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FACTORS AFFECTING STUDENTS' SATISFACTION WITH A COURSE: DOES PHYSICAL ENVIRONMENT MATTERS?

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Abstract
This study intends to examine factors that influence students' satisfaction with a course and how this satisfaction with a course affects course recommendation. Furthermore, the moderating effects of the physical classroom environment were examined in the relationship between the factors and students' satisfaction with a course. Data were collected from students in private universities in Kuala Lumpur, Malaysia and was analyzed using Partial Least Squared Method (PLS). The results showed that course evaluation, instructional support, students self-efficacy all have a significant positive effect on students' satisfaction with a course, and students' satisfaction with a course positively influences course recommendation. However, our results did not find a significant relationship between the student-teacher relationship and students' satisfaction with a course. Moreover, our findings confirmed the moderating role of the physical classroom environment on the relationship between course evaluation, instructional support, students' self-efficacy, student-teacher relationship and course satisfaction.

Research paper

Keywords: Course Evaluation; Instructional Support; Self-Efficacy; Physical Classroom Environment; Student Satisfaction; Course Recommendation; Higher Education; Malaysia

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Introduction

In Malaysia, like almost all other parts of the world, higher education institutions are facing intensive competition than ever before (Dericks et al., 2019; Yuan et al., 2012; Brown & Mazzarol, 2009). Universities, nowadays, are increasingly being required to provide students and society with more and better services while using fewer public resources (Khanna et al., 2021). For this reason, universities and their administrators are always trying to find ways for developing strategies for survival and success in the higher education market to achieve sustainable competitive advantages over others (Tajpour et al., 2018; Gleiman & Mokhtarian, 2013; Thomas, 2011; Yuan et al., 2012; Brown & Mazzarol, 2009). Almost more than half of the higher education institutions in Malaysia are private colleges and universities. Unlike public universities and colleges, these institutions' incomes come mostly from students' enrollment which is highly dependent on the quality of education and educational services that they offer. As a result of increasing the number and population of graduate students, which is highly important to the success of the marketplace, is one of the major goals of higher education institutions (Gleiman & Mokhtarian, 2013; Salamzadeh et al., 2013, 2014; Thomas, 2011; Yuan et al., 2012; Dana et al., 2021). This all has caused to have a highly competitive market in private institutions in the education sector in Malaysia.

Researchers have not only come to accept the influence of business practices in academia, but also agree that using established frameworks found in business research can offer new insights into educational operations

(Athiyaman 1997; Slaughter & Leslie, 1997; Saul, 1999; Elliott & Shin, 2002; Slaughter & Rhoades, 2004; Arasti & Salamzadeh, 2018; Batrancea et al., 2019; Tajpour et al., 2020). In the same vein, Curran and Rosen (2006) highlighted that higher education could be regarded as a service industry. In tandem with that, Elliott and Shin (2002) stated that higher education has realized and begun to position itself as a service industry. Hemsley-Brown and Oplatka (2006) highlighted that there is a demand for more research that explores the application of services marketing concepts to the higher education service industry. Therefore, higher education institutions have started emphasizing marketing concepts such as service quality, students' recruitment, retention, relationship management and student/customer satisfaction (Helgesen, 2008; Cubillo et al., 2006; Maringe, 2005; Gremler and McCollough 2002; Radovic Markovic et al., 2013, 2019; de Jager and Gbadamosi 2013). Past literature has applied marketing principles in the higher education sector in a number of different areas such as student retention and relationship management (Helgesen, 2008), student recruitment and decision-making (Cubillo et al., 2006), branding (Hemsley-Brown & Goonawardana, 2007), marketing mix in higher education (Stewart, 1991), student satisfaction guarantees (Carvalho et al., 2020; Gremler & McCollough, 2002), student services quality and satisfaction (Abdullah, 2006), and international education marketing (Cubillo et al., 2006). Therefore, following all studies stated above, it is clear that there is still a demand for more research in applying the marketing principles into higher education sector.

