Managing educational service quality and loyalty of international students: A case of international colleges in Thailand

Chanchai Phonthanukitithaworn¹, Sasichakorn Wongsaichia²,³, Phaninee Naruetharadhol²,³, Sirimonbhorn Thipsingh²,³, Thammasak Senamitr²,³ and Chavis Ketkaew⁴,³*

Abstract: Service quality management has been introduced to higher education for many years. However, most Thai tertiary institutions have not effectively adapted service quality management and marketing strategies to enhance the loyalty of their international students. This research paper seeks to identify significant factors that affect international students’ loyalty at the tertiary level in Thailand. Founded on a Push-Pull Model of International Education Movements, this study employed pull factors, so-called perceived educational quality, to draw international students.

ABOUT THE AUTHORS

Chanchai Phonthanukitithaworn is an associate professor of management at Mahidol University International College, Mahidol University, Thailand. His research interests cover many areas, such as sports marketing and technology adoption.

Sasichakorn Wongsaichia is a research assistant at the Center for Sustainable Innovation and Society, International College, Khon Kaen University, Thailand. Her research interests involve organizational behavior and innovation management.

Phaninee Naruetharadhol is an assistant professor of management and the Director of the Center for Sustainable Innovation and Society, International College, Khon Kaen University, Thailand. Her research interests involve organizational behavior and innovation management.

Sirimonbhorn Thipsingh is the Dean and an assistant professor of management at the International College, Khon Kaen University, Thailand. Her research interests involve service marketing.

Thammasak Senamitr is an assistant professor of law at the International College, Khon Kaen University, Thailand. His research interests involve business law.

Chavis Ketkaew is an assistant professor of management and a researcher at the Center for Sustainable Innovation and Society, International College, Khon Kaen University, Thailand. His research interests include business management, behavioral economics, consumer research, market research, and business models. He is the principal investigator and corresponding author of this research project.

PUBLIC INTEREST STATEMENT

Satisfying the increasing demand for high-quality tertiary education among international students has become a critical goal for various educational institutions, especially as those students are mostly considered a revenue source by higher education providers. However, most Thai tertiary institutions have not been effectively adapted marketing strategies to enhance the loyalty of their international students. This paper explores significant factors affecting educational service quality and international students’ loyalty at the tertiary level in Thailand and suggests approaches to enhance student loyalty.
A survey was conducted on 358 international students currently studying at universities in the northeastern region of Thailand and performed a statistical analysis using the structural equation modelling technique. The empirical results revealed that perceived education quality positively affected student satisfaction and loyalty. The results also recommended that Thai universities and educational administrators educate international students regarding knowledge of other cultures and self-learning skills to help them understand different cultures better and build a relationship with local students. Thus, international students’ loyalty to higher education institutions could be enhanced.

**Subjects:** Education - Social Sciences; International & Comparative Education; Multicultural Education

**Keywords:** perceived education quality; student loyalty; student satisfaction; international college

1. Introduction

The number of institutes of tertiary schools worldwide has increased dramatically in recent years (Zhang et al., 2016). As a result, marketing tactics to recruit international students have been considerably more competitive. On the other hand, students are increasingly seen as clients who buy academic merchandise from educational organizations (Borishade et al., 2021). Subsequently, satisfying the increasing demand for high-quality education among scholars has become a critical objective for various educational institutions. Especially international students are mostly considered a revenue source by higher education providers. International students contributed over $300 billion to the global economy (Wen & Hu, 2019). International students were approximately 6 million in 2019, up from 2 million in 2000 (Buckner et al., 2021). Despite the COVID-19 pandemic situation, international students are still rising worldwide. For example, approximately 325,000 international students enrolled in German institutions during the winter semester of 2020–21, a nearly 5,000-student increase, or 2%, over the previous year (Buckner et al., 2021). Likewise, the international college has become popular among domestic and international students due to global labour markets (Pham, 2022). One such example of internationalization in university education is the introduction of international programs in which knowledge is increasingly being delivered in English.

Moreover, the incentive for international scholars who study in foreign countries is self-development goals and perceived expectations for better education quality in developed countries. Meanwhile, higher education institutions tend to promote their institutions by offering an excellent quality of education (Moslehpour et al., 2020). Asnawi and Setyaningsih (2020) indicated that highly competitive markets stimulate organizations to enhance their service quality permanently. It is known that the development of service quality boosts customer gratification and certifies better long-term advantages in the pattern of market share and higher profitability (Ngan & Khoi, 2020). Therefore, tertiary education institutions should promptly create constructive business plans to enter and survive in the market. Perceived quality is a valuable feature that aids a higher educational institution in winning the intense market competition (Teeroovengadum et al., 2019).

Furthermore, the perceived quality of education has more potent effects on students selecting institutions to attend. Perceived education quality also influences scholar gratification and student loyalty (Rahimizhian et al., 2020). Moreover, prospective scholars may select colleges that provide excellent education quality and better student satisfaction (Moslehpour et al., 2020). Much research has examined the connection between service quality, student satisfaction, and loyalty in tertiary schools. However, this research aims to study the factors determining perceived
education quality, student satisfaction, and devotion to international colleges in Thailand. Managing educational service experiences and loyalty of international students has been limited, and little has been done concerning perceived education quality, student satisfaction, and student loyalty in an international college in Thailand. The research contributions allow international college administrators to provide the most critical skills of perceived education quality that international students need to succeed at work. Additionally, developing perceived education quality can enhance gratification and loyalty among international scholars.

To address the relationship between perceived education quality, student satisfaction, and student loyalty of international colleges in Thailand. This paper attempts to comprehend the mediating role of satisfaction in the impact of service quality on customer loyalty. More explicitly, this paper studies factors determining student satisfaction and how it affects student loyalty. Understanding this relationship would allow international college administrators to comprehend the motives of student loyalty. Besides, it would let institution administrators precisely organize excellent education quality to attract prospective international students and retain current international students. The structural equation modelling (SEM) technique examined this relationship. The SEM technique assesses the measurement model and generates the structural model (Hair et al., 2019).

The structure of this article is as follows: Section 2 is the “Push-Pull” Model of International Education Movements. It begins with a description of the motivations of international students and a “Review of Related Literature” on perceived education quality, student satisfaction, and student loyalty. Next, the section “Research Methodology” outlines the research method entailing sampling and data collection as well as statistical models. After that, the results from the test models are considered in the section “Result of the study.” Then, “Discussion and implications” was explained in the next section. Lastly, the section “Conclusion, Limitation, and suggestions for future research” summarizes this study by discussing the restrictions and relevant conclusions drawn from this article.

2. Review of related literature

2.1. A “Push-Pull” model of international education movements

Initially, the push-pull model was established to describe the forces influencing human migration (Dorigo & Tobler, 1983). Recently, this model has become a popular tool for academics studying international education flows (Hailat et al., 2021). McMahon (1992) was one of the first scholars to use the push-pull model to examine elements determining foreign scholars’ motivations and choices, researching the motives of international students from 18 developing countries studying in the United States. She noted that the push factors are associated with the characteristics of home countries, such as access to tertiary school and economic strength. In contrast, the pull elements are associated with the higher education destination’s economic, political, and social characteristics (in that case, the United States). Wilkins et al. (2012) discovered that most of the research on international student motives had used the push-pull paradigm since McMahon’s (1992) study. However, few studies that use the push-pull approach have created and identified distinct and contextual elements that determine scholars’ decisions to study overseas. For instance, one study hypothesized that the image of a city or nation might considerably impact students’ study-abroad decisions. In addition, according to other research, religious compatibility between the host country and the students’ home country positively affects scholars’ study-overseas determinations (Chang & Chou, 2021).

