INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Vol 15, Issue 8, (2025) E-ISSN: 2222-6990

Gen Z Undergraduates' Satisfaction with University Choices: Enhancing Ai-Powered Sustainable Service Quality in Private Higher Education Institutions

*Wong Siew Chin, Hock-Chun Toh, Suet-Lian Tee, Dharshini A/P K. Chandran, Hui-Heng Shim & Jia-Qi Leong

Faculty of Accountancy, Finance and Business, Tunku Abdul Rahman University of Management and Technology, Kuala Lumpur, Malaysia

*Corresponding Author Email: scwong@tarc.edu.my

DOI Link: http://dx.doi.org/10.6007/IJARBSS/v15-i8/25942

Published Date: 19 August 2025

Abstract

The study aims to examine reliability, responsiveness, tangibility, assurance, and empathy (SERQUAL Model) to affect Gen Z undergraduates' satisfaction in local private higher education institutions (PHEIs). The study engaged 150 respondents in data collection process and utilized PLS-SEM (partial least squares structural equation modeling) for analysis. The empirical findings highlight the significant correlation between reliability, responsiveness, and undergraduates' satisfaction with their university choices. These insights provide private higher education institutions (PHEIs) with a deeper understanding of the key factors influencing undergraduate's satisfaction, particularly in the era of artificial intelligence (AI). Recognizing these factors is crucial for PHEI practitioners and policymakers to enhance service quality and ensure long-term sustainability in the industry. By prioritizing continuous improvement and sustainable enhancement of service quality, PHEIs can enhance undergraduates' learning satisfaction and foster a more fulfilling, inclusive educational experience in the post-pandemic era, which accelerated by AI advancements.

Keywords: Responsiveness, Tangible, Reliability, Assurance, Empathy, Undergraduates' Satisfaction, University choices, Higher Education Institutions

Introduction

Organizations from different sectors prioritize the quality of services they offerr due to its crucial role in gaining a competitive edge and attracting and retaining customers (Yusof et al., 2022). Similarly, in the realm of higher education, providing quality services ranks among the top priorities for educational institutions worldwide. The higher education sector plays an increasingly significant role in driving the economies of many nations, including Malaysia. The global pandemic has had a profound impact on all aspects of society, including the higher

education sector. In 2020 and 2021, the COVID-19 crisis led to the widespread closure of PHEIs across the globe, disrupting the education of millions of undergraduates. While efforts have been made by higher education systems to adapt to these unprecedented challenges, the pandemic highlighted the vulnerability of existing systems to unforeseen external disruptions (Bernama, 2023). Despite many PHEIs successfully navigating the difficulties posed by the pandemic, they are now compelled to prepare for a highly volatile and uncertain future in the industry, particularly by integrating artificial intelligence (AI) to enhance service quality and ensure long-term sustainability (Bernama, 2023).

In addition, in the post-COVID-19 era, undergraduate satisfaction with university choices has become increasingly tied to the institutions' ability to equip them with relevant competencies and skills to meet evolving societal needs and job market demands. Consequently, this has influenced the perceived service quality of higher education institutions and serves as a catalyst for the industry's long-term sustainability (Pérez-Sanagustín et al., 2022). Private Higher Education Institutions (PHEIs) face numerous challenges, particularly in technology access, instructional quality, and mental health support, all of which impact service quality. Additionally, the integration of AI plays a crucial role in enhancing information sharing and accessibility, ultimately improving undergraduate satisfaction and fostering a more fulfilling and inclusive learning experience (Raza et al., 2023). In Malaysia, this trend is exemplified by the presence of 384 PHEIs as of 2024, reflecting the global movement towards providing undergraduates with a variety of educational choices and experiences (Ministry of Higher Education Malaysia, 2024). These institutions have made adaptation by introducing customized curricula, flexible learning models, and a practical approach to education, attracting both domestic and international undergraduates looking for unique learning experiences. As a result, competition among PHEIs in Malaysia has intensified, leading to an expansion in the range of programs and institutions available to undergraduats. In response, the Malaysian government has recognized the critical role of private institutions in the educational landscape and has implemented proactive strategies to elevate academic standards and widen access to higher education.

Notably, in the 2025 Budget, the government increased the allocation for the Ministry of Higher Education to RM18 billion, up from RM16.3 billion the previous year. The AI education will be expanded to all research universities with funding increased to RM50mil, up from RM20mil. At the same time, RM10mil was provided for the National AI Office (NAIO) to combine efforts to increase the use of AI through collaboration with academia and industry (New Straits Times, 2024). This financial boost highlights the government’s commitment to strengthening the higher education sector, ensuring it meets the diverse needs of undergraduates while contributing to Malaysia’s socio-economic growth. The evolving labor market demands have provided educators and policymakers with an opportunity to assess existing education systems, identify key areas for future development, and implement beneficial changes. For instance, integrating AI and technology into education and service support can enhance the undergraduates’ learning experience and overall satisfaction. A conducive learning environment, coupled with strong employability prospects, plays a crucial role in shaping undergraduate satisfaction (Bui et al., 2022). In this context, the university's service quality plays a crucial role in shaping Gen Z undergraduates’ overall experience. Key factors influencing student satisfaction include faculty support and the campus environment. The SERVQUAL model, which comprises five dimensions of tangibility, reliability,

responsiveness, assurance, and empathy, which highlights the essential elements of service quality (Parasuraman et al., 1988; Wider et al., 2024).

While numerous studies have explored student satisfaction with online learning during the pandemic (Chaudhary & Dey, 2020; Sohail & hasan, 2020, Ozdemir et al., 2020 & Parker, 2022), there remains a significant gap in research examining the shifting needs and expectations of Gen Z satisfaction in university choices. Given Gen Z's grew up with the internet, social media, and smartphones. They expect seamless digital experiences and online application processes which is different from older generation (i.e., Gen Y). This gap is particularly relevant for Gen Z undergraduates who experienced online learning during their secondary or high school years, as their prior exposure to virtual education may shape their expectations, preferences, and overall satisfaction when transitioning to tertiary education in higher education institutions. These cohort of undergraduates may have developed distinct learning habits, such as greater reliance on digital resources, self-paced learning, and virtual collaboration, which could influence their perceptions. As a result, their expectations for face to face (F2F) learning in higher education institutions might include greater technological integration, flexible learning approaches, and enhanced faculty support systems to bridge the gap between online and in-person experiences (Liste et al., 2025; Wong et al., 2023; Wong et al., 2024; Yusof et al., 2022). While AI is increasingly integrated into higher education service quality dimensions through tools like chatbots, automated grading, and personalized learning, research on Gen Z undergraduates' satisfaction in private higher education institutions (PHEIs) remains limited, particularly within the local current context. As teaching and learning dynamics have evolved, with the increased reliance on digital platforms, it is essential to explore how AI-driven tools influence Gen Z undergraduates' satisfaction towards PHEIs service quality in a more stable, post-pandemic environment.

Understanding these evolving expectations is crucial for universities to refine their service quality, ensuring a seamless and fulfilling transition for them and enhance their satisfaction (Yusof et al., 2022). The PHEIs that successfully enhance student satisfaction often benefit from positive word-of-mouth, strengthening their competitive advantage. Furthermore, the undergraduates' satisfaction is a vital determinant of a university's overall success and serves as a critical metric for improving service quality. Hence, the present study aims to reassess the relationship between sustainable service quality and the Gen Z undergraduates' satisfaction dueing post pandemic era. The research seeks to provide valuable insights for institutions striving to meet the evolving needs of the undergraduates (Chaudhary & Dey, 2020; Sohail & Hasan, 2020, Wider et al., 2024).