Research on customers' evaluation in forming their satisfaction with products or services have been well documented in marketing and consumer behavior literature (Kim et al., 2015, Wirtz et al., 2000; Yang & Peterson, 2004; Duque, 2014; Han et al., 2011; Salamzadeh, 2020). Nevertheless, studying evaluations in forming students' satisfaction is still scarce in the education sector. Among very few studies we can mention the most recent work by Han et al. (2017) who studied the role of students' cognitive evaluation and affective evaluation on their satisfaction with the courses. However, their study did not investigate the roles of instructor support, student-teacher relationship, and students' self-efficacy on their satisfaction with courses. The important role of these influential factors has been highlighted in Gremler and McCollough (2002) and has been suggested by Han et al. (2017) to consider the criticality of such factors in the higher education sector. However, some of these variables have been studied in relation to students' satisfaction with a course. Nevertheless, most research to date has examined each variable individually. Few – if there is any - have attempted to view these constructs simultaneously for the explication of the students' satisfaction with a course.

Additionally, this study will consider the role physical classroom environment as the moderator in the relationship between the above-mentioned variables and students' satisfaction with the course. The important role of physical environment is well documented in the marketing and services literature (Jani & Han 2014; Lin & Worthley 2012). However, it has not been much studied in the education sector, while Yang, Becerik-Gerber, and Mino (2013) suggested that classroom design should be configured in a way that

produces the best learning environment possible. Probably, Han et al. (2017) and Madrid et al. (2019) are the only studies that highlighted the moderating role of the physical environment in the education sector. Most studies in the education sector have viewed the physical environment as a purely causative element rather than moderating some cause-effect relationships (e.g., Guardino & Fullerton, 2010; Guardino, 2008). Since previous studies have confirmed ambience to be a causative factor on students' satisfaction, its inclusion as a moderating factor may offer additional information apart from its causative effect on satisfaction. Finally, this study considers students' post-evaluation behavior of students' recommendations of the course that have not been studied with regard to the students' satisfaction with the course before.

Therefore, this study contributes to the literature in the education sector in a number of ways. Firstly, it considers the relationship between students' evaluations, instructional support, teacher-student relationship, and students' self-efficacy on their satisfaction with the course, which has not been investigated in the past studies. Secondly, it investigates the moderating role of physical environment on the relationships above, which is missing in the past literature. Finally, this study considers students' post-evaluation behavior of students' recommendation of the course that has not been studied with regard to the students' satisfaction with the course before.

The implications of this study provides valuable insights for both academics and practitioners of the higher education industry in optimizing and enhancing their services in ways that provides the highest satisfaction of the

courses for students, that subsequently influences the students' to become advocates of the focal institutions.

Literature Review and Hypothesis Development

Course Evaluation and Course Satisfaction

Based on Nyabero (2016), evaluation is all about evaluating the value of a thing. It consists of gathering information to be used for judging the value of a product, procedure, objective, program, or the potential utility of alternative approaches designed to attain specified objectives (Nyabero, 2016). Levine (2002) sees evaluation as a process consisting of identification and gathering information in order to assist decision-makers to choose among different options available to them. In the same vein, Lumsden (1974) defined the overall evaluation of a course as the evaluation of the students on how the course contributed to the development of different skills.

Past literature in marketing, as well as the education sector, has clearly highlighted the importance of evaluations. For example, in marketing literature, Oliver (1997) stated that individuals who have a favorable attitude towards the service are likely to react favorably towards the service performance. Vice versa, those who have a negative attitude are likely to exhibit negative reactions (Oliver 1997). With regards to the importance of evaluation in the education sector and from a pedagogical perspective, Gremler & McCollough (2002) highlighted that an important measure of the success of a classroom is the student's overall evaluation of the course. In his study,

Lumsden (1974) highlighted that the course's contribution to knowledge was highly important, conveying that it is even more important than the combined benefit of the course in helping to identify problems, analyze problems, make decisions, apply techniques, do research and work with people.