Despite the push-pull model’s application to evaluate students’ reasons for studying abroad, we are not aware of much research focused on the motivations of international students studying in international colleges in Thailand. Hence, this study aims to identify whether perceived education quality (pull factors) influences student satisfaction and loyalty in international colleges in Thailand.

This research paper concentrated on how perceived education quality (pull factors) impacts student satisfaction and loyalty in an international college in Thailand.
2.2. Perceived Education Quality (PEQ)

Educational services play a significant part in the lives of scholars, and scholars demand massive amounts of incentive and cognitive abilities to achieve their ambitions (El Alfy & Abukari, 2020). The previous study’s findings indicated that service quality directly affects student happiness and indirectly impacts student retention (Subrahmanyan, 2017). Furthermore, Annamdevula and Bellamkonda (2016) established and validated the vital relationship between perceived service quality, student happiness, loyalty, and stimulation in the Indian context. Chaudhary and Dey (2021) examined educational services and dependable technology for disabled undergraduate students in Thailand. Yousapronpaiboon (2014) explored the undergraduate students’ expectations and impressions of the quality of service provided by higher education institutions in Thailand. This study employed the SERVQUAL tool to gauge the reliability, responsiveness, assurance, empathy, and tangibles of service quality. However, none of these studies investigated the connection between perceived education quality, satisfaction, and the loyalty of international scholars in international colleges in Thailand. Consequently, there is four paramount education quality of international college as follows. In this respect, the quality of educational services can be interpreted by international students’ assessment of the following aspects.

2.2.1. Knowledge of other cultures and people

Ordinarily, young students study overseas, at least for a session or a year, occasionally even for a whole degree course. After all, studying overseas involves the difficulties of staying in a different culture (Rana et al., 2020). Mainly, studying in foreign countries provides excellent opportunities and experiences they would not offer if they chose to remain in their home nations (Cao & Meng, 2022). Additionally, the prior study’s findings demonstrated that international students have restricted assets to cope with multicultural accommodation crises. For instance, they may adjust to unfamiliar cultural characters and regulations (Finn et al., 2021).

On the other hand, internationalized programs and efficient academic operations might enhance cultural diversity (Lefdahl-Davis & Perrone-McGovern, 2015). Thus, each international student was led to cross-cultural lecture rooms. Knight (2016) proposed that international tertiary-level education is the procedure of merging cross-cultural and universal aspects into tertiary education’s motivations, objectives, or performances. As a result, international students are stimulated to tackle cultural and interpersonal difficulties, improve their perception of resilience, and sustain a positive perspective (Rathakrishnan et al., 2021).

2.2.2. Self-learning skills

Tertiary education requires a more analytical study of the educational implementations and instructional processes, which lead to developments in students’ vital abilities, such as self-directed learning (Chiu, 2022). Self-directed learning is one of the most excellent methods of learning. There is convincing verification that students who take the initiative to learn by themselves are inclined to be better learners than those who lack eagerness to learn (Alt & Raichel, 2022). Traditional education systems have consistently adopted educators and textbooks as a primary method students can learn while intuitions. However, the advancement of the Internet has created unlimited chances for people to study independently (Tarchi et al., 2022).

Furthermore, international students can become self-reliant learners. They must make a crucial behavioural adaptation by changing from an educational learning process to an independent learning circumstance in which they have to find the best way to solve problems rather than remembering contents from traditional textbooks (Song et al., 2022). Notably, international students must convert to new teaching and learning styles. Thus, they could develop local students’ more individualistic and communicative behaviours (Tarchi et al., 2022). The finding from prior research revealed that international students who are self-directed learners tend to be good at coping with the diversity of languages and being good language learners. Additionally, learning languages by self-directed learning must make decisions independently and continuously know words to achieve their goals without an exterior agent’s assistance (Bai & Wang, 2020).
2.2.3. Vocational skills
Vocational education and training are significant components, presenting that they can connect young people’s proficiencies with employers’ demands (Achatz et al., 2022). Leading professional training to fulfil the requirements of dramatically shifting and advancing working markets and economies can assist young people to transfer into more effective and sustainable work. The finding from the previous article suggested that transnational mobility was reckoned as an active transport to boost international students to become the type of individuals they want to be (Tran, 2016). The substantial determinants surround English language capability, antecedent pedagogical execution, representative suggestions, and relatives’ and companions’ guidance that learners utilize to make their decision to select vocational training and connected level agendas (Ng et al., 2021). It is indicated that acquiring skills will enhance their life opportunities and self-esteem, self-reliance, and self-satisfaction. A previous study discovered that students are satisfied with their teaching methods, interpersonal interactions, and workplace exploration (Yuan, 2021). Since technical and vocational education provides professional knowledge and communication skills crucial for students.

2.2.4. Information technology skills
Information technology skills are other essential skills for the achievement of teachers and students (Verma et al., 2022). The information technology skills are obtained through many procedures, containing education, personal computers, and employee training programs. Higher education institutions have discovered that they must utilize information technology to continue business (Pan & Seow, 2016). Additionally, the techniques they operate the business in educational systems are being replaced by computing and information technology (Albertus & Hamman-Fisher, 2021). They proposed that information technology skills can be combined productively when positively associated with the syllabus and lecture room tasks (Liu & Su, 2018). Information technology skills allow a person to utilize computers, software programs, databases, and other technologies to accomplish a broad diversity of academic, work-associated, and personal objectives (Binici, 2021). Therefore, recognizing educators’ information technology skills is essential for professional improvement (Lin et al., 2020).

2.3. Student Satisfaction (SS)
Most of them indicated the mediator part of satisfaction in the impact of service quality on loyalty in tertiary education (Wong & Chapman, 2022). Students who experience more value influence from their academic institution are more satisfied with their university life (Tleuken et al., 2022). An institution should treat students as patrons in educational services to accomplish student satisfaction (Prifti, 2022). The antecedent study suggested that consumer influences policies and practices played a significant role in student satisfaction and retention (Guibault, 2016). This research has verified that essential scholastic services consist of sustenance, and other facility services also present a vital role in student satisfaction and loyalty. The finding of previous research demonstrated that service quality positively affects student satisfaction in Portuguese universities (Ho et al., 2021). Harvey and Askling (2003) categorized types of student satisfaction into five satisfaction levels.

2.3.1. Institution-level satisfaction
Institution-level satisfaction refers to the students’ comprehensive academic experience in tertiary education institutions (Chikaghe et al., 2020). Sheng and Fauzi (2022) suggested that student satisfaction surveys are an instrument by which institutions can apprehend the complication of the entire learning experience and contain the institutional administration more directly in quality enhancement issues. Institution-level satisfaction surveys include most of the services prepared by the university. The student satisfaction with quality services equipped by the university has been reported by the researchers (Holzer et al., 2021).

2.3.2. Faculty-level satisfaction
Faculty-level satisfaction concentrates on those perspectives of the experience that the faculty manages or can directly affect (Daumiller et al., 2022). It refers to the general satisfaction of
learning environments, lecturers, and facilities. Furthermore, faculty-level feedback surveys relate to the abilities of faculty administrators in establishing priorities, managing, improving administrative, and resolving problems (Han et al., 2021).

2.3.3. Programmed-level satisfaction
Programmed-level satisfaction emphasizes teaching and learning, course association, and programmed-specific learning resources (Hassan et al., 2021). The Open University seeks to provide information on student perspectives at the program level and stimulate achievement among program teams. In addition, the institution offers a high-quality degree program or specific course (Santos et al., 2020). Hence, higher education administrators should design and implement appropriate programs that assist students in retaining long-term ties with both current and former students (Bertaccini et al., 2021).

2.3.4. Module-level feedback
Module-level feedback involves the satisfaction of undergraduates to educators about the gaining circumstances within the module or unit of education (Zhao et al., 2021). British universities have a prerequisite for some categories of official collection and outlining of module-level criticism. Feedback on individual modules or units of study arranges a considerable component of sustainable development. The estimation emphasizes the learning and teaching connected with the module and some evidence of approaching module-specific educational resources. The fundamental motivation of module-level assessment is to support the lecturers in adjusting the module to improve undergraduate learning.