The paper is organized as follows: we begin by reviewing the definition of undergraduates' satsifaction, followed by presenting the empirical studies on the relationship between independent variables and undergraduates' satisfaction. Next, we outline the research methodology, followed by the presentation of results, discussion, and implications. Finally, we conclude by highlighting the study's contributions to research and management practices, along with its limitations and suggestions for future research.

Literature Review

Underpinning Theory: SERVQUAL Model

The SERVQUAL framework, introduced by Parasuraman et al. (1988), offers a comprehensive model for evaluating and measuring service quality across various industries, including the higher education sector. Comprising five key dimensions, SERVQUAL serves as a robust analytical tool to assess the alignment between customers' expectations and their perceived service experiences. The dimensions include reliability, tangibles, responsiveness, assurance, and empathy. Ostrom et al. (2011) and Schlesinger et al (2023) explained that undergraduates are the core customers of higher education industry. The undergraduate as fee payers, their reasonably demand must be heard and acted upon by institution. Using the SERVQUAL model, PHEis can create comprehensive assessment tools to measure undergraduates' satisfaction across various dimensions, including tangibles, reliability, responsiveness, assurance, and empathy. These tools identify the key areas that require improvement and enhance the overall undergraduates' experience. Since undergraduates' needs and expectations are constantly evolving, it is crucial for institutions to continuously monitor satisfaction levels and adapt their practices accordingly. In the AI-powered era, the SERVQUAL model can be integrated with advanced technology, providing fruitful insights and ensuring that institutions remain responsive to changing Gen Z undergraduates demands (Yusof et al., 2022; Wider et al., 2024)

Undergraduates' Satisfaction

Kotler and Clarke (1987) define satisfaction as a state of feeling experienced by an individual who received performance that meets his or her expectations. Satisfaction is determined by the level of expectation and perceived performance. Satisfaction is a function of relative level of expectations and perceived performance. In this study, undergraduate satisfaction with service quality refers to the degree to which undergraduates feel that the services provided by their educational institution meet or exceed their expectations and needs. In the context of PHEIs, undergraduates' learning satisfaction with service quality encompasses a wide range of interactions and experiences that undergraduates have with the institution, faculty, staff, facilities, and support services (Agus & Supratmi, 2020; Al-Hadded et al., 2018; Bui et al., 2022). Gen Z Undergraduates with high satisfaction are more likely to recommend the study programmes to other and to enhance the competitive edge of the universities.

Similarly, Yusoff et al. (2022) identified 12 factors of student satisfaction in a local context namely, a comfortable environment; appropriate student assessments and learning experiences; classroom environment; lecture and tutorial facilities; textbook and tuition fees; student support facilities; business procedures; relationship with teaching staff; knowledgeable and responsive faculty; staff helpfulness; feedback; and class sizes (Yusoff et al., 2022). Besides, Thien and Jamil's (2020) study explored the impact of experience quality variables on the overall satisfaction of 315 undergraduates at a research university in Malaysia. Their research highlighted how various factors, such as teaching quality, learning resources, and support services, influence student satisfaction. The current cohort of Gen Z undergraduates has undergone a significant shift towards online learning, particularly during the pandemic, which may have altered their expectations and satisfaction with traditional F2F learning experiences. Gen Z undergraduates, in particular, have a more comprehensive set of expectations, which now include digital convenience, mental health support, career readiness, and inclusivity. Understanding these evolving expectations and assessing the

service quality of tertiary learning becomes pivotal in enhancing overall Gen Z undergraduates' satisfaction levels (Schlesinger et al., 2023)

Reliability

In the realm of PHEIs, the concept of "reliability" emerges as a crucial factor shaping undergraduate satisfaction. Reliability entails an institution's consistent and precise provision of services, creating a strong sense of trust among undergraduates. This tenet, highlighted by the SERVQUAL theory model (Parasuraman et al., 1988), holds a paramount position. Within this framework, reliability pertains to the service outcome or "what" dimension, reflecting the institution's commitment to meeting its promises. It focusses on the consistency, dependability, and trustworthiness of the institution in delivering its educational services and fulfilling its commitments to undergraduates. This dedication to reliability fosters an environment characterised by dependability and trust, influencing overall undergraduate satisfaction (Sohail & Hasan, 2021; Wong et al., 2023).

Noteworthy to highlight that undergraduates universally prioritise institutions' capacity to offersr reliable services and program, significantly impacting their overall satisfaction levels. Reliability serves as the building block of service provision, which encompassing a commitment to fulfilling promises and upholding a consistent educational environment. Within PHEIs, reliability plays a pivotal role in shaping undergraduates' satisfaction by fostering trust and dependability (Bergdahl et al., 2020; Kobiruzzaman, 2023). Besides, undergradautes' satisfaction is intricately linked to the perceived value derived from reliable service quality and relevant course program in matching industry's needs (Osman & Saputra, 2019). Many PHEIS focus on equipping students with industry-relevant skills, including internships, real-world projects, and hands-on experience, opportunities for networking, mentorship, and partnerships with companies for career placement (Wong et al., 2024). According to the Graduate Tracer Study by the Ministry of Higher Education (MOHE), nearly one-third of recent graduates find themselves employed in roles unrelated to their qualifications or fields of study. This mismatch between skills and job requirements, along with youth unemployment, raises concerns about long-term career development and the perceived value of education (Hamid, 2024). Hence, the reliable course content in bridging the skills gap between academia and industry is crucial. Therefore, the hypothesis is derived as:

H1: Reliability has positive influence on Gen Z undergraduates' satisfaction in the PHEIs

Tangible

Tangible factor means physical facilities, equipment and appearance of personnel. The physical appearance of campus facilities, classrooms, parking and learning management system platforms contribute to undergraduates' overall satisfaction. Modern and well-maintained facilities can positively impact their perception of the institution. It is one of the main factors from the SERVQUAL theory model (Panda, 2014). Le et al. (2020) and Bui et al (2022) revealed the positive relationship between service quality and undergraduates' happiness. Thus, the tangible as one of the service quality parameters has a significant impact on undergraduate satisfaction. Yusof et al (2022) found that undergraduates were contented with factors related to public space, comfortable learning atmosphere, laboratory, teaching facilities and accessibility to university. The quality and adequacy of facilities directly impact student satisfaction.

