	t-value	p-value	f^2	Q^2	VIF	Decision
CD → SS	0.150	0.081	0.146	1.801	0.072	0.021	0.000	4.547	Rejected
LT → SS	0.161	0.161	0.161	1.952	0.051	0.029	0.000	4.125	Supported
ST → SS	0.091	0.077	0.091	1.180	0.238	0.011	0.000	3.377	Rejected

Table 5. (cont)

Relationships	Mean	SD	β	t-value	p-value	f ²	Q ²	VIF	Decision
TS → SS	0.201	0.060	0.201	3.356	0.001	0.068	0.000	2.744	Supported
SP → SS	0.396	0.066	0.396	5.987	0.000	0.244	0.000	2.947	Supported

Q² values are used to assess a model’s predictive relevance, which indicates its ability to forecast data points. These values measure the disparities between deleted and anticipated data points. According to Cohen (1988), Q² values of 0.02, 0.15, and 0.35 represent low, medium, and high predictive importance for the relevant exogenous variable in the model. The study used a blindfolding procedure to examine predictive relevance.

The model in this investigation used the cross-validated redundancy (CVR) value, as proposed by Hair et al. (2021). The CVR value already includes the structural model, which the path model requires to anticipate the missing data points. Because the model contains five exogenous variables, five blindfolding processes were carried out. Table 5 shows the determined overall predictive relevance (Q²) for this model.

The statistical computation of the input data collected from the questionnaire survey determines the strength of each association between the exogenous and endogenous variables. If the quality of the data provided by respondents is inadequate, the created relationships will appear statistically unimportant and irrelevant (Ishiyaku et al., 2017). Table 5 shows that none of the constructs demonstrates predictive relevance or has any effect on the endogenous construct (Figure 4).

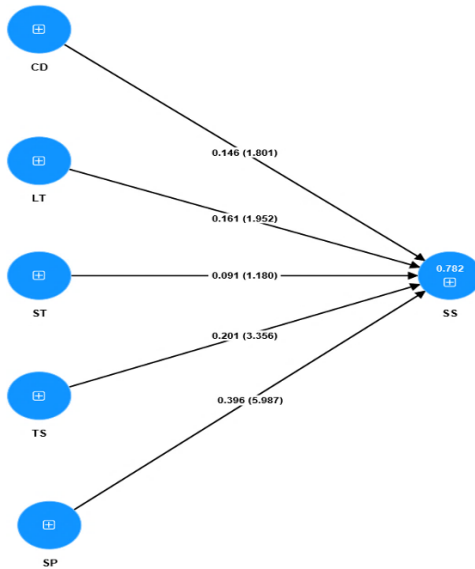


Figure 4. PLS-SEM results

Discussion, Implications, Limitations and Future Research

Discussion

This study examined students' perceptions of online learning effectiveness and satisfaction, emphasising the crucial role of technology in education. To enhance digital proficiency, hospitality and tourism institutions should provide training on digital platforms (Chandra et al., 2022). Despite drawbacks, students appreciate the organised nature of online classrooms, finding it conducive to address questions without peer pressure (Sari, 2020). The flexibility of digital platforms is valued, but rigid timetables can hinder it. Recommendations include fostering adaptable schedules and allowing access to recorded materials for effective online learning utilisation (Chandra et al., 2022). The study's insights aim to guide educators in enhancing student satisfaction and performance in online environments, offering valuable considerations for effective online teaching.

Unlike prior studies focusing on factors influencing student satisfaction in traditional education, this study identified key factors impacting satisfaction with online classes. Student performance (Mensink & King, 2020; Singh et al., 2016) emerged as the most significant factor affecting student satisfaction (Gray & DiLoreto, 2016; Malik et al., 2018; Martínez-Argüelles & Batalla-Busquets, 2016), followed by technical support availability (Ali et al., 2018; Al-Rahmi et al., 2019; Chivu et al., 2018; Goh et al., 2017; Roddy et al., 2017; Shahmoradi et al., 2018) and lecturer quality (Abbasi et al., 2020; Kebritchi et al., 2017; Malik et al., 2018; Taha et al., 2020). This underscores the importance of proficient online teaching and understanding students' psychological needs for effective course content delivery. Successful teaching positively influences both satisfaction and performance. These insights are valuable for shaping future strategies in online education.

Enhancing online learning quality requires designing platforms that facilitate communication between students and lecturers (Martin, 2021). This study reveals that students value proper facilities and appreciate the flexibility of time and place but face challenges with poor network connectivity. To address this, technical changes supporting peer interaction and socialisation are recommended. Implementing collaborative learning methods can boost satisfaction and participation, fostering social relationships. To promote interaction, incorporate multimedia presentations and varied activities, adapting techniques to match students' interests and learning styles. Positive aspects like involvement, interaction, flexibility, and accessibility should be strengthened while addressing obstacles like network issues, distractions, and lack of support.

Online instructors play a crucial role in fostering engagement and motivation among learners by creating authentic instructional resources (Martin et al., 2018). Thus, it is essential to design course content that ensures easy comprehension.