2.3.5. Teacher appraisal by students
In the past, UK educational institutions have gathered student viewpoints on the performance of specific teachers, known as “teacher assessment.” Many universities utilize systematized programmed-based or module-based surveys of student appraisal of teaching (Li & Yu, 2022). The utilization of student estimations of teacher performance is part of a comprehensive peer and self-assessment technique of teaching quality. Teacher-appraisal surveys prepare some inter-program differentiation of teacher accomplishment. It is related to lecturers’ reliability, eagerness, knowledge, motivation, and communication skills. Subsequently, academic excellence and students’ emotional attachment to their school are critical components of student loyalty (Maamari & Majdalani, 2019).

2.4. Student Loyalty (SL)
Student loyalty is a vital benefit for institutions because it furnishes the foundation of their relationship with their former students (Todea et al., 2022). Moreover, the trustworthiness of institutions positively influences student loyalty (Snijders et al., 2022). Annamdevula and Bellamkonda (2016) found the positive and significant effect of service quality on student satisfaction in enhancing student loyalty. Previous research findings recommended that trust in management policies and practices positively impacts loyalty (Phonthanukitithaworn et al., 2020). Furthermore, educational services significantly relate to students’ satisfaction and loyalty (Paul & Pradhan, 2019). Loyal students express five dimensions of loyalty in the institution (Khoo et al., 2017).

2.4.1. Say positive things about this institution to other people
Word-of-mouth communication relates to how consumers share their positive or negative experiences using a specific product (Le et al., 2020). The quality of students’ college life significantly impacts the student’s positive word-of-mouth. When students are content with their university life, they are more likely to make positive recommendations when mentioning their university (Özdemir et al., 2016). The result of the antecedent study proposed that customer satisfaction and trust have a strong relationship with customer retention and positive word-of-mouth (Le et al., 2019).

2.4.2. Recommend this institution to someone else
Word-of-mouth communication behaviour is referred to as students talking to their friends about their tertiary educational institution after enrollment. Word-of-mouth has been revealed as an
authoritative source of customer information and a powerful instrument for nonprofit organizations such as education institutions (Dandis et al., 2021). The result of previous research indicated that students’ perceptions of education service quality are positively associated with word-of-mouth communication behaviour (Le et al., 2020). Delighted and loyal students will probably deliver favourable comments and recommend the institution to others (Le et al., 2019; Rehman et al., 2020).

2.4.3. **Encourage friends and relatives to study with this institution**
Loyalty is a concept that can measure by a student’s willingness to suggest the university to other students, the desire to inform positive things about the university, and the will to return later to proceed with their studies (Heo & Lee, 2016). In addition, delighted consumers probably create future purchases and encourage other customers to buy products (Dandis et al., 2021; Vianden & Barlow, 2014).

2.4.4. **Consider this institution your first choice of international education provider that offers a degree in your choice area**
Customer service has been involved with quality recognitions and purchasing determinations because of consumer behaviours (Latif et al., 2021). The service experience often influences the consumer’s comprehension of the business’ intentions, and customer service will impact their satisfaction, awareness of the merchandise or service, and ultimately loyalty (Le et al., 2019).

2.4.5. **Enroll in more courses with this institution in the next few years**
Customer loyalty can be demonstrated in many procedures, such as assisting a company or patronizing a specific provider. This increases their purchase frequency (Annamdevula & Bellamkonda, 2016). Loyal consumers affect the profitability and entire achievement of the company in two distinguishing methods (Dehghan et al., 2014; Latif et al., 2021). First, students continue their studies with higher degrees in the same educational institution. Secondly, loyal consumers tend to have higher repurchase and recommendation intentions. After graduating, a loyal student may proceed to sustain their higher educational institution financially or via word of mouth to other students (Teeroovengadum et al., 2019).

Based on the literature review, we can form the following hypotheses. The primary conceptual model of this research is presented in Figure 1. The sub-questions were modified from Hanna (2005), Harvey and Askling (2003), and Khoo et al. (2017) (see, Appendix 1).

**Hypothesis 1 (H1):** Perceived Education Quality affects Student Satisfaction.

**Hypothesis 2 (H2):** Student Satisfaction affects Student Loyalty.

3. **Research methodology**

3.1. **Sampling and data collection**
Empirical data of this study were deliberately accumulated from participants who were international students on campus at universities in the Northeastern region of Thailand. It is suggested to have a minimum sample size of 400 for any SEM analysis (Weston & Gore, 2006). Therefore, we determined to utilize the quota sampling technique to collect data from 400 international student respondents from the three different degrees in these universities. The survey method was a nonprobability sampling technique and was not specific to a group of international students but targeted to gather the data from international students willing and available to respond to the survey. Acharya et al. (2013) have revealed the advantage of the nonprobability sample as simple to acquire by the participants since it relies on who voluntarily enters the survey. Trained surveyors were appointed to gather the data based upon a structured questionnaire via a face-to-face interview of 400 respondents.
from the three main university degrees, namely, the bachelor's level, the master's level, and doctorate level, with 140 respondents for bachelor's level and master's level and 120 respondents for doctorate level. Trained surveyors were assigned to accumulate data at canteens, libraries, parks, and faculty buildings. Respondents had to be aged twenty or above to participate in the study. Moreover, a privacy statement at the top of the survey informed participants that the collected information would be used strictly for the research and that none of the information would be shared with third parties. Furthermore, before responding to the questionnaire, participants were informed of confidentiality and the ethical considerations of business/social sciences research (Ketkaew & Naruetharadhol, 2016).

Of the 400 international students successfully interviewed, regardless of missing values and outliers, only the valid returned data from 358 participants were employed. Table 1 describes the socio-demographic characteristic of all the participants. An overwhelming majority of the students were between 18 and 22 years old, undertaking a bachelor's degree. Most students were within the 1-4-year range for years in an international program. This was expected as bachelor's degrees in universities in the Northeastern region are generally 4-year programs. Also, assuming most foreign master's and Doctoral students studying in their own countries would put most of them in that range. Over 80% of participants were in humanities and social sciences. This is in accordance with population data collected from the Universities International Relations Division, which places most international students in the International College and Humanities Faculty. Around 75% of participants are female. 96% of respondents had a passing GPA. Roughly 20% of the sample is currently legible for First Degree Honours in their respective programs. 50% of students' mothers and fathers had a bachelor's degree. 50% of students were involved in zero extracurricular clubs. Almost 50% of students were part of 1–2 clubs. 88% of the population identified as Asian + Middle Eastern. A high level of Asian international students was expected, as the OECD report indicated that 54% of all international students are of Asian ethnicity.