With regards to the relationship between course evaluation and course satisfaction, Denson et al. (2010) found that although reasons for enrollment in a course and their characteristics are predictors of overall satisfaction, but the effects of questions related to course evaluation predicts most of the variation in course satisfaction. More recently, Han et al. (2017) found that both cognitive evaluation and effective evaluation of the course are significantly related to the students' satisfaction with the courses. Additionally, many other researchers in the marketing field have highlighted this relationship. For example, Kim et al. (2015) and Wirtz et al. (2000) stated that cognitive beliefs and affective/emotional responses are crucial in forming satisfaction. Furthermore, Chiu et al. (2012) highlighted that individuals' cognitive judgement of the product/service elicits their emotional reactions pertinent to its performance, which determines their satisfaction level. Hence, based on the discussion above, we hypothesize that:

H1. *There is a positive relationship between course evaluation and students' satisfaction with a course.*

Instructional Support and Course Satisfaction

Lee et al. (2011) define instructional support as the instructional guide to learning. It involves providing clear instructions and relevant resources to

the students, answering their questions, amending their misunderstandings, and providing practical feedback on their assignments as well as their performance (Dericks et al., 2019; Salamzadeh & Markovic, 2018; Lee et al., 2011). Furthermore, it involves dialogues and course structures to inspire and encourage students to learn course materials and achieve course learning objectives (Lee et al., 2011). Similarly, Pawlowska et al. (2014) define instructor support as the extent to which the instructor takes an interest in the students and material unrelated to the course. Additionally, Walker and Fraser (2005) claimed that instructor support includes instructor feedback consisting of valued feedback, positive attitude, timely responses, and encouragement. In an online context and based on Anderson et al. (2013) instructor support is the degree and promptness to which an instructor addresses students' needs in online classes.

Past literature supports the importance of instructional support on students' performance (e.g., Pedro et al., 2018). For example, Curley and Strage (1996) found that instructional support along with instructional demands are related to more sophisticated study strategies and a higher level of performance. Similarly, Pawlowska et al. (2014) found that instructional support significantly improves students' performance, as taking an interest in students enhances their performance (Pawlowska et al., 2014). With regards to the effects of instructional support on students' satisfaction, Mullen and Tallent-Runnels (2006) found that both academic and affective support are significantly related to course satisfaction in online courses. Similarly, in online learning, Paechter, Maier and Macher (2010) revealed that instructor support

significantly contributes to students' satisfaction with a course highlighting that online instructor interaction correlated strongly with students' satisfaction with a course. Additionally, Rivera and Rice (2002) found that while lack of support although did not affect overall students' performance, but it affected the students' level of satisfaction. Moreover, Ivanović et al. (2013) found that the instructor's support in learning affect students' satisfaction with a course and contributes to their learning achievements. Hence, based on the above, we hypothesize that:

H2. *There is a positive relationship between instructional support and students' satisfaction with a course.*

Students' Self-Efficacy and Course Satisfaction

Students' self-efficacy has been defined as their personal perception of how well they can perform in their learning tasks to achieve their goal which refers to students' own capabilities (Mory, 1996). Similarly, Bandura and Locke (2003, p. 6) defined self-efficacy as "beliefs in one's capabilities to organize and execute the courses of actions required to produce given attainments." It is mentioned that students with a high level of self-efficacy usually perform better, while students with a low level of self-efficacy can inaccurately assess the difficulty of the task while paying more attention to the probability of failure (Wong, 2011). Individuals with low self-efficacy are less likely to be able to exert control over the environment compared to individuals with higher self-efficacy levels (Wong, 2011). Based on Bandura (1991), the higher perceived self-efficacy, the higher goals set, while students

with a low perceived self-efficacy can get discouraged simply by failures or difficulties. When a student is confident about his/her capabilities, he/she puts a higher level of effort in that when he/she fails to achieve the goal and keeps working till it is achieved successfully (Zimmerman & Bandura, 1994).

Zimmerman and Bandura (1994) highlighted that students' self-efficacy plays an important role in the learning achievement of students in a college writing course. They further claimed that a high level of students' self-efficacy raised the learning goals that students set and the quality of achievement with which they would be satisfied. Individuals with high levels of self-efficacy deal more effectively with difficulties and put more effort into the task when they are faced with failures (Wong, 2011). DeWitz and Walsh (2002) found that students' self-efficacy is positively and significantly related to students' college satisfaction in an introductory psychology course (DeWitz & Walsh, 2002). Furthermore, Artino (2009) found that students' self-efficacy belief is an important and strong predictor of military students' course satisfaction and continuing motivation. Hence, we predict that students' self-efficacy is a predictor of students' satisfaction with a course and hypothesize that:

H3. *There is a positive relationship between students' self-efficacy and students' satisfaction with a course.*

Student-Teacher Relationship and Course Satisfaction

While investigations of student-teacher relationships at school have primarily focused on well-established research traditions of self-determination theory (SDT) (Deci & Ryan, 2002) and attachment theory (AT) (Cassidy & Shaver, 2008), and results from the significant body of research on the social factors of student motivation (Juvonen, 2006), this relationship has been less comprehensively and less systematically examined by researchers in the higher education sector. It clearly highlights that there are much fewer studies on the student-teacher relationship in the higher education sector, although research in this area is important in higher education from different aspects. Many universities in the world have relatively high students drop-out rates, with high human and financial costs (Schneider & Yin, 2011); thus, enhancing student-teacher relationships can help to reduce this negative trend (Haverila & Haverila, 2021). Moreover, Hagenauer and Volet (2014) claimed that positive student-teacher interactions and relationships might have positive effects on the teachers themselves, which subsequently may affect students' achievement. Thus, we believe that the student-teacher relationship needs further exploration as it is important for the higher education sector. Therefore, this research stream should be an integral part of the larger body of research on the quality of teaching and learning in higher education.

Past studies have demonstrated the importance of interpersonal relationships between students and their instructors. For example, Bernstein-Yamashiro & Noam (2013) found that the student-instructor relationship

helps with students' successful adjustment to their school. Several other authors have demonstrated that a positive relationship between the student and their instructor enables students to feel safe and secure in their learning environments and provide scaffolding for important social and academic skills (e.g. Silver et al., 2005; O'Connor et al., 2011; Baker et al., 2008). Maulana et al. (2011), in a study among Indonesian students in grades seven through nine, found that there is a correlation between the interpersonal behavior of teachers and the motivation of students. In the same vein, Fraser et al. (2010) n a study among university students found a positive relationship between positive teacher-student interactions and improved student achievement and attitudes. Thus, based on this discussion, we expect that the student-teacher relationship affects students' satisfaction with a course. Hence, we hypothesize that:

H4. *There is a positive relationship between student-teacher relationship and students' satisfaction with a course.*

Course Satisfaction and Course Recommendation

Abundant research in marketing clearly highlights the link between satisfaction and recommendation. For example, Oliver and Swan (1989) found that once satisfaction increases, word of mouth activity also increases. Similarly, Bigné et al. (2001) found that satisfaction significantly and positively influences the likelihood of recommending. Furthermore, some other

literature clearly highlights that satisfaction significantly affects both the intention to revisit and the willingness to recommend (e.g. Hutchinson et al., 2009; Hui et al., 2007; Lee et al., 2005).

Similarly, the above-mentioned relationship is studied in the education sector. For example, Childers et al. (2014) found that students' overall satisfaction has a significant and positive relationship with students' recommendations. Likewise, Baek and Shin (2008) found that student satisfaction has a direct effect on student recommendation stating that if the students are satisfied with the courses offered at the university, then they would recommend this course to others. In addition, to this, Shahijan et al. (2015) and Dass et al. (2021) claimed that students should like the course format, feel comfortable in the courses, and feel that they have achieved the objectives in the courses, which as a consequence, they would recommend the courses to other students. Therefore, based on the above discussion and suggestion from Giner and Rillo (2016) and Han et al. (2017), we hypothesize that:

H5. *There is a positive relationship between students' satisfaction with a course and course recommendation.*

The Impact of Physical Environment

Classroom physical environment refers to the environment that consists of all the physical sensory elements such as lighting, furniture, color, and space in which students are expected to learn in that environment (Anekwe, 2006). Asiyai (2014) further asserted that the physical classroom environment

