RESEARCH ARTICLE

Student Learning Experiences in Higher Education: Investigating a Quantity Surveying Programme in Malaysia

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Abstract

Higher education institutions (HEIs) play a crucial role in fostering quality education. This paper examines the attributes that influence student learning experiences in a quantity surveying (QS) programme in a Malaysian private HEI and uncovers the underlying factors involved. The significance of these attributes as recognised by the students, obtained through a questionnaire survey, are subsequently presented. The findings reveal that the five most important attributes are closely related to the lecturer, namely the lecturer's preparedness, responsiveness, interpersonal and communication skills, clarity and academic experiences. An exploratory factor analysis identifies the five major underlying factors to be the quality of academic learning to relate to professionalism and competency of lecturers, quality of academic services and support facilities, interpersonal connections and external considerations, curriculum structure and physical environment and facilities. Understanding these factors could help HEIs to devise effective strategies to enhance the quality of service and programme in higher education, which can result in a greater

impact on the effectiveness of contemporary QS education and the reputation of the HEI as well as fostering student satisfaction and loyalty.

Keywords

Quantity Surveying; Student Perspectives; Student Experience; Higher Education

Introduction

Construction remains a key industry in countries across the world and is one of the largest in the world economy, with the demand for construction professionals expected to stay strong. Quantity surveyors (QSs) are involved in providing financial and contractual management for construction projects at the pre-construction, construction and post-construction phases. The QS profession in most commonwealth countries is practised in a similar pattern to the United Kingdom (UK) (Dada and Jagboro, 2012). In Malaysia alone, the rising demand for professional quantity surveyors has spurred both public and private institutions of higher education to offer QS programmes. QS programmes are offered to students in HEIs to produce competent and professionally trained graduates who can confront challenges on all aspects of the construction process and project life cycle. According to RICS's Pathway Guide: Quantity Surveying and Construction that was published in 2018, the competencies of a qualified chartered surveyor consist of three distinct categories: mandatory, technical core and technical optional. Against this background, QSs develop a third (34%) of their overall competence through educational training, 45% with professional capability and another 21% through professional development (Dada and Jagboro, 2018). Paradoxically, the competencies of graduate QSs working in developing countries are not to the expected standard (Yogeshwaran, Perera and Ariyachandra, 2018).

Given the rapid changes in construction project complexities, the range of QS studies has been diversified into an ever-widening scope of service beyond traditional boundaries. The role of a QS is increasingly concerned with data management (e.g., numerical and data analysis skills) rather than data capture (e.g., the process of gathering data). In recent times, a graduate QS is required to cope with the application of advanced construction technology, materials innovation, management approaches, clients' expectations and new market requirements within the construction industry (Dada and Jagboro, 2012; Ekundayo, 2020). Some graduates may choose to move into such other construction roles as project management, construction management or cost consultancy. To meet these challenges and enhance QS undergraduates' professionalism with relevant skills and competencies, HEIs play a vital role in providing satisfactory learning experiences for undergraduates in QS programmes. A study conducted in India reported a significant relationship between education service qualities and undergraduate experiences at HEIs (Chandra, et al., 2018). In today's competitive learning environment, undergraduate experiences have a strong impact on success in the development of the educational process. This can be explained by educational institutions seeking to obtain prospective benefits in the competitive market that may need to maximise the student level of experiences by providing a high quality of services (Chandra, et al., 2018). Quality in higher education can be conceptualised as purposeful, exceptional, transformative and accountable, with the indicators relating to administrative, student support, instructional and student performance (Schindler, et al., 2015). The focus includes governance and regulation, curriculum design, administration, learning experience and qualification (Harvey and Askling, 2003). Effective teaching and learning in higher education is essential to help students develop the mental capacity to acquire knowledge, skills and competencies.

In today's globally competitive environment, an HEI plays an important role in delivering the continuous improvement of educational services and programmes to students to equip them with adequate skills, competencies, attitudes and necessary values for further career development (Olmos-Gómez, et al., 2020). Hence, to enhance the quality of an HEI, collecting adequate feedback from students' evaluations can

be considered one of the most effective management tools for understanding the students' views of their academic programme. As the students' assessment reflects their educational experience and fulfilment of expectations, the feedback obtained can be used to make appropriate adjustments to the programme. To this end, higher education organisations can develop strategies to cope with identified complications and make continuous quality improvements.

The aim of this study is threefold. First, to identify (via a meta-analysis of the literature) the most important attributes influencing quality and learning experiences in HEI, particularly in contemporary QS education. Second, to appraise the significance of these attributes through a survey of QS students from a well-established private HEI in Malaysia. Third, to uncover the underlying factors of student experiences of their programme of learning. This study seeks to contribute to the body of knowledge of the importance of the quality of service and programmes in higher education, which can have a great impact on the effectiveness of academic programmes and services, and the reputation of the HEI, as well as fostering student satisfaction and loyalty.

Attributes influencing student experiences in higher education

Student experiences refer to student satisfaction with the educational services and programmes offered by HEIs. In this vein, satisfaction means a mental state of enjoyment when a person's perceived outcome fulfils her/his expectations (Weerasinghe and Fernando, 2017). Tan, Muskat and Zehrer (2016) conducted a meta-analysis of research relating to the quality of student experiences in higher education to assert the need for student-centred initiatives for improving the quality of higher education for students. Considering that fact, the satisfaction obtained by students in higher education predominantly depends on their perceived performance of the quality of the services provided in HEIs, and such satisfaction changes continually due to the learning environment in university life (Shahsavar and Sudzina, 2017). According to Al-Sheeb, Hamouda and Abdella (2018), there are two components to student satisfaction. The first concerns teaching and learning assessment, while the second emphasises comprehensive student experiences in higher education. As a corollary, student satisfaction is generally accepted as a "short term attitude resulting from an evaluation of student's educational experience" (Elliott and Healy, 2001, p.2).