3.2. Instrument
The questionnaire consists of two sections: (1) the first part of the questions related to demographic characteristics of respondents (age, education, years in international program, field of
Table 1. Socio-demographic characteristics of participating international students

| Demographic variable Category | Percentage |
|-------------------------------|------------|
| **Age**                      |            |
| 18–22                        | 85.47      |
| 23–26                        | 10.06      |
| 27–34                        | 2.79       |
| 35+                          | 1.68       |
| **Education**                |            |
| Bachelor                      | 94.41      |
| Master                        | 3.91       |
| Doctorate                     | 1.68       |
| **Years in International Program** |    |
| 1                            | 39.66      |
| 2                            | 16.20      |
| 3                            | 15.64      |
| 4                            | 27.37      |
| 5                            | 1.12       |
| **Field of Study**           |            |
| Arts                         | 1.12       |
| Humanities                   | 2.23       |
| Social Sciences              | 82.68      |
| Natural Sciences             | 1.12       |
| Applied Sciences             | 12.85      |
| **Gender**                   |            |
| Male                         | 26.26      |
| Female                       | 73.74      |
| **GPA**                      |            |
| 0–1.99                       | 3.91       |
| 2–3.19                       | 41.34      |
| 3.2–3.59                     | 33.52      |
| 3.6+                         | 21.23      |
| **Father Education**         |            |
| High School                  | 22.91      |
| Bachelor                     | 53.63      |
| Master                       | 20.67      |
| Doctorate                    | 2.79       |
| **Mother Education**         |            |
| High School                  | 30.73      |
| Bachelor                     | 50.84      |
| Master                       | 15.64      |
| Doctorate                    | 2.79       |
| **Number of Extracurricular Activities** |   |
| 0                            | 49.72      |
| 1–2                          | 19.55      |
| 3–5                          | 21.79      |
| 6–9                          | 4.47       |
| 10+                          | 4.47       |
| **Number of Clubs Joined**   |            |
| 0                            | 38.55      |
| 1–2                          | 48.04      |
| 3–5                          | 7.26       |
| 6+                           | 6.15       |
| **Nationality**              |            |
| EU                           | 2.79       |
| USA                          | 0.56       |
| South American               | 2.23       |
| Asian + Middle East          | 88.27      |
| African                      | 5.03       |
| Oceania                      | 1.12       |

Source: Data Adapted from Authors, 2022
study, gender, GPA, father education, mother education, number of extracurricular activities, number of clubs joined, and nationality. (2) the second part of the questions consisted of 14 questions related to perceived educational quality, student satisfaction, and student loyalty (Appendix 1).

3.3. Data analysis tools
First, we used Harman's single factor test to address the common method variance (CMV) issue in this study (MacKenzie & Podsakoff, 2012). Then, the researcher's data analysis employed the SEM technique. SEM surrounds various statistical methods such as path analysis, confirmatory factor analysis (CFA), and casual modelling with latent variables. Finally, we conducted SEM utilizing AMOS (Byrne, 2016). The SEM requested to assess the model's evaluation in two steps (Anderson & Gerbing, 1988). Step 1 validates the outer CFA model to measure the relationship between each indicator and its variables, valid or reliable. Step 2 examines the inner structural model to estimate whether the entire structure is reliable. The results of the statistical analysis are discussed in detail below.

4. Results of the study
There are two primary steps to perform a statistical test on structural equation modelling (SEM): the measurement model (confirmatory factor analysis) and the structural model (Anderson & Gerbing, 1988).

4.1. Step 1: Measurement model (Confirmatory factor analysis)
Before analyzing the data, we addressed the common method variance (CMV) issue in this study. CMV occurs when variables in the same model are measured using the same method or derived from the same source, resulting in systematic error variances and potentially biasing the estimated relationships among them (MacKenzie & Podsakoff, 2012). This study collected the same respondents' dependent and independent variables data, exposing them to CMV risk. Therefore, we adopted Harman’s single factor test (MacKenzie & Podsakoff, 2012). The results revealed a cumulative variance of 44.144 per cent (less than the 50 per cent threshold), which further assured the absence of CMV. Next, we used Cronbach’s Alpha to assess the content validity of the model. According to our assessment, the Cronbach’s Alpha of all constructs surpassed the designated threshold of 0.70.

The measurement model was tested employing confirmatory factor analysis (CFA). In this respect, the model was evaluated on internal consistency, reliability, convergent validity, and discriminant validity. CFA is executed by linking all constructs with covariance (Hair et al., 2019). All constructs must relate to their manifest variables before the examination. Covariance among errors within the same construct is permitted to enhance the goodness of fit of the entire connection.

4.1.1. Goodness of fit
Table 2 illustrates the goodness of fit measures and their thresholds. The results were good in that all fit indices passed the suggested thresholds. For example, CMIN/df (1.819), comparative fit index (CFI; 0.938), GFI (0.902), Tucker-Lewis index (TLI; 0.92), and root mean square error of approximation (RMSEA; 0.069) passed the designated thresholds.

4.1.2. Convergent validity
This section compares the model results with the fit indices thresholds. AVE stands for average variance extracted (Fornell & Larcker, 1981), and CR stands for composite reliability (Hair et al., 2019). According to Table 3, the suggested thresholds of the convergent validity measures and the calculated indicators are as follows.

Referring to Table 3, the SL (student loyalty) construct very well passed the convergent validity criteria when comparing the calculated measures with their thresholds. As for SL1, SL2, SL3, SL4...
and SL5 were above the thresholds (AVE > 0.50 and CR > 0.70). As for SS (student satisfaction) construct, all the indicators were statistically significant at the <.001 level, and all the AVEs and CRs were satisfactory. With a statistical significance of 0.001, the perceived education quality (PEQ) construct also presented the acceptable AVEs and CRs. Hence, the convergent validity of all the constructs was acceptable.

4.1.3. Discriminant validity
Discriminant validity is the degree to which two or more conceptually similar constructs are different. This section is examined by comparing the square root AVEs (on diagonal) with the associated correlation coefficients in the matrix (Fornell & Larcker, 1981). According to Table 4, the square root of each AVE in bold was higher than the off-diagonal correlation coefficients, indicating all the constructs could measure the different constructs theoretically, and this result was acceptable.

Table 3. Convergent validity

| Construct                  | Indicator | P-Value | AVE  | Threshold | CR   | Threshold |
|----------------------------|-----------|---------|------|-----------|------|-----------|
| Student Loyalty            | SL1       | 0.76    | ***  | 0.531     | >0.50| 0.850     | >0.70     |
| (SL)                       | SL2       | 0.76    | ***  |           |      |           |           |
|                            | SL3       | 0.75    | ***  |           |      |           |           |
|                            | SL4       | 0.69    | ***  |           |      |           |           |
|                            | SL5       | 0.68    | ***  |           |      |           |           |
| Student Satisfaction       | SS1       | 0.65    | ***  | 0.532     | >0.50| 0.850     | >0.70     |
| (SS)                       | SS2       | 0.79    | ***  |           |      |           |           |
|                            | SS3       | 0.75    | ***  |           |      |           |           |
|                            | SS4       | 0.74    | ***  |           |      |           |           |
|                            | SS5       | 0.71    | ***  |           |      |           |           |
| Perceived Education Quality| PEQ1      | 0.75    | ***  | 0.502     | >0.50| 0.801     | >0.70     |
| (PEQ)                      | PEQ2      | 0.73    | ***  |           |      |           |           |
|                            | PEQ3      | 0.67    | ***  |           |      |           |           |
|                            | PEQ4      | 0.68    | ***  |           |      |           |           |

Source: Data adapted from authors, 2022
***Significant at <0.001.
4.2. Step 2: Structural model

After testing the validity of each construct, the structural model was created. As illustrated in Figure 2 and Table 5, this structural model was supported by the majority of the goodness of fit criteria, as suggested by Hu and Bentler (1999). CMIN/df (1.794) was less than 3.00. GFI (0.902) was slightly greater than 0.90. CFI (0.939) and TLI (0.923) were both more than 0.90. RMSEA (0.068) was less than 0.10.

According to Table 6, the test results from the structural model supported H1 and H2 at the significance level of 0.001, which suggested that the statistical significance of the association between the constructs was very strong. Moreover, the finding from this research article demonstrated that perceived education quality positively influenced student satisfaction with a standardized loading of 0.988. Furthermore, the finding from this research study recommended that student satisfaction positively affected student loyalty with a standardized loading of 0.741.

5. Discussions and implications

This study expanded the results from the studies by Annamdevula and Bellamkonda (2016), which primarily emphasized that service quality was related to student satisfaction and would lead to future student loyalty. However, the proposed conceptual model was validated to suit the international colleges’ context in Thailand. Therefore, we described the discussion part as follows: (1) the relationship between perceived education quality (PEQ) and student satisfaction (SS); (2) the relationship between student satisfaction (SS) and student loyalty (SL).