is all about the surrounding of the classroom consisting of the spatial arrangement of furniture, lighting, fittings, walls, ceiling, chalkboard, decorative and all the physical enablers of teaching and learning in the classroom. Based on Asiyai (2014), a conducive physical classroom environment is an agent of intellectual stimulation and an essential factor in strengthening the educational development of the child. In the same vein, Roskos and Neuman (2011) mentioned that the physical classroom environment should be configured in a way that encourages student learning. This is because a well-organized physical classroom environment facilitates students' learning and increases students' evaluations of the instructor and the course (Hill & Epps, 2009; Barth, 2008; Merritt, 2008). Furthermore, Young et al. (2003) highlighted the significance of the physical environment and claimed that student achievements are affected by several factors such as noise, lighting, and climate control. In tandem with that, Heschong (2003) found that environmental factors such as window characteristics had similar power as the number of computers or teacher characteristics in explaining variations in student performance on standardized tests. Similarly, Englebrecht (2003) highlighted the importance of color in affecting student mood and productivity. Furthermore, Banning (1990) asserted that the physical classroom environment of the college affects student learning by signaling desirable instructional behavior and by communicating the level of formality that is expected in classroom interaction. Thus, all of these studies highlight the considerable influence of physical environments on student and customer behaviors.

Previous literature in marketing and even the education sector has highlighted the moderating role of the physical environment. For example, Jani and Han (2014a) identified the moderating impact of atmospherics in the relationship between social comparison as well as the effect on hotel guests' satisfaction and found that this relationship is stronger when guests experience comfortable ambient conditions. In the same vein, Jani and Han (2014b) investigated the moderating effects of the physical environment on the relationship between satisfaction and cognitive personality factors and found that the relationship is stronger when patrons positively evaluate the performance of the physical environment. Similar, in the education sector, Han et al. (2017) examined the moderating role of ambient condition and spatial layout and functionality as the dimensions of the physical environment and found that physical classroom environment significantly influences the relationships between students' cognitive evaluation of the course and satisfaction with the course, and between students' affective evaluation of the course and satisfaction with it. Therefore, based on the above discussion, we hypothesize that:

H6. *Physical classroom environment moderates the relationship between course evaluation and students' satisfaction with a course.*

H7. *Physical classroom environment moderates the relationship between instructional support and students' satisfaction with a course.*

H8. *Physical classroom environment moderates the relationship between students' self-efficacy and students' satisfaction with a course.*

H9. *Physical classroom environment moderates the relationship between student-teacher relationship and students' satisfaction with a course.*

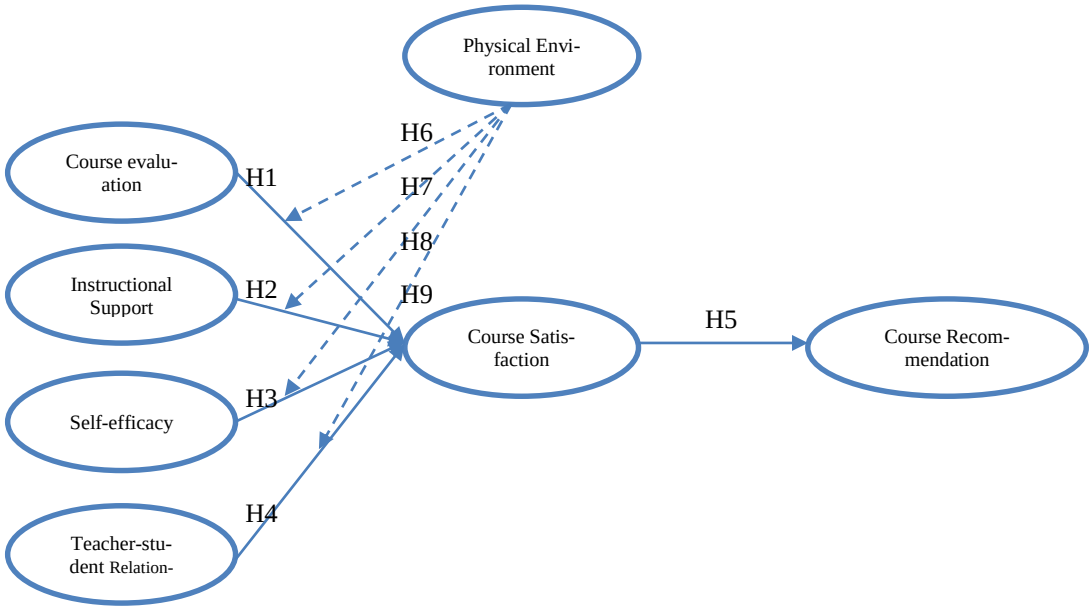

Figure 1. Conceptual Model

Method

Sample Characteristics and Data Collection Method

Since this study concerns course satisfaction and recommendation in higher education institutions, the sample consists of individual private university students. The research team had gone through several iterations, and both education professionals and students tested the validity of survey questions in an attempt to minimize bias and misinterpretation of the survey questions. The final survey was performed in a private university in Malaysia using a self-administered questionnaire, for which this study used purposive/judgmental sampling. Purposive sampling is a recommended approach