Pedro, Mendes and Lourenço (2018) however, opine that student experiences reflect the degree of contentment of the educational programme and services provided if their expectations are achieved or exceeded. Students tend to be satisfied when the quality of the service provided is higher than anticipated. On the other hand, students tend to have negative feelings when there is a mismatch between these expectations and their actual experience. In appraising the influence of facilities performance, Abdullahi and Wan Yusoff (2019) found that student satisfaction can be perceived as a reflected contemplation of life experience; it refers to the subjective evaluation of their learning experiences pertaining to educational activities. However, the concept of student experiences is relative as it encompasses a wide range of determinants that influence their overall satisfaction level associated with the educational programme offered (Yusoff, McLeay and Woodruff-Burton, 2015).

Table 1 summarises the 20 most highly cited attributes in previous research that can influence students' learning experiences in HEIs. These attributes are well known and for the purposes of brevity are grouped under four generic factors, viz. course, personal, lecturer and institution.

Research methodology

A quantitative positivist approach is used to enable objective reality to be captured and interpreted using statistical analyses (Hair, et al., 2019). The study is explanatory while bivariate and multivariate statistical techniques are utilised to estimate the relationships involved. The data collection instrument is a structured

Table 1.   Identification of attributes and sources

Ref	Attributes	(Butt and Rehman, 2010)	(Letcher and Neves, 2010)	(Amos and Hassan, 2017)	(Yusoff, McLeay and Woodruff-Burton, 2015)	(Chandra, et al., 2018)	(Pescaru, 2017)	(Balakrishnan and Low, 2016)	(Spooren, Mortelmans and Christiaens, 2014)	(Pedro, Mendes and Lourenço, 2018)	(Ghazal, Al-Samarraie and Aldowah, 2018)	(Jereb, Jerebic and Urh, 2018)	(Arambewela and Hall 2013)	(Vela et al. 2016)	(Martirosyan et al. 2014)	(Tsinidou, Gerogiannis and Fitsilis, 2010)	(Ashraf, Osman and Ratan, 2016)	(Fajčíková and Urbancová, 2019)	(Closs, Mahat and Imms, 2021)
A	**Course factor**																		
A1	Course content	√	√		√	√	√		√	√	√	√				√	√	√	√
A2	Programme flexibility		√		√		√		√		√	√				√			
A3	Activities and workshop availability		√		√	√		√		√	√					√	√		√
A4	Quality of study material								√		√	√					√	√	
A5	Counselling services		√			√	√				√	√	√		√				
B	**Personal factor**																		
B1	Peer relationships	√			√		√		√	√	√	√	√					√	√
B2	Living arrangements				√						√	√							
B3	Self-evaluations	√		√	√		√		√	√			√	√					
B4	Family encouragement						√						√						
B5	Financial considerations			√	√							√				√	√	√	√
C	**Lecturer factor**																		
C1	Lecturer's academic experiences	√	√	√	√	√		√	√	√	√	√	√			√	√	√	√
C2	Lecturer's clarity		√	√		√	√		√	√	√					√			√
C3	Lecturer's interpersonal and communication skills	√	√	√	√			√	√		√	√	√				√	√	√
C4	Lecturer's preparedness				√	√	√			√	√	√				√		√	√
C5	Lecturer's responsiveness				√	√	√	√	√	√	√	√	√			√	√	√	
D	**Institution factor**																		
D1	Classroom environment	√			√	√	√			√		√	√	√		√	√	√	√
D2	Computer and lab facilities				√	√	√	√		√		√	√			√	√	√	√
D3	Recreation facilities		√		√							√				√	√		
D4	Library services				√	√	√			√		√				√	√		
D5	Ancillary services				√							√				√			

questionnaire, which is economical and practical for a large sample ([Hair, et al., 2019](#)). Both descriptive and inferential statistical tools are used for the analysis using *Statistical Package for the Social Sciences* (SPSS 23), which include both descriptive and inferential statistical analyses. Factor analysis is used to uncover the underlying factors that influence the academic experiences of QS students.

QUESTIONNAIRE SURVEY

Based on the literature review, a questionnaire was designed and distributed to undergraduates of a prominent private HEI in Malaysia. The survey questionnaire contains two sections. Section A solicits the respondent's level of study (Year 1 to Year 4), and Section B solicits the perceived importance of the attributes influencing student experiences of the programme on a five-point Likert scale ranging from 1 (not important) to 5 (very important).

ACADEMIC PROFILE OF RESPONDENTS

A total of 125 students were approached, out of whom 123 completed the questionnaire, giving a good response rate of 98.4% – a typical response rate for a face-to-face survey of this kind. The academic profile of the respondents consisted of (30 Year 1, 30 Year 2, 32 Year 3 and 31 Year 4), showing an equal spread over the four levels (Years 1 to 4).

Results

ANALYSIS AND RANKING OF PERCEIVED ATTRIBUTES

Cronbach's coefficient alpha is 0.883 for the 20 attributes evaluated, which is greater than the 0.7 needed for internal consistency reliability ([Hair, et al., 2019](#)). [Table 2](#) presents the ranking, mean scores and standard deviation of the importance ratings for each attribute according to the category of attributes. Overall, the mean scores range from 3.309 to 4.374 with the five most significant attributes being lecturer's preparedness (4.374), lecturer's responsiveness (4.366), lecturer's interpersonal and communication skills (4.358), lecturer's clarity (4.309) and lecturer's academic experiences (4.293). Intriguingly, all five leading attributes are associated with the lecturer. On the other hand, the three least influential attributes are counselling services (3.309), ancillary services (3.309) and recreation services (3.480). From the Year 1 student perspective, course- and personal-related attributes are ranked the lowest while Year 4 students perceived these to be more important than institutional-related attributes. With regard to the association between ranks, Spearman's rank-order correlation tests reveal strong statistically significant correlations between the four groups of students. The highest is Group 5: Year 3-Year 4 (r_s = 0.855, p < 0.01), while the lowest is Group 1: Year 1-Year 2 (r_s = 0.778, p < 0.01).