First, the findings revealed that students’ perceived education quality has a positive and significant effect on student satisfaction, which was consistent with previous studies by Alves and Raposo (2010), Annamdevula and Bellamkonda (2016), Duarte et al. (2012), and Khoo et al. (2017). Moreover, this result was consistent with the push-pull model in international students’ circumstances (McMahon, 1992), which considered perceived education quality (PEQ) as a pull factor in attracting international students to select the international colleges’ destinations in Thailand. Furthermore, this research indicated that an international college in Thailand should enhance its education quality. There are four main aspects of education quality that can improve student satisfaction in international college: providing knowledge of other cultures and people, self-leaning skills, vocational skills, and information technology skills. In addition, this education quality of international colleges can enhance student satisfaction at an institution-level, faculty-level, program-level, module-level, and teacher appraisal.

Second, it also found that student satisfaction positively and significantly impacts student loyalty. This finding is consistent with previous studies by Annamdevula and Bellamkonda (2016). This research proposed that students’ loyalty cannot be accomplished by only presenting them with excellent education quality, but it should be followed by endeavours that expand scholar gratification. Besides, international students satisfied with the academy’s education quality were more likely to remain loyal. In addition, a loyal student may speak positively of this institution to others, recommend it to others, and encourage their friends and family to enrol. Additionally, students may view this academy as their top alternative international education provider that offers a degree in their chosen area, enrol in more subjects with this academy in the coming years, and

| Table 4. Discriminant validity |
|--------------------------------|
| Construct | PEQ   | SS    | SL    |
| PEQ       | 0.728 |
| SS        | 0.612 | 0.729 |
| SL        | 0.602 | 0.597 | 0.708 |

Source: Data adapted from authors, 2022
Note. PEQ = Perceived education service, SS = student satisfaction, SL = student loyalty
Figure 2. The structural model.

Source: Figure created by authors, 2022
Table 5. Goodness of fit of the structural model

| Fit Indices | Value | Threshold | Assessment |
|-------------|-------|-----------|------------|
| p-value     | 0.00  |           |            |
| CMIN/df     | 1.794 | <3.00     | Passed     |
| GFI         | 0.902 | >0.90     | Passed     |
| RMSEA       | 0.068 | <0.10     | Passed     |
| CFI         | 0.939 | >0.90     | Passed     |
| TLI         | 0.923 | >0.90     | Passed     |

Source: Data adapted from authors, 2022

TLI = Tucker–Lewis Index; CFI = comparative fit index; GFI = goodness fit index; RMSEA = root mean square error of approximation.

Table 6. Test results from the structural model

| Hypothesis | Endogenous variable | Exogenous variable | Standardized estimate | P-value | Result |
|------------|---------------------|--------------------|-----------------------|---------|--------|
| H1         | Perceived Education Quality | Student Satisfaction | 0.988                 | ***     | Supported |
| H2         | Student Satisfaction | Student Loyalty    | 0.741                 | ***     | Supported |

Source: Data adapted from authors, 2022

***Significant at <0.001.

and intend to continue studying for a higher university degree. In conclusion, this contribution explained the connection between perceived education quality, student satisfaction, and student loyalty by allowing international college administrators to prepare the essential skills of perceived education quality that international students need to succeed at work. Hence, perceived education quality can increase overseas students’ gratification and retention.

As the findings from this research article indicated, student loyalty is affected by student satisfaction. Also, student satisfaction is influenced by perceived education quality. Therefore, to enhance student satisfaction, the institutional administrator is expected to implement excellent education quality by providing knowledge of other cultures and cross-cultural experiences, including cultural trips or cross-cultural events that encourage sharing cultures in an informal environment. It decreases the negative experiences of different cultures among international students (Humbert et al., 2012). Additionally, self-learning skills should be provided by institutions. This is to ensure that international students can become self-reliant learners. Therefore, they can easily convert to new teaching and learning styles in every circumstance. It also assists international students in developing their individualistic cultures and behaviour to suit local students (Cao & Meng, 2022; Stewart, 2007).

Furthermore, higher education administrator is expected to prepare vocational education and training. This ensures that each international student is attached to professional proficiencies and ready to be employed at an organization (Jackson, 2015). Besides, the tertiary education institution should provide technology devices and other facilities available in the classrooms, which lead to helping students to develop information technology skills. Furthermore, tertiary education institutions should improve soft skills and academic skills to promote student satisfaction. Hence, current students are satisfied with the education quality in university, and they tend to become loyal students. Additionally, student loyalty can increase the competitive advantage of an academy by captivating future scholars and retaining loyalty in present international undergraduates in an international college in Thailand.
6. Conclusion
This paper has explored the factors determining perceived education quality, student satisfaction, and student loyalty to international colleges in Thailand. It proposes a new conceptualized structural model for managing the educational service experiences and loyalty of international students in an international college in Thailand. In response to this research question, we established and assessed two hypotheses. Based on the quota sampling approach, international students at universities in the northeastern region of Thailand were studied. Additionally, this study employed the SEM approach via AMOS (Byrne, 2016). The hypotheses were supported (H1 and H2), which revealed that students’ perceived education quality positively and significantly affects student satisfaction. In addition, it also found that student satisfaction positively and substantially impacts student loyalty.

Furthermore, this research is based on pull factors that draw international college students into other countries to study excellent education quality. Students also expect to get academic and soft skills from institutions to utilize in the workplace. Meanwhile, tertiary educational institutions tend to improve the perceived education quality to enhance satisfaction and loyalty in international students. Moreover, student loyalty can attract prospective students and maintain current international students. Additionally, student loyalty can generate competitive advantages for institutions. This article describes the importance of how perceived education quality can enhance scholar gratification and scholar retention in an international college in Thailand. It was recommended that perceived education quality could significantly improve student satisfaction. For instance, we found that knowledge of other cultures and people, self-learning skills, vocational skills, and information technology skills of international colleges can satisfy international students’ quality of education in international colleges. After that, students’ satisfaction can significantly enhance their loyalty of students. Loyal scholars are more likely to suggest the institutions to other scholars, continue to study with the institutions in the future, and support the institutions financially. Thus, international college administrators need to promote perceived education quality in both academic skills and soft skills because it is a way to improve student satisfaction and scholar retention.

In summary, the main contribution of this study is to understand the connection between perceived education quality, scholar gratification, and student loyalty to help administrators implement the most vital skills of education quality to prepare international students’ skill readiness to utilize in a workplace. Furthermore, when international colleges can increase perceived education quality, they can improve international students’ satisfaction and loyalty.

7. Limitations and suggestions for future research
There were three significant limitations of this study: sample size, sample stratification, and fluency in English. The original target for participants was 800. However, due to the difficulty of finding participants, only 388 surveys were completed. In addition, access to further education students (Bachelor’s, Master’s, and Doctoral) in the random study did not fit the original target ratio. Finally, fluency in English was seemingly a problem as many participants required additional explanations of the meanings of questions.

Hence, this study includes some limitations, which also provide opportunities for future research. First, future research should study more sample size and study other regions in Thailand. Second, the future study can explore other relevant factors determining educational service quality, student satisfaction, and student loyalty, and additionally, it can utilize multigroup analysis by examining the moderating effect of gender, for instance.

Acknowledgements
The authors would like to thank several parties. First, the research facilities were provided by Mahidol University International College (MUIC) and the International College, Khon Kaen University, Thailand. Also, this research project is financially supported by the International College, Khon Kaen University.