where access to the full target population is not possible (probability sampling). Hence, researchers, based on expert advice, select a sample that could be representative of their study's target population (Durand & Chantler, 2014). The survey form was distributed to the students during their class hours with the help and permission of the instructors. Their participation in the study was voluntary. A total of 305 questionnaires were received back, and out of it, 249 were usable while the other 56 were unusable. Unusable responses are those exhibiting a significant amount (more than 10%) of missing data or those considered incomplete.

Measurement Development

This study utilized a structured questionnaire, and the measures were all adapted from the published past literature. All items were assessed on a 7-point Likert type scale ranging from one (strongly disagree) to seven (strongly agree). Course Recommendation was measured using three items adapted from Zeithaml et al. (1996). Three measurement items for course satisfaction were adapted from Oliver (1997). Course evaluation was measured by seven items adapted from Lee et al. (2011). In addition, five items were used to measure instructional support which was adapted from Lee et al. (2011). Students' self-efficacy was measured using six items adapted from Pintrich et al. (1991). The student-teacher relationship was measured utilizing five items adapted from Ang (2005). Finally, the physical classroom environment was measured using eleven items adapted from Han et al. (2017). For the complete list of the measurement items, please refer to Appendix 1.

Sample Profile

The demographic of the respondents was derived from descriptive analysis. The majority of the age group were in the category of 18-25 years old (88.4%). Females (66.7%) outnumbered males (33.3%). In terms of marital status, a greater part of the respondents (98.0%) was single, and only 2.0% were mattered. In terms of nationality, the participants were mostly Malaysians (96.8%), followed by Middle Eastern (1.2%), and others (2.0%). Lastly, about 44.6% of the respondents claimed to be first-year students, 28.5% were the second year, 25.3% third year and only 0.2% final year students.

Analysis and Results

To analyze the research model, we employed the Partial Least Squares (PLS) analysis technique using the SmartPLS 2.0 software (Ringle et al., 2015). The assessment of a model using PLS-SEM generally follows a two-step process consisting of assessments of the measurement model and the structural model (Hair et al., 2011; Chin, 2010). Assessment of the measurement model entails the evaluation of the validity and reliability centered on the model's latent variables. This evaluation involves the assessment of the relationships between the latent variables and their associated items (i.e., responses to individual question-statements in the questionnaire). The assessment of the structural model is concerned with the relationships between latent variables (Hair et al., 2011; Chin, 2010). To test the significance of the

path coefficients and the loadings, a bootstrapping method (500 resamples) as recommended by Chin (1998) was employed.

Measurement Model Evaluation

For the purpose of measurement model evaluation, we have employed two types of validity, namely convergent and discriminant validity. Convergent validity is usually assessed using the following two key coefficients: the Composite Reliability (CR) and Average Variance Extracted (AVE) (Hair et al., 2011; Chin, 2010). To assess the convergent validity of the model, the loading of each indicator on its associated latent variable should be calculated and compared to a threshold. Based on Hair et al. (2011), the loading should be higher than 0.7 for validity to be considered acceptable. A loading lower than 0.4 indicates that an item should be considered for removal, and items with a loading of 0.4–0.7 should be considered for removal if their removal increases the CRs and AVEs above the threshold (Chin, 2010; Hair et al., 2011). Table 1 presents the findings of it can be clearly seen that most of the indicator loadings on their corresponding latent variables are higher than 0.7. Few indicators loaded between 0.4 and 0.7, indicating that they might otherwise be considered for removal based on the CR and AVE. Therefore, in order to improve CR and AVE, we have removed CE2, SSE4, PE1, PE10, and PE11 were removed.