Notably, with the increasing integration of Artificial Intelligence (AI) in higher education, PHEIs have leveraged AI-driven innovations to improve their tangible service quality such as AI-powered navigation apps to help students locate classrooms, libraries, and service centers; AI-powered search. Generally, Gen Z undergraduates perceive AI as an enhancer of their personalized learning experiences, time-saving and improved accessibility (Billy & Anush, 2023; Wong et al., 2024). Notewothy to highlight that a well-maintained and modern facilities contribute to a positive learning environment and overall satisfaction among undergraduates. Moreover, tangible aspects of service quality contribute to undergraduates' perception of the value they receive from their educational investment. The institutions that provide excellent tangible services are often perceived as offersring a higher value education, leading to increased satisfaction among undergraduates (Osman & Saputra, 2019). Thus, the following hypothesis is developed as:
H2: Tangible has positive influence on Gen Z undergraduates' satisfaction in the PHEIs

Responsiveness
One of the SERVQUAL framework's components, "responsiveness," focuses on how undergraduates feel about how helpful and attentive the staff is at PHEIs. Sohail and Hasan's research (2020) demonstrates that the academica and faculty staffs' capacity to alert undergraduates when services are available, to deliver services as promptly as feasible, and to generally be helpful to undergraduates are all related to the responsiveness of university service quality. It also involves being proactive in understanding and meeting undergraduates' expectations and implementing changes including real-time support, personalized interactions, and proactive service delivery. For instance, 24/7 automated chat support for academic queries, administrative assistance, and technical issues; AI-driven automated responses for frequently asked questions (FAQs); instant notifications on course availability, prerequisites, and schedule changes; and smart ticketing systems that prioritize urgent student requests (Mambile & Mwogosi, 2024). When undergraduates see their feedback being acted upon, it fosters a sense of ownership and satisfaction with the institution (Prakash, 2020).

Ozdemir et al. (2020) explained the importance of managing undergraduates' requests and promptly addressing issues they encounter. The efficient problem resolution demonstrates the institution's commitment to Gen Z undergraduates' well-being and satisfaction. This includes actively engaging them in committees or task forces, seeking their input on institutional policies, and involving them in shaping new initiatives. PHEI can create a more engaging and efficient learning environment. Ultimately, this approach not only improves academic experiences but also cultivates a supportive, inclusive atmosphere that significantly enhances overall Gen Z undergraduates' satisfaction and well-being (Bui et al., 2022). Therefore, the following hypothesis is derived as:
H3: Responsiveness has positive influence on Gen Z undergraduates' satisfaction in the PHEIs

Assurance
Assurance revolves around the undergraduate's perception of the credibility, courtesy, and ability to instil confidence within the education institution's staff in SERVQUAL. A study by Sohail and Hasan (2020), Assurance in the university service quality means the employees' knowledge, politeness and capability to bear trust and assurance. The incorporation of Artificial Intelligence (AI) significantly enhances this dimension by improving accuracy,

transparency, security, and reliability in university operations (Osman & Saputra, 2018, Le et al., 2023). The accuracy of information provided by staffs, the professionalism, politeness, and expertise of faculty staffs, the AI-driven encryption and authentication measures to protect student data as well as the clarity and effectiveness of course and program procedures would have impacted the assurance dimension of service quality in PHEIs (Mambile & Mwogosi, 2024).

The level of assurance will affect the trust, anxiety and uncertainty surrounding the undergraduate's academic experience. The undergraduates who perceive faculty members to be competent and credible will find it easier to seek guidance and support, it leads to lower confusion and higher service quality. Therefore, the trust and credibility will lead to a positive impact on their overall satisfaction with the institution's offersrings (Bui et al., 2022). Similarly, the assurance extends to the availability and effectiveness of support services and resources provided by the institution. This includes academic advising, counseling, career services, library resources, and extracurricular opportunities. Institutions that offer comprehensive support services demonstrate their commitment to student well-being and academic success, enhancing undergraduates' satisfaction with their overall educational experience (Yusof et al., 2022). Therefore, the following hypothesis is derived as:
H4: Assurance has positive influence on Gen Z undergraduates’ satisfaction in the PHEIs

Empathy
The empathy dimension is described as a caring individual provided by the firm to its clients. (Parasuraman et al., 1988). It increases the desire to help individuals by exhibiting compassion and empathy that are in sync with their emotions, feelings, or thoughts (Mansori et al., 2014). When educators and staff demonstrate empathy, it validates undergraduates' experiences and emotions, reducing feelings of isolation, stress, and anxiety. This supportive environment is conducive to undergraduates' overall happiness and satisfaction with their college experience (Chaudhary & Dey, 2020). When undergraduates feel understood and supported by faculty and staff who demonstrate empathy, it fosters a sense of trust and connection. This bond creates an environment where undergraduates feel comfortable seeking help, guidance, and support when needed, leading to a more positive overall experience. The emotional dynamics that unfold during these encounters between Gen Z undergraduates and staffs directly shape the level of satisfaction experienced by the undergraduates (Tan et al., 2019; Mambile & Mwogosi, 2024).

In addition, AI has enabled PHEIs to respond more effectively to individual students' needs, promoting their overall well-being, emotional support, and personalized guidance. AI-driven systems are particularly beneficial in providing students with tailored responses to administrative queries such as course registration, fee payments, and campus facilities. These tools can also assist in scheduling appointments with academic advisors and professors, ensuring that students receive timely, relevant, and personalized assistance. By automating routine tasks and offersring individualized support, AI helps create a more efficient, responsive environment that prioritizes Gen Z undergradautes' academic and emotional needs, enhancing their overall educational experience. Overall, empathy plays a pivotal role in influencing undergraduates' satisfaction in PHEIs by fostering a caring and inclusive environment that enhances the undergraduates’ satisfaction. It creates a positive learning environment where undergraduates feel valued, heard, and supported, leading to higher

levels of engagement and academic achievement (Tan et al., 2020). Thus, the following hypothesis is derived as:
H5: Empathy has positive influence on Gen Z undergraduates' satisfaction in the PHEIs

Methodology

Population and Sample

The research focused on undergraduates currently enrolled in local PHEIs. This particular cohort was chosen due to their unique experience of transitioning from online to face-to-face learning amidst the pandemic. Unlike previous batches, they faced significant portions of their pre-university education in an online format. Now back on campus, their expectations and needs regarding PHEI service quality may differ from those of previous respondent groups. The convenience and snowball sampling approach were employed in data collection process. Participants were initially reached through various social media platforms such as WhatsApp, Facebook, WeChat, and Instagram. They were then encouraged to share the questionnaire with others whom they deemed suitable for the study in order to facilitate a diverse sample pool.

The sample size was determined using the G*Power 3.1.9.7 program. Specifically, an F-test analysis was conducted using linear multiple regression with a fixed model and R^2 deviation from zero as the criterion. The power analysis was set to A-priori: Compute required sample size – given α, power, and effect size. This calculation assumed 80% power, a medium effect size, and a significance level of $p = 0.05$, which are commonly recommended settings in social and business science research (Hair et al., 2022). Based on these parameters, the minimum required sample size was 94 participants. Ultimately, data were collected from 150 respondents, exceeding the required sample size and ensuring that the findings of this study can be generalized within the current research context (60% response rate). Prior to administering the questionnaire, participants were presented with an informed consent form stressing the voluntary and confidential nature of their involvement. This ensured that individual responses would be kept private and undisclosed.

In Table 1, out of the 150 responses collected, the gender distribution showed a relatively balanced mix, with 44.7% of the respondents being male and 55.3% female, reflecting a diverse group of undergraduates. The academic backgrounds of these students varied, with the largest proportion, 53.3%, majoring in business. Other fields included 19.3% in multimedia, 13.3% in engineering and information technology, 4.7% in social sciences, and 9.3% in other disciplines. In terms of the program undertaken, 42.7% of the students were enrolled in diploma programs, while 57.3% were pursuing bachelor's degrees, with a slight predominance of students at the undergraduate level. Regarding their academic year, 35.3% were in Year 1, 24.7% in Year 2, 36.7% in Year 3, and 3.3% in Year 4, with a different representation of students at different stages of their academic journey. The motivation for attending university was largely driven by personal choice, with 52.7% indicating self-willingness as their primary reason. Influence from friends (17.3%) and parents (24%) also played significant roles in their decision-making process, while other factors contributed to 6% of responses. Additionally, 56% of students pursued their studies locally in Kuala Lumpur and Selangor, while 44% were from outstation areas in other states, demonstrating a mix of local and non-local students in the sample group.