Funding
The authors received no direct funding for this research.
Bai, B., & Wong, J. (2020). The role of growth mindset, self-efficacy and intrinsic value in self-regulated learning and English language learning achievements. Language Teaching Research, 24(3), 316216882093319. https://doi.org/10.1177/3162168820933190

Bertaccini, B., Bacci, S., & Petrucci, A. (2021). A graduates’ satisfaction index for the evaluation of the university overall quality. Socio-Economic Planning Sciences, 73 (May 2020), 100875. https://doi.org/10.1016/j.seps.2020.100875

Binici, K. (2021). What are the information technology skills needed in information institutions? The case of “code4lib” job listings. Journal of Academic Librarianship, 47(3), 102360. https://doi.org/10.1016/j.acalib.2021.102360

Borishade, T. T., Ogunaoka, O. O., Solau, O., Matulewa, B. D., & Dirisu, J. J. (2021). Assessing the relationship among service quality, student satisfaction and loyalty: The NIGERIAN higher education experience. Heliyon, 7(7), e07590. https://doi.org/10.1038/s41977-020-02165-2

Buckner, E., Zhang, Y., & Bianco, G. L. (2021). The impact of COVID-19 on international student enrolments in North America: Comparing Canada and the United States. Higher Education Quarterly, September 76(2), 1–15. https://doi.org/10.1111/heq.12365

Byrne, B. M. (2016). Structural equation modeling with Mplus: Basic concepts, applications, and programming. In Structural equation modeling with Mplus (1st edition). Routledge. ISBN: 9780203807644 - https://doi.org/10.4324/9780203807644

Cao, C., & Meng, Q. (2022). A systematic review of predictors of international students’ cross-cultural adjustment in China: Current knowledge and agenda for future research. Asia Pacific Education Review, 23 (1), 45–67. https://doi.org/10.1007/s12564-021-09700-1

Chang, D. F., & Chou, W. C. (2021). Detecting the institutional mediation of push-pull factors on international Students’ satisfaction during the COVID-19 pandemic. Sustainability (Switzerland), 13(20), 11405. https://doi.org/10.3390/su132011405

Chaudhory, S., & Dey, A. K. (2021). Influence of student-perceived service quality on sustainability practices of university and student satisfaction. Quality Assurance in Education, 29(1), 29–40. https://doi.org/10.1108/QA-10-2019-0107

Chikazhe, L., Makanyeza, C., & Kakava, N. Z. (2020). The effect of perceived service quality, satisfaction and loyalty on perceived job performance: Perceptions of university graduates. Journal of Marketing for Higher Education, 1–18. https://doi.org/10.1080/08841241.2020.1793442

Chiu, T. F. (2002). Applying the self-determination theory (SDT) to explain student engagement in online learning during the COVID-19 pandemic. Journal of Research on Technology in Education, 54(1), 514–530. https://doi.org/10.1080/15391523.2021.1891998

Dondis, A. O., Jorjor, A. A., Joudeh, J. M. M., Mukattash, I. L., & Hassounah, A. G. (2021). The effect of multidimensional service quality on word of mouth in university on-campus healthcare centers. TQM Journal, 34(4), 701–727. https://doi.org/10.1108/TQM-12-2020-0295

Daumiller, M., Janke, S., Rinas, R., Dickhueser, O., & Dresel, M. (2022). Need satisfaction and achievement goals of university faculty: An international study of their interplay and relevance. Higher Education, 83 (6), 1183–1206. https://doi.org/10.1007/s10734-021-00736-1

References

Acharya, A. S., Prakash, A., Saxena, P., & Nigam, A. (2013). Sampling: Why and how of it? Indian Journal of Medical Specialities, 4(2), 2. https://doi.org/10.7713/ijms.2013.0032

Achatz, J., Jahn, K., & Schels, B. (2022). On the non-standard routes: Vocational training measures in the school-to-work transitions of lower-qualified youth in Germany. Journal of Vocational Education and Training, 74(2), 289–310. https://doi.org/10.1080/13636820.2020.1760335

Albertus, R. W., & Hamman-Fisher, D. (2021). Investigating information technology skills retention challenges in South Africa’s public sector. African Journal of Science, Technology, Innovation and Development, 13(5), 541–549. https://doi.org/10.1080/20421338.2020.1791386

Alt, D., & Raichel, N. (2022). Problem-based learning, self-and peer assessment in higher education: Towards advancing lifelong learning skills. Research Papers in Education, 37(3), 370–394. https://doi.org/10.1080/02671522.2020.1849371

Alves, H., & Raposo, M. (2010). The influence of university image on student behaviour. International Journal of Educational Management, 24(1), 73–85. https://doi.org/10.1108/09513541011130560

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. Psychological Bulletin, 103(3), 411–423. https://doi.org/10.1037/0033-2909.103.3.411

Annamdevula, S., & Bellamkonda, R. S. (2016). Effect of student perceived service quality on student satisfaction, loyalty and motivation in Indian universities: Development of HiDeuQual. Journal of Modelling in Management, 11(2), 488–517. https://doi.org/10.1108/JMM-01-2014-0010

Asnawi, N., & Setyoninginah, N. D. (2020). Perceived service quality in Indonesian Islamic higher education context: A test of Islamic higher education service quality (I-HEQUAL) model. Journal of International Education in Business, 13(1), 107–130. https://doi.org/10.1108/JIEB-11-2019-0054

Page 16 of 21
Dehghan, A., Dugger, J., Dobrzykowski, D., & Balazs, A. (2014). The antecedents of student loyalty in online programs. International Journal of Educational Management, 28(1), 15–35. https://doi.org/10.1108/IJEM-01-2013-0007

Dorigo, G., & Tobler, W. (1983). Articles push-pull migration laws. Annals of the Association of American Geographers, 73(1), 1–11. https://doi.org/10.1111/j.1467-8306.1983.tb01392.x

Duarte, P. O., Raposo, M. B., & Alves, H. B. (2012). Using a satisfaction index to compare students' satisfaction during and after higher education service consumption. Tertiary Education and Management, 18(1), 17–40. https://doi.org/10.1080/13583883.2011.609564

El Alfy, S., & Abukari, A. (2020). Revisiting perceived service quality in higher education: Uncovering service quality dimensions for postgraduate students. Journal of Marketing for Higher Education, 30(1), 1–25. https://doi.org/10.1080/08841241.2019.1648360

Finn, M., Mihut, G., & Darmody, M. (2021). Academic satisfaction of international students at Irish higher education institutions: The role of region of origin and cultural distance in the context of marketization. Journal of Studies in International Education, 7–9. https://doi.org/10.1177/1083153211027009

Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. Journal of Marketing Research, 18(3), 382. https://doi.org/10.1177/002224378101000313

Guilbault, M. (2016). Students as customers in higher education: Reframing the debate. Journal of Marketing for Higher Education, 26(2), 132–142. https://doi.org/10.1080/08841241.2016.1245234

Hailat, K. Q., Alsmadi, S., Nossar, M., & Chung, S. B. (2021). An investigation of the push–pull factors influencing student selection of higher education: The case of Arabian Gulf students in the UK. Journal of Public Affairs, July 2020, e2657. https://doi.org/10.1002/pa.2657

Hair, J., Black, W., Bobin, B., & Anderson, R. (2019). Multivariate data analysis (8th ed.). Cengage Learning.