The Kruskal-Wallis ANOVA test reveals that the perceptions of respondents concerning 'course content', 'activities and workshop availability' and 'peer relationship' have statistically significant differences between the four respondent types ([Table 2](#)). To identify the differences between two independent groups, Mann-Whitney U tests are further employed, and the results are presented in [Table 3](#). Notably, Group 3: Year 1-Year 4 contributes to the statistical differences in the opinions for all three attributes.

FACTOR ANALYSIS

Factor analysis is a multivariate technique widely used for data reduction and summarisation purposes involving a large number of significantly correlated variables to enable appropriate interpretation ([Field, 2013](#); [Hair, et al., 2019](#)). In this study, this technique is useful for investigating the clustering effects of the variables so that they can be grouped together. The KMO for the 20 variables is 0.810, which is above

Table 2. Ranking of attributes

Ref	Attributes	Overall (N=123)			Year 1 student (n=30)			Year 2 student (n=30)			Year 3 student (n=32)			Year 4 student (n=31)			Kruskal-Wallis H	Asymptotic significance
		Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank		
A	**Course-related**																	
A4	Quality of study material	4.081	0.816	6	4.000	0.830	8	3.933	0.740	8	4.000	0.842	8	4.387	0.803	5	7.504	0.057
A1	Course content	4.073	0.791	7	3.767	0.935	9	3.833	0.747	10	4.219	0.659	5	4.452	0.659	3	15.372	0.002**
A2	Programme flexibility	3.626	0.740	16	3.467	0.730	16	3.500	0.777	18	3.625	0.707	15	3.903	0.700	15	6.062	0.109
A3	Activities and workshop availability	3.577	0.868	17	3.400	0.814	18	3.600	0.770	16	3.375	0.907	18	3.936	0.892	14	8.010	0.046*
A5	Counselling services	3.309	0.924	19	3.200	0.925	20	3.267	0.944	20	3.344	1.035	20	3.419	0.807	20	1.208	0.751
B	**Personal-related**																	
B3	Self-evaluations	3.911	0.768	9	3.700	0.837	11	3.900	0.712	9	4.000	0.803	7	4.032	0.706	12	2.319	0.509
B5	Financial considerations	3.911	0.923	10	3.533	1.074	14	4.100	0.845	6	3.844	0.920	10	4.161	0.735	9	7.406	0.060
B1	Peer relationships	3.846	0.800	12	3.667	0.922	12	3.667	0.758	14	3.750	0.718	12	4.290	0.643	8	13.429	0.004**
B4	Family encouragement	3.764	0.984	14	3.500	1.106	15	3.967	0.850	7	3.688	0.998	14	3.903	0.944	16	3.390	0.335
B2	Living arrangements	3.667	0.826	15	3.433	0.817	17	3.767	0.817	12	3.781	0.706	11	3.677	0.945	17	4.030	0.258
C	**Lecturer-related**																	
C4	Lecturer's preparedness	4.374	0.740	1	4.367	0.765	1	4.233	0.858	3	4.500	0.672	1	4.387	0.667	4	1.577	0.665
C5	Lecturer's responsiveness	4.366	0.739	2	4.267	0.828	4	4.200	0.761	4	4.469	0.621	3	4.516	0.724	1	4.173	0.243
C3	Lecturer's interpersonal and communication skills	4.358	0.821	3	4.333	0.844	2	4.200	0.925	5	4.500	0.718	2	4.387	0.803	5	1.846	0.605
C2	Lecturer's clarity	4.309	0.801	4	4.300	0.702	3	4.267	0.828	1	4.188	0.965	6	4.483	0.677	2	1.689	0.639
C1	Lecturer's academic experiences	4.293	0.817	5	4.267	0.828	4	4.233	0.774	2	4.282	0.888	4	4.387	0.803	5	0.939	0.816
D	**Institution-related**																	
D2	Computer and lab facilities	3.764	0.984	8	4.167	0.699	6	3.833	0.834	11	3.938	0.759	9	4.097	0.870	11	3.061	0.382
D1	Classroom environment	3.870	0.877	11	4.133	0.860	7	3.700	0.915	13	3.625	0.907	17	4.032	0.752	13	6.823	0.078
D4	Library services	3.821	0.941	13	3.733	0.980	10	3.667	0.922	15	3.750	0.916	13	4.129	0.922	10	4.961	0.175
D3	Recreation services	3.480	0.890	18	3.567	0.935	13	3.533	0.896	17	3.344	0.902	19	3.484	0.851	19	1.013	0.798
D5	Ancillary services	3.309	0.924	19	3.400	1.221	19	3.367	0.928	19	3.625	0.707	15	3.581	1.025	18	1.727	0.631

Note: **. The mean difference is significant at the 0.01 level

*. The mean difference is significant at the 0.05 level

Table 3.   Mann-Whitney test on attributes

Undergraduate level grouping		Asymptotic significance (2-tailed)		
		Course content	Activities and workshop availability	Peer relationship
Group 1	Year 1 Year 2	0.680	0.214	0.930
Group 2	Year 1 Year 3	0.036*	0.892	0.807
Group 3	Year 1 Year 4	0.003**	0.021*	0.005**
Group 4	Year 2 Year 3	0.026*	0.212	0.720
Group 5	Year 3 Year 4	0.141	0.020*	0.003**

Note: As Table 2.

the 0.50 threshold for sample adequacy (Field, 2013; Hair, et al., 2019). The result of the Bartlett's test of sphericity is 1175.3 ($p < 0.001$), indicating the presence of correlations among the attributes and that the correlation matrix is not an identical matrix (Field, 2013; Hair, et al., 2019). The above tests substantiate the appropriateness of the factor model.