Instrumentations

In the current research, the measurement items were adopted and adapted existing literatures. Each measurement employed a 7-point Likert Scale, providing a nuanced spectrum of responses. Specifically, a rating of 1 indicated "Strongly Disagree," 2 denoted "Disagree," 3 represented "Slightly Disagree," 4 signified "Neutral," 5 reflected "Slightly Agree," 6 indicated "Agree," and 7 conveyed "Strongly Agree." Thus, to measure Undergraduates' satisfaction and Empathy, five items each were drawn from the work of Abu Hasan & Illias (2008). These items were selected for their applicability to the study's objectives. Additionally, the dimensions of Responsiveness, Tangibles, Assurances, and Reliability were evaluated using five items each, sourced from the research of Gregory (2019). These measurement items were chosen based on their relevance to the service quality aspects under investigation.

Control Variables

The research integrated various controlled factors such as gender, program study, and marital status. These control variables were included to accommodate for the extra variability in the dependent variable.

Table 1
Respondents' Profile

Demographics		Frequency	Percentage (%)
Gender	Male	67	44.7
	Female	83	55.3
Major	Business	80	53.3
	Multimedia Design	29	19.3
	Engineering & IT	20	13.3
	Social Science	7	4.7
	Others	14	9.3
Program	Diploma	64	42.7
	Bachelor's Degree	86	57.3
Year of Study	Year 1	53	35.3
	Year 2	37	24.7
	Year 3	55	36.7
	Year 4	5	3.3
Recommendation to pursue tertiary education	Parents	36	24.0
	Friends	26	17.3
	Myself	79	52.7
	Others	9	6.0
Location	Local	84	56
	Outstation	66	44

Common Method Variance (CMV)

The study employed correlation matrix techniques to examine common method variance (CMV). As noted by Bagozzi et al. (1991), CMV can be identified by analyzing the correlations between latent variables, where correlations above 0.9 suggest the presence of common method bias. Using the PLS algorithm, the research assessed these correlations among the latent variables. As presented in Table 2, all correlations were below 0.9, indicating that CMV was not a concern in this study (Tehseen et al., 2017).

Table 2
Correlation among Latent Variables

	Assurance	Empathy	Reliability	Responsiveness	Satisfaction	Tangible
Assurance	1.000	0.699	0.715	0.588	0.648	0.685
Empathy	0.699	1.000	0.691	0.522	0.612	0.688
Reliability	0.715	0.691	1.000	0.719	0.795	0.638
Responsiveness	0.588	0.522	0.719	1.000	0.673	0.488
Satisfaction	0.648	0.612	0.795	0.673	1.000	0.569
Tangible	0.685	0.688	0.638	0.488	0.569	1.000

Results and Discussions

The data analysis was conducted using Smart PLS version 4.0 software and Partial Least Square Structural Equation Modelling (PLS-SEM). As outlined by Hair et al. (2022), PLS-SEM is particularly suitable when prediction takes precedence over parameter estimation, especially in newer research contexts. In this study, the primary aim is to forecast the relationships between the independent variables (reliability, responsiveness, tangibles, assurance, and empathy) and the dependent variable (undergraduates' satisfaction). Specifically, the study was initially based on the SERVQUAL model.

Convergent Validity

The initial phase of the PLS-SEM approach involves assessing the measurement model. This includes evaluating indicator loading, construct reliability, convergent validity, and discriminant validity. The Composite reliability value (rho_a) for internal consistency analysis of the constructs ranged from 0.752 to 0.930, indicating that the constructs were effectively measured by the items. Convergent validity was assessed through the Average Variance Extracted (AVE) values, which ranged from 0.620 to 0.821 in this study, indicating that each construct explains over 50% of the variance among its components (Hair et al., 2022). The results of the measurement model are presented in Table 3.

Table 3
Convergent Validity

Construct	Items	Loadings	CR (Rho_a)	AVE
Assurance	AS1	0.842	0.889	0.689
	AS2	0.799		
	AS3	0.858		
	AS4	0.839		
	AS5	0.810		
Empathy	EM1	0.895	0.875	0.798
	EM2	0.889		
	EM3	0.895		
Reliability	RE1	0.867	0.867	0.646
	RE2	0.813		
	RE3	0.756		
	RE4	0.786		
	RE5	0.791		
Responsiveness	RS1	0.895	0.930	0.821
	RS2	0.903		

	RS3	0.925		
	RS4	0.900		
Satisfaction	SA1	0.845	0.908	0.725
	SA2	0.805		
	SA3	0.879		
	SA4	0.858		
	SA5	0.868		
Tangibles	TA1	0.833	0.752	0.620
	TA2	0.588		
	TA3	0.905		

Discriminant Validity

Discriminant validity is assessed using the Heterotrait-Monotrait ratio of correlation (HTMT) value (Hair et al., 2022). For a construct to be considered conceptually distinct, the HTMT value should be below 0.90 (Gold et al., 2001). Thus, through the evaluation of HTMT as depicted in Table 4, this study confirms the presence of discriminant validity.

Lateral Collinearity Assessment

As suggested by Diamantopoulos and Sigouw (2006) and Hair et al. (2022), the Variance Inflation Factor (VIF) values should not exceed 3.3 and 5.0. The assessment presented in Tables 5 reveals that the internal VIF values for all constructs are below these thresholds, indicating the absence of common method bias in the structural model (Hair et al., 2022).

Table 4
Discriminant Validity

	Assurance	Empathy	Reliability	Responsiveness	Satisfaction	Tangible
Assurance						
Empathy	0.792 CI.90(0.715,0.871)					
Reliability	0.813 CI.90(0.704,0.900)	0.795 CI.90(0.658,0.889)				
Responsiveness	0.643 CI.90(0.497,0.755)	0.580 CI.90(0.428,0.704)	0.813 CI.90(0.719,0.875)			
Satisfaction	0.716 CI.90(0.573,0.834)	0.685 CI.90(0.538,0.809)	0.895 CI.90(0.829,0.946)	0.730 CI.90(0.620,0.816)		
Tangible	0.853 CI.90(0.737,0.964)	0.845 CI.90(0.731,0.759)	0.822 CI.90(0.671,0.953	0.656 CI.90(0.471,0.809)	0.699 CI.90(0.492,0.854)	

Table 5
Lateral Collinearity Assessment

	Satisfaction
Assurance	2.742
Empathy	2.567
Reliability	3.269
Responsiveness	2.120
Tangible	2.308

Structural Model Analysis

The following stages include employing Partial Least Squares Structural Equation Modeling (PLS-SEM) to examine structural models for assessing the proposed hypotheses (depicted in Figure 1). We assessed the path coefficient, indicating the degree of relationship between an exogenous and an endogenous variable within the model, along with the associated t-value denoting significance levels. Furthermore, the proportion of variance explained by an endogenous variable is determined through the coefficient of determination (R^2).