Challenges may arise, especially with practical demonstrations or lab experiments, requiring instructors to employ creative approaches to deliver content effectively online. Overcoming these challenges positively influences students' satisfaction with online classes (Almaiah & Alyoussef, 2019).

Despite their initial exposure to online classes, students perceived value in online teaching (Agarwal & Kaushik, 2020; Rajabalee & Santally, 2021). Earlier research had demonstrated a positive correlation between technology-supported courses and students' performance. This study contributes to understanding online teaching and learning, emphasising the importance of adapting to new teaching approaches that align with students' preferences and creating a compelling virtual learning environment.

The study reveals a generally positive perception of the educational environment among students, noting that lecturers strive to create adequate learning settings (Zamani et al., 2022). In the realm of online education, the effectiveness of lessons is crucial for comprehension and retention. Strategies promoting deep-level processing to transfer knowledge into long-term memory are recommended. Lecturers acknowledge the importance of tailoring online learning materials to accommodate diverse learning styles, allowing learners to choose activities aligning with their preferences (Zamani et al., 2022). However, it is emphasised that, regardless of effective materials, learner motivation plays a pivotal role in determining successful learning outcomes.

Implications

The study offers practical implications for academia, transcending its focus on hospitality and tourism. It addresses gaps in prior research on online learning satisfaction (Baber, 2020; Maqableh et al., 2021; Yunusa & Umar, 2021), emphasising instructors' pivotal role in influencing student satisfaction and performance (Gray & DiLoreto, 2016). Additionally, it underscores the importance of meeting student expectations, especially regarding employment prospects (Gorgodze et al., 2020), and effective online course design to enhance satisfaction (Martin et al., 2018). Well-structured courses that facilitate the use of e-learning systems lead to improved performance (Almaiah & Alyoussef, 2020). Lastly, timely feedback from lecturers positively impacts instructor participation, understanding, and student engagement (Martin et al., 2018), enhancing overall learning outcomes.

Theoretical Implications

The study contributes theoretically by investigating the impact of various factors, including Course Design, Lecturer Traits, Student Traits, Technical Support, and Student Performance, on Student Satisfaction. It emphasises the importance of smooth transitions to online learning in developing and underdeveloped countries,

advocating for user-friendly learning environments to alleviate anxiety and enhance perceived satisfaction. Given the complexity of Hospitality and Tourism Education (HTE), the study suggests exploring diverse tools such as the Visual, Auditory, Reading/Writing, and Kinesthetic (VARK) model to enhance learning effectiveness (Zapalska & Brozik, 2006). It recommends adopting practical, task-based teaching models and developing management skills through innovative teaching methods to cater to the unique needs of HTE students (Kumar, 2014).

Practical Implications

This study holds significant practical importance for multiple reasons. Firstly, embracing e-learning can enhance learning by offering flexible time utilisation and overcoming spatial constraints, making education more accessible and efficient with limited resources. Secondly, policymakers can glean valuable insights on improving hospitality and tourism students' performance through the widespread adoption of online learning. Educational institutions and governments worldwide are expanding online education to enhance student learning outcomes (Butt et al., 2021). In this respect, effective implementation and management of online learning can benefit students, especially in hospitality and tourism, by fostering hands-on learning, practical skills acquisition, boosting academic performance, fostering creativity, and honing innovative skills (Butt et al., 2021).

Pedagogical Implications

In the current technological era, technology's integration into education, particularly in hospitality and tourism instruction, poses significant challenges for educators (Zamani et al., 2022). Teachers must navigate limitations in online teaching technologies to effectively deliver hands-on classes and apply appropriate pedagogical methods. This requires heightened creativity and diligence to ensure learning effectiveness. Additionally, educators must foster disciplined student engagement with technology for online learning. Beyond technology, attention to the educational environment is crucial to avoid solely exam-oriented knowledge dissemination. Thus, educators play a pivotal role in adapting to technological advancements, maintaining pedagogical integrity, and ensuring comprehensive learning experiences for students in hospitality and tourism education.

Managerial Implications

The study's findings hold significant implications for university policymakers, highlighting the need to prioritise awareness and proficiency among instructors and students in utilising e-learning systems. Organising training programs and ensuring consistent availability of technical resources are recommended to enhance

the effectiveness of online learning (Butt et al., 2021). Moreover, leveraging online education can enable countries like the Philippines, despite limited resources, to provide high-quality education nationwide and make substantial progress in educational attainment.

Limitations and Future Research

The data collected in this study had a cross-sectional design, limiting the ability to observe longitudinal changes in universities' adaptation to online teaching and learning, teachers' adjustments in teaching style and interaction, and potential improvements in students' attitudes towards online learning. Additionally, the study only included student respondents, making it difficult to generalise the findings to other populations. Future research could benefit from incorporating the perspectives of teachers and policymakers for more comprehensive results. Furthermore, as the study focused exclusively on students from the Philippines, gathering data from multiple countries would provide better comparative insights into students' perspectives. It is also worth considering future research that examines teachers' performance under similar conditions, as this study focused primarily on student performance.

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