Subjecting the 20 attributes to principal component analysis and varimax with Kaiser normalisation yields a five-factor solution with eigenvalues greater than 1, explaining 66.68% of the total variance – exceeding the 60% required for adequate construct validity (Hair, et al., 2019). All 20 attributes obtain factor loadings above the threshold level of 0.50 and are significant in contributing to the interpretation of the principal factors (Hair, et al., 2019). In Table 4, all of the extracted factors have good reliability with Cronbach's coefficient alpha values of above 0.70. The five factors were named by combining the meanings of these attributes with the highest loadings in the cluster.

The factors are ordered based on the variance shared by each factor which indicates their level of significance and their influence on student satisfaction. The five manifested factors are determined (Table 4). The average mean scores of each underlying factor's attributes are also calculated. Factor 1 attained the highest score of 4.340 while the lowest is Factor 2 with 3.480. An average mean score higher than 3.0 indicates that the factor is regarded as important in the rating scale.

Discussion

RANKING OF ATTRIBUTES

The findings suggest that undergraduates believe that the preparation done by a lecturer is significantly related to their satisfaction level towards the QS programme provided by the HEI. In a Pakistani study, the instructors' expertise is the most sensitive factor affecting student satisfaction by 39% (Butt and Rehman, 2010). In another study, Siming, Gao and Xu, (2015) collected a sample of 200 students to observe that student learning experiences are enormously influenced by how much the lecturer prepares and assembles before conveying the lecture. Students perceive academic quality to be considerably spoiled with a disorganised lecturer who prepares insufficiently before teaching in the classroom. The lecturer's preparedness involves the timely assembly of lecture notes and assignment briefs, which are associated

Table 4.   Rotated component matrix

Attributes	Component				
	1	2	3	4	5
Professionalism and competency of lecturers					
Lecturer's preparedness (C4)	0.848				
Lecturer's responsiveness (C5)	0.837				
Lecturer's interpersonal and communication skills (C3)	0.820				
Lecturer's academic experiences (C1)	0.697				
Lecturer's clarity (C2)	0.617				
Quality of academic services and support facilities					
Ancillary services (D5)		0.896			
Recreation facilities (D3)		0.772			
Library services (D4)		0.764			
Counselling services (A5)		0.559			
Interpersonal connections and external considerations					
Family encouragement (B4)			0.727		
Living arrangements (B2)			0.688		
Financial considerations (B5)			0.656		
Self-evaluations (B3)			0.629		
Peer relationships (B1)			0.606		
Curriculum design and course content					
Programme flexibility (A2)				0.763	
Activities and workshop availability (A3)				0.738	
Course content (A1)				0.663	
Quality of study materials (A4)				0.540	
Physical environment and facilities					
Classroom environment (D1)					0.863
Computer and lab facilities (D2)					0.746
Cumulative variance explained (%)	17.25	14.45	13.17	12.00	9.81
Cronbach's α	0.870	0.817	0.752	0.770	0.767
Average mean scores (based on overall)	4.340	3.480	3.820	3.839	3.817
Kaiser-Meyer-Olkin measure of sampling adequacy	0.810				
Bartlett's test of sphericity (approximate χ^2)	1175.308				
Degree of freedom (df)	190				
Significance (ρ-value)	0.000				

Note: Extraction method = principal component analysis; rotation method: varimax with Kaiser normalization. Rotation converged in 7 iterations.

with the learning outcomes of the particular subject. For instance, lecture notes that are not released before class may trigger a negative influence on student's interest in a particular subject. Some notes may be outdated and not reflect the latest scientific facts in the field. To enhance learning, lecturers can try to find local problems that the QS students can solve and/or design problem-based tasks that tie to the learning objectives of the course. As Kamardeen (2015) suggests, case studies and real world examples are effective module delivery methods. As Wrenn and Wrenn (2009) highlight, lecturers of professional degree programs need to demonstrate to students the importance of a solid grounding in theory in order to achieve excellence in their professional practice. A variety of teaching styles can be used – quizzes, simulations, games, discussion groups, etc. (Kamardeen, 2015).

The lecturer's prompt response to questions or requests has a crucial effect on student satisfaction (Amos and Hassan, 2017), with students tending to be frustrated whenever the lecturer fails to respond to questions or consistently refuses to be involved in discussions. In this regard, the lecturer's ability to respond spontaneously to the student is a key determinant in facilitating a positive learning environment. The lecturer's reluctance to answer students' questions leads them to perceive that the lecturer is insufficiently qualified to teach, and such behaviour subsequently engenders a negative perception throughout the learning experiences. It is worth noting that classroom discussions provide a stimulating and interactive environment for students to talk and listen to each other's responses to questions and stimulate small-group interactions (Wrenn and Wrenn, 2009). Although questioning is an integral part of meaningful learning and scientific inquiry, the lecturer holds the key to the classroom climate (Chin and Osborne, 2008). For instance, there is a situation where lecturers choose to ignore student feedback or complaints made, such as merely reading PowerPoint slide words and lecturing with poor handwriting. Such circumstances may cause academic isolation among students, particularly those who lack proficiency and competency in their medium of instruction. In such cases, students failed to understand the lectures, thus affecting the students' intentions to pursue higher education (Ghazal, Al-Samarraie and Aldowah, 2018; Lim and Vighnarajah, 2018).

Previous studies have evaluated the interpersonal and communication skills of a lecturer having the strongest correlation with undergraduates' learning experiences (Ng, 2018; Tsinidou, Gerogiannis and Fitsilis, 2010). Interpersonal and communication skills may refer to the lecturer's practice of interacting impartially with students by providing necessary encouragement and support in a timely fashion throughout the learning experiences (Ghazal, Al-Samarraie and Aldowah, 2018). Lecturers who are approachable and amiable, as well as having a positive attitude towards students, are likely to have a huge impact on student performance and satisfaction, as good affiliation with students can stimulate their interest in the course programme and the willingness to continue with HEI (Amos and Hassan, 2017). To increase interaction in the class, lecturers may adopt creative course delivery, such as giving real-life examples relating to course content. Such course discussions help students to avert negative feelings towards the educational programme, thus providing an effective learning experience (Ng, 2018).