Figure 1 illustrates the structural path, while Table 6 summarizes the outcomes of hypothesis testing. The findings reveal that both proposed hypotheses, specifically H1 and H3, were supported. H1 exhibited the most notable path coefficient of 0.528, indicating a moderate impact on the model, with an effect size of 0.254. Following closely, H3 displayed a path coefficient of 0.191, reflecting small effect sizes of 0.051. However, hypotheses H2, H4, and H5 were not supported in the current study, evidenced by t-values of 0.431, 0.988, and 0.633, respectively. Additionally, H2 was deemed least significant, characterized by a path coefficient of 0.036. The explained variance of the endogenous variables indicates that all recorded values account for at least 66.4% variance (R^2). The R^2 values of 0.664 is above the 0.26 value as suggested by Cohen (1988) which indicates a substantial model.

The findings indicated that both the reliability and responsiveness dimensions in the SERVQUAL theory are positively related with undergraduates' satisfaction. The findings were consistent with previous studies of Kobiruzzaman (2023), Sohail & Hasan (2021). PHEIs prioritise the institution's capacity to offer reliable services as promised. In a shift driven by Gen Z undergraduates' expectations, PHEIs are focusing the improvement of service delivery processes, including streamlining class scheduling, ensuring timely assignment feedback, optimising resource availability, and minimising disruptions, institutions can create an environment conducive to academic success and foster greater student engagement. This emphasis on dependable service delivery ensures undergraduates receive the consistent support, ultimately paving the way for a more fulfilling educational experience (Parker, 2022, Wong et al., 2023). Notably, responsiveness fosters a sense of being heard and valued, ultimately leading to undergraduate satisfaction. The AI driven tools and programs have set even higher expectations on user-friendly, tech-enabled services, such as online portals or mobile apps for submitting questions and accessing resources, directly addressing responsiveness within SERVQUAL theory. Particularly, the fast access to course and career counselling enables Gen Z undergraduates to address their concerns and make informed decisions in a timely manner, significantly reducing unnecessary waiting times (Wider et al., 2024).

Nonetheless, the present study explained that there are no significant relationships between Tangible, Assurance and Empathy and undergraduates' satisfaction on university choices. This result aligns with prior researches from Calvo-Porral et al. (2013) and (Leonnard, 2018) which also failed to establish a direct positive relationship between assurance and empathy and service quality on student satisfaction. Specifically, the Gen Z undergraduates' satisfaction is shaped by institutions' quality management and monitoring roles, the academic quality, extracurricular activities, and career prospects. The external influences, such as societal trends, economic conditions, and cultural norms, can play a significant role in shaping undergraduates' satisfaction with their chosen institutions. These factors may sometimes overshadow the direct impact of tangible elements, such as the and campus facilities, as well as the assurance (consistency) and empathy (emotional support) provided by the institution. For instance, societal pressures regarding career success or the economic climate influencing employment opportunities can influence Gen Z undergraduates' satisfaction level of the institutional service quality. Cultural norms around higher education may also affect their expectations, thus influencing their overall satisfaction with the institution's offersrings and support systems (Robbin & Judge, 2022).

Table 6
Summary of Structural Model

Hypothesis	Std Beta	Std Error	t-value	Decision	R^2	f^2
H1: Reliability → Satisfaction	28	0.098	5.387**	Supported	0.664	0.254
H2: Tangible → Satisfaction	0.036	0.083	0.431	Not Supported		0.002
H3: Responsiveness → Satisfaction	0.191	0.092	2.086**	Supported		0.051
H4: Assurance → Satisfaction	0.094	0.095	0.988	Not Supported		0.010
H5: Empathy → Satisfaction	0.057	0.090	0.633	Not Supported		0.004

Note: **p<0.01(one-tailed)

This study also employed PLS predict, also known as out-of-sample prediction (Hair et al., 2022), to evaluate the predictive performance of the research model. As depicted in Table 7, all indicators show Q2 values greater than zero. Additionally, most of the root mean squared error values (RMSE) for the PLS model are smaller compared to those of the linear model (LM), indicating a strong level of predictive capability (Hair et al., 2022). This not only improves the representation and predictability of the findings from the sample to the target population but also suggests that the utilized research model effectively.

Table 7
PLS Predict

	PLS Predict		LM Result	
	Q^2predict	RMSE	RMSE	$RMSE_{PLS}$- $RMSE_{LM}$
SA1	0.482	0.904	0.916	-0.012
SA2	0.370	1.286	1.391	-0.105
SA3	0.508	1.049	1.173	-0.124
SA4	0.380	1.157	1.095	0.062
SA5	0.466	1.009	1.039	-0.031