Han, J., Perron, B. E., Yin, H., & Liu, Y. (2021). Faculty stressors and their relation to teacher efficacy, engagement and teaching satisfaction. Higher Education Research and Development, 40(2), 247–262. https://doi.org/10.1080/07294360.2020.1756747

Hanna, M. (2005). Foreign students in Germany: A comparative report of satisfaction with medical behavioral sciences education. Swiss Medical Weekly, 135(39–40), 594–598. https://doi.org/10.4414/smw.2005.11178

Harvey, L., & Asking, B. (2003). Quality in Higher Education. The Dialogue between Higher Education Research and Practice (Springer & Business Media), 69–83. doi:10.1007/978-0-306-48368-4_6

Hassan, S. U. N., Alghaithani, F. D., Zrieq, R., Alahmadi, B. K., Atta, A., Obeidat, R. M., & Kadri, A. (2021). Academic self-perception and course satisfaction among university students taking virtual classes during the covid-19 pandemic in the kingdom of Saudi Arabia (Ksa). Education Sciences, 11(3), 3. https://doi.org/10.3390/educsci11030134

Heo, C. Y., & Lee, S. (2016). Examination of student loyalty in tourism and hospitality programs: A comparison between the United States and Hong Kong. Journal of Hospitality, Leisure, Sport and Tourism Education, 18, 69–80. https://doi.org/10.1016/j.hlste.2016.03.003

Ho, I. M. K., Cheong, K. Y., Weldon, A., & Yaseen, Z. M. (2021). Predicting student satisfaction of emergency remote learning in higher education during COVID-19 using machine learning techniques. PloS ONE, 16(4 April), 1–27. https://doi.org/10.1371/journal.pone.0249423

Holzer, J., Lüftenegger, M., Korlat, S., Pelikan, E., Salme-Aro, K., Spiel, C., & Schobor, B. (2021). Higher education in times of COVID-19: University students' basic need satisfaction, self-regulated learning, and well-being. AERA Open, 7(1), 1–13. https://doi.org/10.1177/23328584211003164

Hu, L.-T., & Bentler, P. M. (1999). 103. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling, 6(2), 1–55. https://doi.org/10.1076/0745-9491.182221

Humbert, T. K., Burket, A., Deveney, R., & Kennedy, K. (2012). Occupational therapy students’ perspectives regarding international cross-cultural experiences. Australian Occupational Therapy Journal, 59(3), 225–235. https://doi.org/10.1111/j.1440-1630.2011.00987.x

Jackson, D. (2015). Employability skill development in work-integrated learning: Barriers and best practice. Studies in Higher Education, 40(2), 350–367. https://doi.org/10.1080/03075079.2013.842221

Kaltsow, C., & Nanouet, D. (2016). Ethnicity and job satisfaction: Perspectives of foreign educators on compensations in Khon Kaen City, Thailand. International Journal of Organizational Diversity, 16(2), 13–21. https://doi.org/10.18848/2328-6261/CGP/v16n2/13-21

Khoo, S., Ha, H., & McGregor, S. L. T. (2017). Service quality and student/customer satisfaction in the private tertiary education sector in Singapore. International Journal of Educational Management, 31(4), 430–444. https://doi.org/10.1080/09518384.2015.1071130

Knight, J. (2016). Internationalization remodelled: Definition, approaches, and rationales. Journal of Studies in International Education, 8(1), 5–31. https://doi.org/10.1177/1083153013260832

Latif, K. F., Bunce, L., & Ahmad, M. S. (2021). How can universities improve student loyalty? The roles of university social responsibility, service quality, and “customized satisfaction” and trust. International Journal of Educational Management, 35(4), 815–829. https://doi.org/10.1108/IJEM-11-2020-0524

Le, T. D., Dobele, A. R., & Robinson, L. J. (2019). Information sought by prospective students from social media electronic word-of-mouth during the university choice process. Journal of Higher Education Policy and Management, 41(1), 18–34, https://doi.org/10.1080/1360080X.2018.1538595

Le, T. D., Robinson, L. J., & Dobele, A. R. (2020). Understanding high school students use of choice factors and word-of-mouth information sources in university selection. Studies in Higher Education, 45 (4), 808–818. https://doi.org/10.1080/03075079.2018.1564259

Leffedl-Davis, E. M., & Perrone-McGovern, K. M. (2015). The cultural adjustment of Saudi women international students: A qualitative examination. Journal of Cross-Cultural Psychology, 46(3), 406–434. https://doi.org/10.1177/0022447314566680

Li, M., & Yu, Z. (2022). Teachers’ satisfaction, role, and digital literacy during the COVID-19 pandemic. Sustainability (Switzerland), 14(3), 1121. https://doi.org/10.3390/su14031121
Lin, L., Shadiev, R., Hwang, W. Y., & Shen, S. (2020). From knowledge and skills to digital works: An application of design thinking in the information technology course. *Thinking Skills and Creativity*, 36(January), 100646. https://doi.org/10.1016/j.tsc.2020.100646

Liu, H. H., & Su, Y. S. (2018). Effects of using task-driven classroom teaching on students’ learning attitudes and learning effectiveness in an information technology course. *Sustainability (Switzerland)*, 10(11), 3957. https://doi.org/10.3390/su10113957

Maaran, B. E., & Majdalani, J. F. (2019). The effect of highly emotionally intelligent teachers on their students’ satisfaction. *International Journal of Educational Management*, 33(1), 179–193. https://doi.org/10.1108/IJEM-11-2017-0338

MacKenzie, S. B., & Podsakoff, P. M. (2012). Common method bias in marketing: Causes, mechanisms, and procedural remedies. *Joumal of Academy of Marketing Science*, 40(1), 66–82. https://doi.org/10.1177/0092070311424227

McMahon, M. E. (1992). Higher education in a world market - An historical look at the global context of international study. *Higher Education*, 24(4), 465–482. https://doi.org/10.1007/BF00013742

Moslehpoor, M., Chau, K. Y., Zheng, J. J., Hanjani, A. N., & Hoang, M. (2020). The mediating role of international student satisfaction in the influence of higher education service quality on institutional reputation in Taiwan. *International Journal of Engineering Business Management*, 12(100), 1–16. https://doi.org/10.1177/1847979020971955

Ng, P. M. L., Chan, J. K. Y., Wui, T. M., Lo, M. F., & Szeto, I. (2021). What makes better career opportunities for young graduates? Examining acquired employability skills in higher education institutions. *Education and Training*, 63(6), 852–871. https://doi.org/10.1108/ET-08-2020-0231

Ngan, N. T., & Khoi, B. H. (2020). University Reputation in the Relationship between Service Quality and Learner’s Behavioral Intention. *International Journal of Advanced Science and Technology*, 29(4), 1866–1896.

Özdemir, A., Tozlu, E., Şen, E., & Ateşoğlu, H. (2016). Analyses of word-of-mouth communication and its effect on students’ university preferences. *Procedia - Social and Behavioral Sciences*, 235(October), 22–35. https://doi.org/10.1016/j.sbspro.2016.11.022

Pan, G., & Seow, P. S. (2016). Preparing accounting graduates for digital revolution: A critical review of information technology competencies and skills development. *Journal of Education for Business*, 91(3), 166–175. https://doi.org/10.1080/08832323.2016.1145622

Paul, R., & Pradhan, S. (2019). Achieving student satisfaction and student loyalty in higher education: A focus on service quality dimensions. *Retailing*, 88(4), 73–749. https://doi.org/10.1080/15332969.2019.1630177

Pham, T. (2022). Communication competencies and international graduates’ employability outcomes: Strategies to navigate the host labor market. *Journal of International Migration and Integration*, 23(2), 733–749. https://doi.org/10.1007/s12134-021-00869-3

Phanthonukithaworn, C., Naruethradhol, P., Gebsombut, N., Chanavirut, R., Onsa-ard, W., Joormwanta, P., Chanyuan, Z., & Ketkaew, C. (2020). An investigation of the relationship among medical center’s image, service quality, and patient loyalty. *SAGE Open*, 10(4), 4. https://doi.org/10.1177/2158244020982304

Prifti, R. (2022). Self-efficacy and student satisfaction in the context of blended learning courses. *Open Learning*, 37(2), 111–125. https://doi.org/10.1080/02680513.2020.1755642