The ability of lecturers to express themselves clearly has a positive influence on student learning experiences (Ng, 2018). Students assert that greater clarity in lecturing is more significant than expertise in a particular subject matter. To better understand student perceptions of a good lecturer, Martín (2019) administered a questionnaire survey to collect responses from 269 students to emphasise that the lecturer's presentation is a key attribute in conveying the subject knowledge to students. It has been further argued that mere competence in the subject area is not enough to deliver the lecture, but also involves the way how the lecturer captures the students' attention in the class. Moreover, the lecturer's clarity also refers to the various teaching styles demonstrated by the lecturer that may stimulate the students' enthusiasm towards the course programme throughout the learning process. Effective interactive and innovative teaching techniques adopted by the lecturer when delivering knowledge can change the students' perceptions of their learning experience. Both synchronous (e.g., in-class Q&A, video conferencing, live-streamed lectures)

and asynchronous (e.g., pre-recorded video content, online discussion boards, collaborative documents in the cloud) learning methods and tools may also be capitalised on to accommodate different learning styles, guide students to specific points of interest and help students to achieve their full potential. Concurrent with the increasing use of information technology and electronic learning (e-learning) approaches, the flipped classroom (FC) pedagogical model with active learning has gained popularity in higher education worldwide. In investigating the effects of flipped classrooms in China, He, et al. (2019) found that this approach improved student performance, increased lecturer-student interaction and generated positive student attitudes towards the experience when compared with lecture-based learning (LBL). In the classic LBL model, the lecturer is regarded as a highly knowledgeable leader ('sage on the podium') to communicate solid theoretical knowledge and basic content to the students who are usually viewed as passive recipients by listening to lectures. As such, this passive learning process can lead to boredom and fail to engage current cohorts of students. Contrariwise, FC is a type of blended learning where students are introduced to the learning material before class with classroom time then being used to deepen their understanding through discussion with peers and lecturer-facilitated problem-solving activities (Lage, Platt and Treglia, 2000). For example, practice problems as homework and active group-based problem-solving activities using such real-world examples as current issues affecting the global construction industry are inherently engaging and needed to provide concrete opportunities to apply knowledge and skills learned in the classroom (Kibwami, et al., 2021). Some interesting videos, such as how modern methods of construction (MMC) can be used to reduce construction time and improve site safety can be shared asynchronously to make the content available on-demand and transform students into "active self-explorers of knowledge" with active participation in the learning process. Nonetheless, a recent survey involving 310 QS students of a private HEI in Malaysia found they are generally satisfied with a blended learning environment but the majority are more supportive of face-to-face sessions than the online platform, indicating that they are more inclined towards attending physical classroom sessions with the lecturers (Kamarazaly, et al., 2020).

A good lecturer needs to be an expert in certain subject knowledge and skills to be delivered to students during lecturing (Martirosyan, 2015; Yusoff, McLeay and Woodruff-Burton, 2015). In this vein, the lecturer's expertise in the subject matter has a positive influence on the students' perception of their learning experience. Students expect a lecturer to be a subject matter expert and knowledgeable enough to enhance their learning effectiveness, thus leading to a higher satisfaction with their learning experiences. To stay relevant, lecturers have to be keeping up to date with theory and practice in the field. Collaborative action research with industry partners can be leveraged for continual learning and progressive problem-solving. Lecturers need to continually learn new skills and familiarise themselves with the diversification of professional QS roles and the changing business environment (Chandramohan, Perera and Dewagoda, 2020; Yap, et al., 2021).

The heterogeneous opinions between Year 1 and Year 4 students (Group 3 in Table 3) towards the 'course content' attribute when assessing their learning experience is probably due to the lack of enthusiasm and interest towards QS programmes from Year 1 students. Some first-year students might still feel ambiguous when choosing their degree course or are forced to study a particular course for the sake of a family business, and thus parents might be involved in their career development and selection. Consequently, some students are not keen on understanding the course content and the learning outcomes of the subject course. Many of the first-year students have not been exposed to field practice. Having pursued the programme for over 4 years and returned to campus after 6 months of industrial attachment, the final-year students (Year 4) realise the importance of course content as the knowledge and skills learned from a particular subject could be applicable in their future quantity surveying profession. Regarding the 'activities and workshop availability' attribute, the occurrence of dissimilar viewpoints may be due to Year 1 students being more associated with the theory-based subjects of QS courses such as construction materials, building services,

construction technology and technical drawings. Therefore, they place greater emphasis on having lectures instead of activities and workshops; thus, the availability of activities and workshops has little effect on their satisfaction with the educational experience. In contrast, Year 4 students perceive that this attribute can reasonably affect their satisfaction towards the QS programme as they demand more practical experiences instead of the fundamental knowledge they have learned in previous years. Furthermore, final-year undergraduates anticipate developing a deeper understanding of the course by attending more workshops and seminars, which can effectively improve their learning experiences in an educational institution (Ghazal, Al-Samarraie and Aldowah, 2018). The differing viewpoints obtained for the 'peer relationship' attribute is probably due to the unfamiliarity of first-year students with the surrounding people and environment. From the perspective of Year 1 students, the social connection between students is deemed less critical towards their learning experiences as they perceive lecturers to be the ones who can facilitate the learning process more effectively than their peers. Conversely, Year 4 students perceive that social engagement can enhance their productivity through group discussions and meetings. During the discussions, they assist and learn from each other as well as completing assignments together instead of separately. Such social interactions potentially trigger the students' motivation and satisfaction towards their experiences of the QS programme.