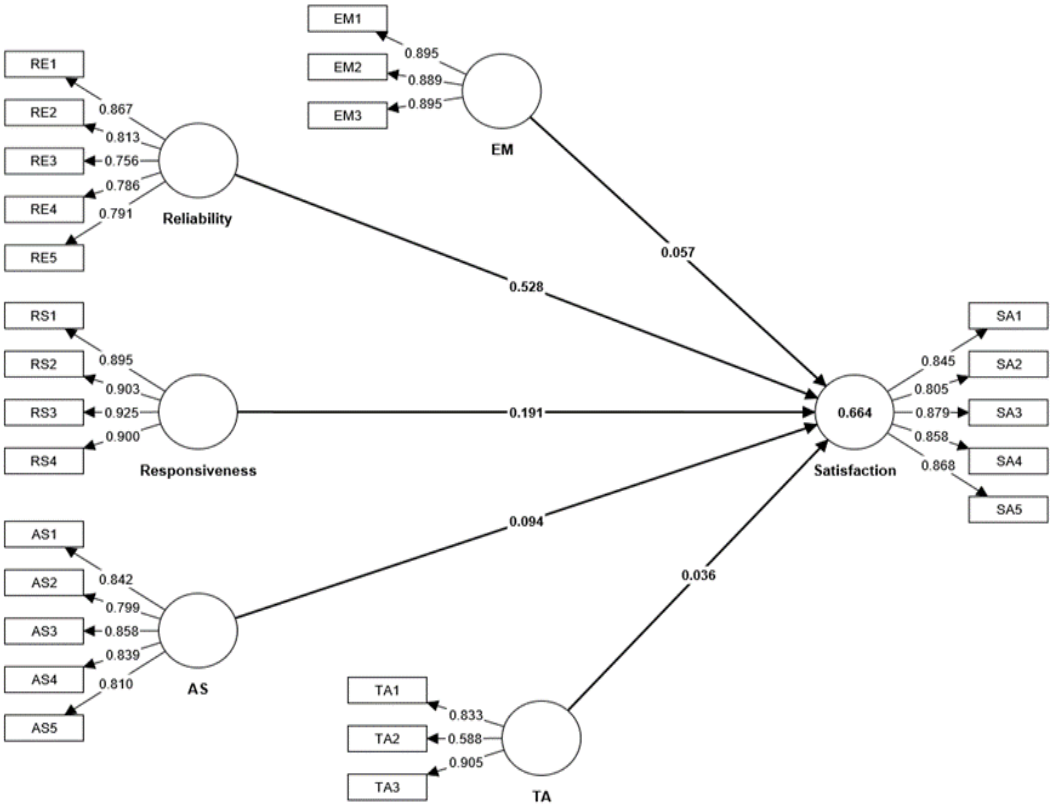

Figure 1: Structural Model of Undergraduates' Satisfaction

The Importance and Performance Matrix (IPMA) enhances standard PLS-SEM results by evaluating the average values of latent variable scores. It helps identify which constructs are crucial for predicting target outcomes but may have low performance, highlighting areas for improvement. IPMA uses a two-dimensional graph where importance is on the horizontal axis and performance on the vertical axis (Hair et al., 2022). The results (Table 8 and Figure 2) show that while all constructs have an average performance score of 65.563, *Reliability* has the highest total effect of 0.528, making it more important than Responsiveness (0.191) and Assurance (0.094). IPMA is a valuable tool that guides decision-making by identifying areas that require performance improvement, especially when aiming to enhance Gen Z undergraduates' satisfaction. In the context of local PHEIs, continuous improvement in reliability should be prioritized. Although reliability demonstrates strong performance, its importance rating remains relatively moderate (68.263). By focusing on improving areas like reliability, PHEIs can ensure that Gen Z undergraduates' core expectations are consistently met, leading to better overall satisfaction. This targeted approach allows institutions to

allocate resources efficiently and improve key aspects of theGen Z undergraduates' experience, enhancing their sustainable service quality in the industry.

Table 8
IPMA Result

Construct	Total Effect (Importance)	Performance
Assurance	0.094	67.292
Empathy	0.057	61.216
Reliability	0.528	68.263
Responsiveness	0.191	70.154
Tangible	0.036	60.888

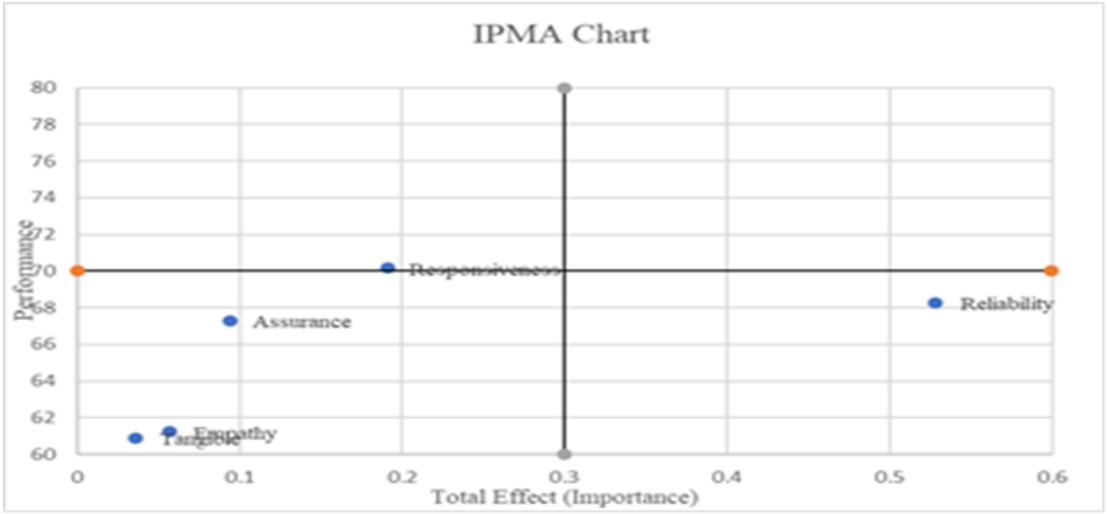

Figure 2 IPMA of Undergraduate's Learning Satisfaction

Discussion & Implications

The Reliability dimension of SERVQUAL theory is the most important factor to explain the Gen Z undergraduates' satisfaction on PHEIs in current study. It is increasingly essential for PHEIs to equip graduates not only with technical expertise but also with critical soft skills such as communication, problem-solving, adaptability, and emotional intelligence. These skills are vital for success in today's rapidly evolving and competitive workplace. Developing soft skills has become just as crucial as academic knowledge, as these skills enable individuals to effectively communicate, collaborate, and adapt to changing environments, ultimately enhancing their success in both professional and career development (Robbin & Judge, 2022). PHEIs offers opportunities like internships, study abroad programs, extracurricular activities, and active learning experiences can significantly enhance the perceived value and reliability of higher education. These programs provide opportunities for Gen Z undergraduates to apply their academic knowledge in real-world vocational settings, helping them bridge the gap between their studies and the workplace (Parker, 2022, Wong et al., 2024).

Moreover, it is important to emphasize that the program's reliability in aligning with undergraduates' career development. The local workforce continues to face substantial skill gaps in meeting business demands and adapting to rapid technological advancements. As Malaysia continues to evolve as a hub for business and innovation, the local workforce faces substantial skill gaps in meeting business demands and adapting to rapid technological

advancements. These disparities between the skills possessed by graduates and the skills required by industries have created a significant barrier to economic growth. The national talent shortage is likely to be one of Malaysia's most pressing challenges recently. Many industries are struggling with recruitment and retention, with approximately 80% of employers citing talent and skills shortages as their primary recruitment issue (Isamudin, 2024). One of the most effective ways PHEIs can align academic programs with workforce needs is by integrating industry-specific work placements into the academic curriculum. This approach ensures that students receive direct exposure to the industries they aim to join after graduation. To achieve this, PHEIs can work closely with industry stakeholders to gather detailed information about current job market demands. This proactive strategy not only helps bridge the gap between education and employment but also increases the chances of students securing employment upon graduation, ultimately contributing to the reduction of talent shortages within critical sectors (Yong & Ling, 2023).

Furthermore, PHEIs can incorporate practical tasks, case studies, and industry-based assignments into relevant courses. These hands-on experiences provide undergraduates with the chance to hone problem-solving, critical thinking, and teamwork skills—qualities that are highly valued by employers. By designing curriculum components that reflect real-world scenarios and challenges, PHEIs can enhance graduates' overall employability. Specifically, the AI-powered platforms can assess undergradautes' skillsets through online assessments, academic performance, and portfolios. The tools analyze hard and soft skills, identifying strengths and areas of improvement. AI then maps these skills to current industry requirements, using data such as job descriptions, qualifications, and trends in various sectors. Thus, PHEIs can play a crucial role in ensuring that Malaysia's future workforce is adequately prepared to meet the demands of the ever-changing global economy (Wong et al., 2023). As the workforce evolves, the role of education in aligning academic training with industry needs becomes increasingly significant, providing a reliable pipeline of talent that fuels Malaysia's ongoing development (Wong et al., 2024).

The current findings also indicated that the responsiveness dimension of the SERVQUAL model is significantly associated with Gen Z undergraduates' satisfaction. Some PHEIs are responding to these needs by offering extended counselling hours to accommodate busy student schedules. Additionally, the implementation of online booking systems streamlines appointment scheduling, and the use of chatbots for initial inquiries provides instant responses, ensuring students receive the guidance they require without delays (Billy & Anush, 2023; Sohail & Hasan, 2020). Finally, an "always on" approach of administrative support exemplifies true responsiveness by offersring continuous availability of support, whenever undergraduates need it. This could include tailored experiences, 24/7 support, and a more proactive approach to addressing undergraduates' concerns. Additionally, multilingual support enhances inclusivity for international students, while extended service hours and diverse communication channels (phone, email, live chat) improve accessibility, or even offering tiered support options depending on the urgency of the issue (Kobiruzzaman, 2023; Mambile & Mwogosi, 2024).