Rahimizhian, S., Avić, T., & Eluwole, K. K. (2020). A conceptual model development of the impact of higher education service quality in guaranteeing edutourists’ satisfaction and behavioral intentions. *Journal of Public Affairs*, 13(3). https://doi.org/10.1002/pa.2085

Rana, M., Bhasin, J., & Mushtaq, S. (2020). Measurement of cultural intelligence and its impact on psychological adaptation of international students in India. *Vision*, 24(4), 452–459. https://doi.org/10.1177/097226920937998

Rathakrishnan, B., Singh, S. S. B., Kamaluddin, M. R., Ghazali, M. F., Yahaya, A., Mohamed, N. H., & Khatim, A. (2019). An investigation on socio-cultural adaptation towards perceived stress among international students of a public university in Sabah: An exploration study for social sustainability. *Sustainability (Switzerland)*, 13(9), 4924. https://doi.org/10.3390/s13094924

Rehman, S., Woro, E., Akahome, J. E., & Sohail, M. D. (2020). The influence of course experience, satisfaction, and loyalty on students’ word-of-mouth and re-enrolment intentions. *Journal of Marketing for Higher Education*, 1–19. https://doi.org/10.1080/08841261.2020.1852469

Santos, G., Marques, C. S., Justino, E., & Mendes, L. (2020). Understanding social responsibility’s influence on service quality and student satisfaction in higher education. *Journal of Cleaner Production*, 256, 120597. https://doi.org/10.1016/j.jclepro.2020.120597

Sheng, M. L., & Fauzi, A. A. (2022). Responding to a disruptive health crisis for higher education institutions: Service quality and perceived safety effects on student satisfaction. *Journal of Marketing for Higher Education*, 1–23. https://doi.org/10.1080/08841261.2022.2056282

Snijders, I., Wijma, L., Kulper, R. M., Rikers, R. M. J. P., & Loyens, S. M. M. (2022). Relationship quality in higher education and the interplay with student engagement and loyalty. *British Journal of Educational Psychology*, 92(2), 425–446. https://doi.org/10.1111/bjep.12455

Song, Y., Lee, K. C., & Lee, J. (2022). Mediating effects of self-directed learning on the relationship between critical thinking and problem-solving in student nurses attending online classes: A cross-sectional descriptive study. *Nurse Education Today*, 109 (November 2021), 105227. https://doi.org/10.1016/j.nedt.2021.105227

Stewart, R. A. (2007). Investigating the link between self-directed learning readiness and project-based learning outcomes: The case of international Masters students in an engineering management course. *European Journal of Engineering Education*, 32(4), 453–465. https://doi.org/10.1080/0304390701337197

Subrahmanyan, A. (2017). Relationship between service quality, satisfaction, motivation and loyalty: A multi-dimensional perspective. *Quality Assurance in Education*, 25(2), 171–188. https://doi.org/10.1108/QAE-04-2013-0016

Torchi, C., Brante, E. W., Jakoy, M., & Manzori, E. (2022). Pre-service teachers’ conceptions of online learning in emergency distance education: How is it defined and what self-regulated learning skills are associated...
with it? Teaching and Teacher Education, 113, 103669. https://doi.org/10.1016/j.tate.2022.103669

Teeroovengadum, V., Nunkoo, R., Gronroos, C., Kamalanabhan, T. J., & Seeboluck, A. K. (2019). Higher education service quality, student satisfaction and loyalty: Validating the HESQUAL scale and testing an improved structural model. Quality Assurance in Education, 27(4), 427–445. https://doi.org/10.1108/QAE-01-2019-0003

Tleuken, A., Turkyilmaz, A., Unger, K., Tokazhanov, G., El-Thalji, I., Mostafa, M. Y., Guney, M., & Karaca, F. (2022). Which qualities should built environment possess to ensure satisfaction of higher-education students with remote education during pandemics? Building and Environment, 207(PB), 108567. https://doi.org/10.1016/j.buildenv.2021.108567

Todea, S., Davidescu, A. A., Al, P. N., & Stamule, T. (2022). Determinants of student loyalty in higher education: A structural equation approach for the Bucharest University of economic studies, Romania. International Journal of Environmental Research and Public Health, 19(9), 9. https://doi.org/10.3390/ijerph19095527

Tran, L. T. (2016). Mobility as ‘becoming’: A Bourdieuan analysis of the factors shaping international student mobility. British Journal of Sociology of Education, 37(8), 1268–1289. https://doi.org/10.1080/01488376.2015.1044070

Verma, A., Lamsal, K., & Verma, P. (2022). An investigation of skill requirements in artificial intelligence and machine learning job advertisements. Industry and Higher Education, 36(1), 63–73. https://doi.org/10.1177/0950422221990090

Vlanden, J., & Barlow, P. J. (2014). Showing the love: Predictors of student loyalty to undergraduate institutions. Journal of Student Affairs Research and Practice, 53(1), 16–29. https://doi.org/10.1515/jsarp-2014-0002

Wen, W., & Hu, D. (2019). The emergence of a regional education hub: Rationales of international students’ choice of China as the study destination. Journal of Studies in International Education, 23(3), 303–325. https://doi.org/10.1177/1028315318797154

Weston, R., & Gore, P. A. (2006). A brief guide to structural equation modeling. The Counseling Psychologist, 34(5), 719–751. https://doi.org/10.1177/001100006286345

Wilkins, S., Balakrishnan, M. S., & Huisman, J. (2012). Student choice in higher education: Motivations for choosing to study at an international branch campus. Journal of Studies in International Education, 16(5), 413–433. https://doi.org/10.1177/1028315311429002

Wong, W. H., & Chapman, E. (2022). Student satisfaction and interaction in higher education. Higher Education, May. https://doi.org/10.1007/s10734-022-00874-0

Yousapronpaiboon, K. (2014). SERVQUAL: Measuring higher education service quality in Thailand. Procedia - Social and Behavioral Sciences, 116, 1088–1095. https://doi.org/10.1016/j.sbspro.2014.01.350

Yuan, R. (2021). Incorporating life skills education in vocational training: toward empowerment-based skills advancement for young women migrant workers in China. Journal of Social Service Research, 47(6), 860–871. https://doi.org/10.1080/01488376.2021.1941502

Zhang, J., Wang, J., Min, S. D., Chen, K. K., & Huang, H. (2016). Influence of curriculum quality and educational service quality on student experiences: A case study in sport management programs. Journal of Hospitality, Leisure, Sport and Tourism Education, 18, 81–91. https://doi.org/10.1016/j.hlste.2016.04.001

Zhao, Q., Wang, J. L., & Liu, S. H. (2021). A new type of remedial course for improving university students’ learning satisfaction and achievement. Innovations in Education and Teaching International, 1–13. https://doi.org/10.1080/14703297.2021.1948886
Appendix 1

Measurement Scales and Items

**Perceived Education Quality** (PEQ) adapted from Hanna (2005)

PEQ1 I believe that I will improve my knowledge of other cultures and people while I study at this institution.

PEQ2 I believe that I will improve my self-learning skills while I study at this institution.

PEQ3 I believe that I will improve my vocational skills while I study at this institution.

PEQ4 I believe that I will improve my information technology skills while I study at this institution.

**Student Satisfaction** (SS) adapted from Harvey and Askling (2003)

SS1 I was satisfied with this institution.

SS2 I was satisfied with this faculty of the institution.

SS3 I was satisfied with this program of the institution.

SS4 I was satisfied with this module of the institution.

SS5 I was satisfied with the teachers in this institution.

**Student Loyalty** (SL) adapted from Khoo et al. (2017)

SL1 I always say positive things about this institution to other people.

SL2 I always recommend this institution to someone else.

SL3 I always encourage friends and relatives to study with this institution.

SL4 I always consider this institution my first choice of international education provider that offers a degree in my chosen area.

SL5 I will always enroll in more courses with this institution in the next few years.