FACTOR ANALYSIS RESULTS

Factor 1: Professionalism and competency of lecturers

This first factor has the largest total variance of 17.25% and consists of the five most important attributes relating to a lecturer's professional knowledge and academic proficiency, all with a factor loading above 0.60. Academic and pedagogical qualities are highly associated with the teaching staff (their qualification, competence, behaviours, attitudes and teaching style). For a professional programme such as Quantity Surveying, a multi-disciplinary team of expert faculty members involving leading academicians and seasoned industry practitioners are needed for cultivating practical skills and imparting solid theoretical knowledge as well as ensuring students have the necessary skills to meet the expectations of their future employers. Student experiences of a course are largely dependent on how the lecturers disseminate the subject knowledge, reinforce theoretical content, assign adequate practical exercises and clear up doubts (Arrieta and Avolio, 2020; Jereb, Jerebic and Urh, 2018). The professionalism of lecturers is synthesised in the situation where lecturers can promote a conducive academic environment by radically understanding the roles of educators as a profession (Schuck, Gordon and Buchanan, 2008; Susanto, 2019).

In investigating the perceived value of private HEIs in Bangladesh, teaching competence is measured with lecturing expertise, knowledge and qualification of the subject matter, availability for consultation and impartiality in assessments (Hossain, Hossain and Chowdhury, 2018). Their study found that teaching competence, being a quality dimension, is important to influence the students' perception of the value of the academic programme, which in turn affects their satisfaction. According to Latif, et al. (2019) lecturer quality, which measures the extent to which students are satisfied with the quality of lecturers in their HEI, is a significant service quality factor as the quality of teaching significantly enhances student impartiality, motivation and satisfaction.

In light of the above considerations, students are satisfied when their lecturers are approachable, friendly, passionate and understand their needs, provide assignments that are aligned with course learning outcomes, prepare quality lecture notes, organise various types of class activities to encourage student participation, ensure fairness and consistency in marking assessments, give valuable and constructive feedback, are punctual, deliver interesting lectures and are knowledgeable (Kamardeen, 2015; Pedro, Mendes and Lourenço, 2018; Yusoff, McLeay and Woodruff-Burton, 2015). Lecturers who are active in construction research and industrial consultancy work can embed the local context as teaching resources and demonstrate real-life applications. As such, students can be exposed to real challenges in practice. As HEIs continue

to become more competitive, there is an increasing need for lecturers to continuously evolve through professional development initiatives and be informed of different teaching methods in the new era of information technology in their quest to continuously improve service quality (Arrieta and Avolio, 2020; Martirosyan, 2015).

Factor 2: Quality of academic services and support facilities

This factor accounts for the second-largest variation of 14.45% and contains four attributes that explain the importance of student support services and facilities as well as service quality standards in enhancing student satisfaction on a university campus. The factor loadings of the variables range from 0.559 to 0.896. Academic services and support facilities such as ancillary services, recreation facilities, library services and counselling services have a great impact on student experiences (Siming, Gao and Xu, 2015). Ancillary services are one of the student facilities that aim to support core functions and aid them in achieving educational goals. For example, the quality of cafeteria facilities and security measures, number of vending machines and versatility of parking services that are operated and coordinated in serving and supporting the HEI could potentially enhance student experiences and satisfaction levels (Yusoff, McLeay and Woodruff-Burton, 2015).

Recreational facilities such as sports centres and gymnasia are relatively crucial for student experiences as they act as non-educational activities provided by the HEI to entertain them, thus evoking positive satisfaction through their enjoyment (Manzoor, 2013). Therefore, the quality and availability of sufficient sports facilities and equipment are believed to have a significant influence on the experiences of students (Jereb, Jerebic and Urh, 2018). Additionally, students perceive the approachability and accessibility of academic advisors as not only providing knowledge but as necessary in enhancing their educational progress (Yusoff, McLeay and Woodruff-Burton, 2015). An effective academic counselling service dealing with career management, time management and stress management can engender the students' positive perceptions in pursuing higher education (Pescaru, 2017).

Factor 3: Interpersonal connections and external considerations

This factor comprises five attributes with a total variance of 13.17%, relating to emotional, social and financial support in navigating the challenges of graduate education. Interpersonal connections refer to family engagement as well as peer support, and these connections have a salient effect on student experiences. Parental support in motivating and encouraging students in their career development is vital in helping students become resilient in coping with difficulties associated with their academic goals, thus fostering successful growth intellectually in their learning process (Vela, et al., 2016). Moreover, good peer interaction between the students plays a pertinent role in boosting their enthusiasm in the pursued programmes. It could therefore be elucidated that social integration is influential in affecting student experiences of QS programmes, as social responsibility is established among them by spending time together, studying and helping each other in pursuing their academic careers (Jereb, Jerebic and Urh, 2018). Social aspects particularly refer to students adjusting to varsity life, living apart from friends and family in a new environment within a short period of time and integrating with their peer groups and faculty. According to Tinto (1975), academic integration is defined by students' academic performance, level of intellectual development and perception of having a positive experience in academic settings, while social integration is defined by their involvement in extracurricular activities and positive relationships with peers. Against this background, the students' emotional and cognitive reactions to stress are greatly influenced by the extent to which they can cope with the demands and challenges faced during their course of study (Kausar, 2010). Positive experiences with the academic and social systems strengthen students' academic and social integration and lead them to persevere in their courses and programs (Lakhal, et al., 2020). With a sample size of 309 undergraduate students from Malaysian private higher education institutions, Ganesh,

Haslinda and Raghavan (2017) reported that academic and social integration significantly moderates student satisfaction and retention; this is supported by two underpinning theories of Perceived Performance and Tinto's Interactionist.