Limitations and Future Studies

This study provides theoretical and practical enlightenment for future research. However, a few limitations were found in this study. The first limitation of the study is that it was

restricted to the local context, which prevented comparisons of responses across specific nations and cultural differences. Second, the sample consisted of undergraduates, which reduced the explanatory power of the results and constrained their generalizability to postgraduates in public higher education instituions. Given the constraints inherent in this study, future researchers are encouraged to undertake investigations in diverse contexts, including the incorporation of multiple cultures. Such comparative analyses offer a rich insight into the effects of geographical and cultural differences on Gen Z undergraduates' satisfaction towards university choices. Additionally, the current research framework could have expanded and integrated individual-related factors such as personality, value systems, and motivation (Robbins & Judges, 2020), potentially leading to novel and compelling findings explaining Gen Z undergraduates' satisfaction in the post-pandemic era. Furthermore, it is recommended that future studies adopt qualitative methodologies, such as conducting interviews with focus groups comprising both PHEIs management teams and undergraduates, to obtain a deeper understanding of additional issues and concerns.

Conclusion

The findings of this study confirm that reliability and responsiveness, two key dimensions of the SERVQUAL model, have significant positive relationships with undergraduates' satisfaction in the context of Malaysian private higher education institutions (PHEIs). These results explain the importance of timely support and dependable service delivery in shaping students' educational experiences and their satisfaction. Future research should adopt qualitative methods, explore additional relevant variables, and engage more diverse samples to enhance the robustness and applicability of findings across broader educational settings.

This study advances the SERVQUAL literature by introducing a predictive model for sustainable service quality, specifically tailored to the expectations of Gen Z undergraduates in private higher education institutions (PHEIs). By examining the direct effects of the five SERVQUAL dimensions of reliability, responsiveness, tangibility, assurance, and empathy, the study offers meaningful insights into key factors shaping student satisfaction. These findings are especially relevant in the post-pandemic era, where rapid digital transformation and the integration of AI technologies have redefined service delivery and student experiences. Understanding these dynamics enables PHEIs to enhance service quality and remain competitive in an evolving sustainable educational landscape.

Conflicts of Interest and Informed Consent Declarations

All authors declare that they have no conflicts of interest.

Acknowledgement

This research is funded by Tunku Abdul Rahman University of Management and Technology, Kuala Lumpur, Malaysia

References

Abu Hasan, H. F., and Illias, A. (2008), 'Service quality and student satisfaction: A case study at private higher education institutions', *International Business Research,* vol. 1, no. 3, pp. 163-175.

Agus, R., and Supratmi, P. (2020), 'Learning motivation and undergraduates' achievement in learning English', *Journal of English Language Teaching and Literature*, vol. 1, no. 2, pp. 56-64.

Al-Haddad, S., Taleb, R. A. and Badran, S. (2018), 'The impact of the education services quality on undergraduates' satisfaction: An empirical study at the business schools in Jordan', *International Journal of Business Excellence*, vol. 14, no. 3, pp. 393-404.

Bagozzi, R. P., Yi, Y., & Phillips, L. W. (1991), 'Assessing construct validity in organizational research. Administrative Science Quarterly' vol.36, pp. 421–458. https://doi.org/10.2307/2393203

Benama (2023), November 16) 'GHEF a platform to discuss post-pandemic challenges within higher education sector', *Business Times, New Straits Times*. Available at: https://www.nst.com.my/news/nation/2023/11/978960/ghef-platform-discuss-post-pandemic-challenges-within-higher-education (Accessed: 15 December 2024).

Bergdahl, N., Nouri, J., Fors, U. and Knutsson, O. (2020), 'Engagement, disengagement and performance when learning with technologies in upper secondary school', *Computers and Education*, vol. 149, pp. 103781.

Billy, I., & Anush, H. (2023), 'A study of the perception of students and instructors on the usage of Artificial Intelligence in education', *International Journal of Higher Education Management*, vol.9 no. 2, https//doi: 10.24052/IJHEM/V09N02/ART-6.

Bui, H. T. T., Bui, Q. T. T., Nguyen, T. T. P., Cao, Q. H., Phung, T. V., and Nguyen, H. T. (2022), 'Assessing the relationship between service quality, satisfaction and loyalty: the Vietnamese higher education experience', *Quality Assurance in Education*, vol. 31, no. 2, pp. 197-214. https://doi.org/10.1108/QAE-01-2022-0015.

Calvo-Porral, C., Lévy-Mangín, J., and Novo-Corti, I. (2013), 'Perceived quality in higher education: an empirical study', *Marketing Intelligence & Planning,* vol. 31, no. 6, pp. 601-619. https://doi.org/10.1108/mip-11-2012-0136.

Chaudhary, S., and Dey, A. K. (2020), 'Influence of student-perceived service quality on sustainability knowledge management: An organizational capabilities perspective', *Journal of Management*, vol. 18, no. 1, pp. 185-214. https://doi.org/10.1080/07421222.2002.11045669.

Cohen, J. (1988*), Statistical Power Analysis for the Behavioral Sciences*. 2nd edn. Routledge.

Diamantopoulos, A., and Siguaw, J. A. (2006), 'Formative versus reflective indicators in organizational measure development: A comparison and empirical illustration', *British Journal of Management*, vol. 17, no. 4, pp. 263-282.

Gregory, J. L. (2019), 'Applying SERVQUAL: Using service quality perceptions to improve student satisfaction and program image', *Journal of Applied Research in Higher Education*, vol. 11, no. 4, pp. 788-799.

Gold, A. H., Malhotra, A., and Segars, A. H. (2001), 'Knowledge management: An organizational capabilities perspective', *Journal of Management Information Systems*, vol. 18, no. 1, pp. 185-214.

Hair, J .F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., and Ray, S. (2022), *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R*: A Workbook. Springer.

Hamid, H. A. (2024), 'Fitting Malaysia for talents: Attending supply and demand', *Khazanah Research Institute*, retrieved from https://www.krinstitute.org/assets/contentMS/img/template/editor/Views%20-%20Talent%20Supply%20Demand.pdf

Hassanain, M. A., Ali, I., Al-Hammad, A., Alshibani, A., Ibrahim, A. M., and Abdallah, A. (2020), 'POE of public higher education facilities in Saudi Arabia: Lessons learned from three case studies', *Property Management (London)*, vol. 39, no. 2, pp. 250-276. https://doi.org/10.1108/pm-06-2020-0037.

Isamudin, D. (2024, June 27), 'Malaysia's most challenging talent issue', *New Strait Times Online,* https://www.nst.com.my/business/economy/2024/06/1069310/malaysias-most-challenging-talent-issue

Kobiruzzaman, M. M. (2023), 'Five dimensions of service quality - SERVQUAL model of service quality', Newsmoor. Retrieved April 1, 2024, from: https://newsmoor.com/servqual-model-five-key-service-dimensions-servqual-gaps-reasons/#google_vignette.

Kotler, P., and Clarke, R. N. (1987), 'Marketing for health care organizations', *Journal of Business Research,* vol. 16, no. 1, pp. 89-90. https://doi.org/10.1016/0148-2963(88)90083-5.

Le, Q. H., Fuller, R., Hoang, T. H., and Nguyen, N. (2023), 'Branding in higher education: A bibliometric analysis and research agenda', *Journal of Marketing for Higher Education*, pp. 1-24. https://doi.org/10.1080/08841241.2023.2289020.