Other than academic services provided by the HEI itself and interpersonal connections, external influences are believed to have a significant impact on student experiences. External considerations are associated with accommodation issues, financial considerations, as well as self-assessment (Ravindran and Kalpana, 2012). Living arrangements pertain to the location of the HEI, as these could be a concern for students. For instance, accessibility of the HEI, cost of transportation, bus stop locations, upkeep of cycleways and walkways, as well as car parking provision, are pivotal in affecting student experiences (Jereb, Jerebic and Urh, 2018). Financial aspects may be discerned by students as an influential factor in assessing their experiences of the educational programme, as the tuition fees and cost of academic materials can be a pressure for them (Yusoff, McLeay and Woodruff-Burton, 2015). Apart from this, self-evaluation is an external factor influencing student experiences of QS programmes as it refers to the confidence of one's ability to pursue academic goals in HEIs (Vela, et al., 2016). Hence, students may trigger different perceptions towards learning experiences of an educational programme based on their own perceived values (Pedro, Mendes and Lourenço, 2018).

Factor 4: Curriculum design and course content

Factor 4 comprises four attributes with a total variance of 12.00%, relating to programme design and curriculum content. In formal education, the curriculum is interpreted as a course programme offered to the student for the fulfilment of educational goals. For QS, this comprised the mandatory and technical competencies outlined by RICS (RICS, 2018), which are critical aspects for the accreditation of QS degree programmes. In the case of Malaysia, a recognised QS programme requires full accreditation from the Malaysian Qualifications Agency (MQA) and the Board of Quantity Surveyors Malaysia (BQSM). Nonetheless, the recognition by the Royal Institution of Surveyors Malaysia (RISM) and such distinguished international professional bodies as the Royal Institution of Chartered Surveyors (RICS) and Chartered Institute of Building (CIOB) is also eminently valuable. The core competencies expected of graduate quantity surveyors include measurement, professional practice, technology in construction, management in construction, economics and law, which remain consistent through most HEIs in Malaysia. For the curriculum to remain relevant and responsive to the evolving demands of industry, the curriculum needs to be periodically updated to include such emerging technologies as 3&4D Building Information Modelling (BIM), automation of BIM quantity take-off, prefabrication, smart wearables, virtual and augmented reality, robotics and cloud-based collaboration tools (CIDB, 2020). Suitable teaching strategies such as lectures, workshops, collaboration, an open learning platform and project-based learning can be utilised to incorporate these emerging technologies into the curricula (Yap and Aziz, 2020). With respect to the evaluation system, both formative (e.g., coursework) and summative (e.g., final examination) assessments need to be constructively aligned with the learning outcomes. Alumni and industry advisory panels also need to be regularly consulted to provide a link with external representatives and advise on the relevance of the curriculum to the industry. The curriculum is one of the significant factors influencing student experiences (Bell and Brooks, 2018). Continuing on this line, benchmarking with other local and international HEIs is needed for quality assurance and to gauge academic standards. The curriculum dimension comprises programme flexibility, activities and workshop availability, course content, internship placements and quality of educational material. The flexibility of the programme refers to how the lecture timetable is organised (Yusoff, McLeay and Woodruff-Burton, 2015). An inadequately planned academic schedule by the HEI interrupts the students' routine flow of studies and consequently affects the overall learning experiences of the course programme (Ashraf, Osman and Ratan, 2016). Therefore, a robust and versatile course schedule that adapts to the students' rhythm and needs of their studies by offering various

elective modules can directly engender a positive perception of the experiences (Farahmandian, Minavand and Afshardost, 2013). Some value-added electives to enhance both technical and tactical skills include current construction issues, digital technology use in construction, sustainable construction, value and risk management and international procurement. Final year project (FYP), on the other hand, provides students with the opportunity to stretch their intellectual and technical skills – required students to take responsibility for their own learning and to encourage both clarity and depth of thought in that the project involves analysis of a problem and the development of a logical sequence of ideas. Each individual project is supervised by a lecturer and assessed via written reports and presentations. A compulsory internship for 6 months, however, offers opportunities for students to gain insight into actual problems, accumulate valuable work experience and provide adequate industry exposure with industry partners that support student participation in employer projects, addressing actual industry issues and identifying practical solutions. This gives students the opportunity to contact potential employers and industries before graduation – increasing the marketability of graduates.

Given that today's students tend to be visual learners, laboratory classes allow them touch, feel and listen to what they are learning. Field trips to construction sites, however, are interactive experiences that enhance student understanding of real construction practices. Additionally, guided tours to factories producing building materials such as cement, water proofing products and glass also help students gain a better understanding of related topics. Activities and workshops should also be included in curriculum dimensions to provide students with some practical experiences associated with QS programmes (Ghazal, Al-Samarraie and Aldowah, 2018). These could help develop their enthusiasm towards the course programme by having such class activities as role-playing, group discussion and problem-solving case studies; thus, the theoretical knowledge they learned during lectures can be applied practically in class activities and workshop sessions. These help to develop the critical thinking skills needed in working life. For instance, one course in particular (Integrated Project) makes students aware of the overall process within which development projects are conceived, designed, built and handed over, enhancing students' appreciation of the interdependency and interdisciplinary nature of the construction industry. Group-based assignments simulating real-world scenarios were designed to provide formative assessment. According to Kamardeen and Wales (2014), such formative assessments enable lecturers to evaluate higher-order cognition, thinking abilities and problem-solving skills. Furthermore, the delivery of interesting module content is pertinent in the curriculum dimension (Farahmandian, Minavand and Afshardost, 2013). Course content that includes a clear course objective at the beginning of the semester helps provide students with a comprehensible orientation about the learning outcome of a subject and cultivates motivation and interest in pursuing the QS programme. Moreover, high-quality study materials asserted in the course content have a notable impact on student experiences (Tsinidou, Gerogiannis and Fitsilis, 2010). For instance, constructs such as the suitability of page layout and design, presentation of PowerPoint slides, supplementary lecture handouts, clarity of subject matter and integration of support illustrations can assist students to understand the content of the course, thus facilitating their overall educational experiences (Dargusch, Persaud and Horsley, 2011).

Factor 5: Physical environment and facilities

Classroom environment (factor loading = 0.863) and *computer and lab facilities* (factor loading = 0.746) create this final factor, with a total variance of 9.81%, revealing the important role of physical in-class environments on student satisfaction with the course. HEI's physical facilities represent an influential determinant in promoting a conducive environment for classroom teaching and learning (Kärnä and Julin, 2015). The physical facilities of the classroom are crucial in enhancing the academic atmosphere, as students spend most of their time in the classroom and thus tend to prefer a comfortable learning space for academic activities. A favourable learning environment comprises such dimensions as the lighting and

layout of lecture and tutorial rooms, teaching and learning aids used, overall cleanliness and air-conditioning systems as well as the comfort and versatility of seating. In South Korea, Han, et al. (2018) observed that the ambient conditions of the classroom and its spatial layout and functionality can significantly boost the student experience, which results in both the enhanced cognitive and affection evaluation of student satisfaction. In Canada, the desired physical properties include a window view to outdoors, seating comfort and interactive seating arrangement (Douglas and Gifford, 2001). According to Rae and Sands (2013), a classroom layout that helps reduce students' apprehension and increase participation tends to increase student engagement and academic performance. For QS, measurement and technical drawing studios need to be equipped with drafting tables and/or tables large enough for A1-size drawings for students to perform measurement works ergonomically. Construction materials courses will include practical lab sessions for the testing of various materials used in construction. These features have a direct impact on the students' educational experiences.

Additionally, class size is revealed to significantly influence student experiences of course programmes (Yusoff, McLeay and Woodruff-Burton, 2015). For example, large class sizes can result in such problems as overcrowding of lecture halls and inadequate seating, resulting in students being dissatisfied with the learning environment (Abdullahi and Wan Yusoff, 2019). A popular programme like QS can have classes as large as 200 students necessitating improvements in teaching and mode of delivery. Tutorials, however, are limited to 30 students for effective student engagement and prompting reflective thought, as tutors can work more closely with each student while students can support each other in the problem-solving process. Working in small groups makes the students active, confident and independent in their learning. Furthermore, the endowment of computer laboratory facilities plays an important role in satisfying the students' information technology needs in their learning process. BIM-based quantity take-off and estimating are fast gaining popularity (e.g., *CostX*, *Cubicost*) to replace time-consuming and error-prone manual computation (Yap, et al., 2021) but require lab-based practical sessions for the hands-on experience of using the software. Digital literary and technology skills are becoming essential in today's computer-centric world. Accessible and adequate computer laboratories with a stable internet connection and advanced technologies tend to result in a positive perception towards the overall experiences of educational programmes (Pescaru, 2017).

Concluding remarks

The meta-analysis of the literature revealed 20 pertinent attributes influencing the quality of student learning experiences in higher education. The opinions of Year 1 to Year 4 quantity surveying students concerning the significance of these attributes were obtained through a questionnaire survey of a major Malaysian private HEI. The principal aim of prioritising these attributes is to increase the understanding of the determinants of quality QS education and to be useful in devising effective strategies for continuous improvements and enhancing student satisfaction. Overall, the findings reveal that the competencies and professionalism of lecturers are the major aspects influencing student learning experiences. Hence, HEI should place this as a top priority in the development of an educational programme by continuously enhancing the quality of lecturers and make appropriate adjustments to the aspects that result in student dissatisfaction. Differing viewpoints exist between Year 1 and Year 4 students, indicating the heterogeneous expectations between freshmen and final-year students of the learning requirements and outcomes involved. Better student engagement may be needed to enhance student-centric learning for first-year students and include more practical aspects to expose students to the context of construction and the diversified QS roles. Group-based assignments engender cooperative learning and develop group working skills – an essential employment skill. It is predominantly accepted that professional education and training requires the integration of knowledge with practical skills. The factor analysis revealed five main groups of factors that

provide useful insights into the dimensions driving student satisfaction in higher education, particularly QS programmes, which relate to people, curricula, environment, services and facilities aspects.

The outcomes from this study can be used to guide HEIs in devising policies, practices and a culture that supports quality teaching and learning among both lecturers and students, particularly contemporary QS education. In this light, the attributes and underlying factors uncovered in this study can be further developed into a comprehensive index system to measure the students' academic experiences in higher education in Malaysia and beyond. For a professional degree programme like QS, learning is facilitated through observing, reflecting, sharing and applying course material in the classroom and practical settings. In addition, HEI management can focus on developing a reputation for its university by recognising the needs of its students and attracting the brightest and the best. Given the significance of the lecturer-factor, efforts should be made to induct, train and retain qualified and expert lecturers for promoting quality higher education. Students have different levels of motivation, different attitudes about teaching and learning and different responses to specific classroom environments and instructional practices. Lecturers therefore need to teach thinking and augment problem-based learning. QS curricula, on the other hand, should be responsive to recent advances in industry practices.

Although e-learning is underutilised in most developing countries, the COVID-19 pandemic has forced educational institutes globally to shift to online learning platforms to maintain academic activities while adhering to social and physical distancing. Nonetheless, the sense of such physical, emotional and social distance from others has generated a number of challenges, stressors and negative experiences (Al-Kumaim, et al., 2021). Compared to face-to-face learning, the major disadvantages of e-learning are lack of interaction, technical problems and lack of practical applications, while the advantages are time efficiency and convenience (Gherheș, et al., 2021). Intriguingly, the majority of students would prefer to return to face-to-face learning after the COVID-19 pandemic ends. Given this situation, the future is likely to involve blended learning as a form of hybrid learning system combining face-to-face teaching with online teaching.

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