Leonnard. (2018), 'The performance of SERVQUAL to measure service quality in private university', *Engineering Research and Innovation Society Journal*, vol. 1, no. 1, pp. 16-21. https://doi.org/10.7160/eriesj.2018.110103.

Liste, G., Buil, T., and Plumed, M. (2025), 'Undergraduate experiences and satisfaction with three consecutive learning models experienced throughout a pandemic', *Innovations in Education and Teaching International*, pp.1–18. https://doi.org/10.1080/14703297.2025.2464615

Mambile, C., and Mwogosi, A. (2024), 'Transforming higher education in Tanzania: unleashing the true potential of AI as a transformative learning tool', *Technological Sustainability*, vol. 4 no. 1, pp. 51-76. https// 10.1108/TECHS-03-2024-0014

Mansori, S., Vaz, A., and Ismail, Z. M. M. (2014), 'Service quality, satisfaction and student loyalty in Malaysian private education', *Asian Social Science*, vol. 10, no. 7, pp. 57-66. https://doi.org/10.5539/ass.v10n7p57.

Ministry of Higher Education Malaysia (2023), 'Private higher education institutions'. Available at: https://www.mohe.gov.my/en/downloads/statistics/2022-3/1179-statistik-pendidikan-tinggi-2022-05-bab-3-institusi-pendidikan-tinggi-swasta/file (Accessed: 15 December 2024).

New Straits Times (2024), 'Budget 2023: Education Ministry receives biggest allocation at RM52.6 billion'. Available at: https://www.nst.com.my/news/nation/2023/02/883258/budget-2023-education-ministry-receives-biggest-allocation-rm526-billion (Accessed: 15 December 2024).

Osman, R. S., and Saputra, R. S. (2019) 'A pragmatic model of student satisfaction: A viewpoint of private higher education', *Quality Assurance in Education*, vol. 27, no. 2, pp. 142-165. https://doi.org/10.1108/QAE-05-2017-0019.

Ostrom, A. L., Bitner, M. J., and Burkhard, K. A. (2011, October 31), 'Leveraging service blueprinting to rethink higher education: When undergraduates become "valued customers," everybody wins', Center for American Progress.

Ozdemir, Y., Kaya, S. K., and Turhan, E. (2020), 'A scale to measure sustainable campus services in higher education: Sustainable service quality', *Journal of Cleaner Production*, vol. 245, pp. 118839. https://doi.org/10.1016/j.jclepro.2019.118839

Panda, T. K., and Das, S. (2014), 'The role of tangibility in service quality and its impact on external customer satisfaction: A comparative study of hospital and hospitality sectors', *The IUP Journal of Marketing Management*, vol. 13, no. 4, pp. 53-69.

Parasuraman, A., Zeithaml, V. A., and Berry, L. L. (1985), 'A conceptual model of service quality and its implication for future research (SERVQUAL)', *Journal of Marketing*, vol. 49, pp. 41-50.

Parker, M. (2022), 'How universities can lead with service to meet student expectations', Online Education Services. Available at: https://www.oes.edu.au/how-universities-can-lead-with-service-to-meet-student-expectations/ (Accessed: 15 December 2024).

Pérez-Sanagustín, M., Kotorov, I., Teixeira, A., Mansilla, F., Broisin, J., Alario-Hoyos, C., Jerez, M.Ó., Pinto, T., García, B., Kloos, C.D., Morales, M., Solarte, M., Oliva-Córdova, L.M. and Gonzalez Lopez, A.H. (2022), 'A competency framework for teaching and learning innovation centers for the 21st century: Anticipating the post COVID-19 age', *Electronics,* vol. 11, no. 3, pp. 413. https://doi.org/10.3390/electronics11030413.

Prakash, G. (2020), 'QoS in private higher education institutions: The concept, a literature review and future directions', *The TQM Journal*, vol. 33, no. 6, pp. 1245–1262. https://doi.org/10.1108/tqm-09-2020-0211.

Raza, A., Safder, M., and Munawar, S. (2023), 'Impact of Covid-19 post-pandemic on undergraduates'

Robbins, S., and Judge, S. A. (2022), *Organizational behaviour*. (19th ed.). Prentice Hall.

Schlesinger, W., Cervera-Taulet, A. and Wymer, W. (2023), 'The influence of university brand image, satisfaction, and university identification on alumni WOM intentions', Journal of Marketing for Higher Education, vol. 33, no. 1, pp. 1-19. https://doi.org/10.1080/08841241.2021.1874588.

Sohail, M. S., and Hasan, M. (2021), 'Undergraduates' perceptions of service quality in Saudi universities: The SERVPERF model', *Learning & Teaching in Higher Education: Gulf Perspectives*, vol. 17, no. 1, pp. 54–66. https://doi.org/10.1108/lthe-08-2020-0016.

Tan, A. H. T., Muskat, B., and Johns, R. (2019), 'The role of empathy in the service experience', *Journal of Service Theory and Practice*, vol. 29, no. 2, pp. 142–164. https://doi.org/10.1108/jstp-10-2018-0221.

Tehseen, S., Ramayah, T., and Sajilan, S. (2017), 'Testing and controlling for common method variance: A review of available methods', *Journal of Management Sciences*, vol.4 no.2, pp.142-168. https://doi.org/10.20547/jms.2014.1704202

Thien, L. M., and Jamil, H. (2020), 'Undergraduates as "customers": Unmasking course experience and satisfaction of undergraduate undergraduates at a Malaysian research university', *Journal of Higher Education Policy and Management,* vol. 42, no. 5, pp. 579-600.

Wider, W., Tan, F. P., Tan, Y. P., Lin, J., Fauzi, M. A., Wong, L. S., Tanucan, J. C. M., and Hossain, S. F. A. (2024), 'Service quality (SERVQUAL) model in private higher education institutions: A bibliometric analysis of past, present, and future prospects', *Social Sciences & Humanities Open*, vol. 9. https://doi.org/10.1016/j.ssaho.2024.100805.

Wong, L. C., Song, B. L., Ooi, B.W., Lim, M. K., and Tee, P. K. (2024), 'An insight of undergraduatestudents' attitude and satisfactionwith online home-based learning

system', *Journal of Infrastructure, Policy and Development*, vol. 8 no.12, pp. 9062. https://doi.org/10.24294/jipd.v8i12.9062

Wong, S. T., Wong, S. C., and Lim, C. S. (2023), 'Predictive Modelling of Career Choices among Fresh Graduates: Application of Model Selection Approach', *Journal of Applied Research in Higher Education*.Ahead of print. https/doi. 10.1108/JARHE-08-2023-032

Yong, B. P. P., and Ling, Y. L. (2023), 'Skills gap: The importance of soft skills in graduate employability as perceived by employers and graduates', Online Journal for TVET Practitioners, vol. 8, no. 1, pp. 25-42. https://doi.org/10.30880/ojtp.2023.08.01.003.

Yusof, N. M., Asimiran, S., and Kadir, S. A. (2022), 'Student satisfaction of university service quality in Malaysia: A review', I*nternational Journal of Academic Research in Progressive Education and Development*, vol. 11, no. 1, pp. 677–688. https://doi.org/10.6007/IJARPED/v11-i1/10985.