In addition to the above, the composite reliability coefficient is used to assess construct reliability which is a property that different from but re-

lated to validity (Chin, 2010). Sometimes Cronbach's alpha value is employed to assess reliability; however, composite reliability is usually considered the more suitable as it incorporates information about the item loadings into its calculation (Hair et al., 2011). Table 1 presents the composite reliability of all constructs, and as it can be seen, this value for all latent variables in the measurement model exceeded 0.8. These results indicate that the measurement model presents acceptable reliability.

In addition to the above, for the assessment of the convergent validity, the AVEs of the latent variables must be 0.5 and above to be considered acceptable (Chin, 2010; Hair et al., 2011). Table 1 shows that after the removal of items with low loadings, the AVEs of all latent variables exceeds the threshold of 0.5. Therefore, the measurement model's convergent validity is acceptable.

Table 1. Convergent Validity of Measurement Model

Construct	Item	Loadings	CR	AVE	Cronbach's α
Course Evaluation			0.859	0.505	0.810
	CE1	0.725			
	CE3	0.710			
	CE4	0.731			
	CE5	0.706			
	CE6	0.666			
	CE7	0.722			
Instructional Support			0.848	0.529	0.782
	IS1	0.694			
	IS2	0.815			
	IS3	0.686			
	IS4	0.720			
	IS5	0.713			
Students Self-Efficacy			0.864	0.560	0.804
	SSE1	0.756			
	SSE2	0.758			

Construct	Item	Loadings	CR	AVE	Cronbach's α
	SSE3	0.812			
	SSE5	0.658			
	SSE6	0.751			
Student-Teacher Relationship			0.872	0.578	0.818
	STR1	0.768			
	STR2	0.695			
	STR3	0.820			
	STR4	0.738			
	STR5	0.774			
Physical Environment			0.892	0.542	0.863
	PE2	0.722			
	PE3	0.784			
	PE4	0.828			
	PE5	0.754			
	PE6	0.710			
	PE8	0.681			
	PE9	0.659			
Course Satisfaction			0.815	0.595	0.665
	CS1	0.714			
	CS2	0.836			
	CS3	0.759			
Course Recommendation			0.855	0.664	0.765
	CR1	0.890			
	CR2	0.780			
	CR3	0.769			

Note: CR=Composite Reliability, AVE=Average Variance Extracted.

Discriminant validity is the extent to which each latent variable is distinct from all other variables in the model (Chin, 2010). The square root of the AVE for each construct should be greater than all the correlations among the construct and the other constructs in the model (Hair et al., 2011; Chin, 2010). Table 2 presents the square roots of the AVEs for the constructs along the diagonal and the correlations among the constructs. As can be seen, the

square root of AVEs is greater than all other values in the same row and column, highlighting that the model presents acceptable discriminant validity.

Table 2. Discriminant Validity of Measurement Model

	CE	IS	SSE	STR	PE	CS	CR
CE	**0.710**						
IS	0.319	**0.727**					
SSE	0.353	0.412	**0.748**				
STR	0.303	0.398	0.416	**0.760**			
PE	0.142	0.359	0.192	0.480	**0.736**		
CS	0.330	0.388	0.363	0.325	0.316	**0.771**	
CR	0.329	0.194	0.221	0.336	0.213	0.450	**0.814**

Note: The diagonal (in Bold) represents the square root of average variance extracted (AVE) and the sub-diagonals, the inter-construct correlation values.

Structural Model Evaluation

To assess the structural model, Hair et al. (2014) suggested looking at the R^2, beta, and the corresponding t-values using a bootstrapping procedure with a resample of 500. Table 3 illustrates the results of the test of the hypothesized structural model. The explained variance R^2, to ensure a minimal level of explanatory power, has been achieved for the variance explained of a particular endogenous construct to be deemed adequate. The R^2 value was 0.260, indicating that 26 percent of the variance in extent of 'course satisfaction' can be explained by independent variables of 'course evaluation', 'instructional support', 'students' self-efficacy', and 'student-teacher relationship'. The R^2 from 'course satisfaction' to 'course recommendation' was 20.2 percent. In sum, the model exhibits acceptable fit and a high-predictive relevance.

Table 3 presents the structural model of this study. A close look at Table 3 shows that 'course evaluation" was positively related (β=0.172, p <

.01) to 'course satisfaction', and so were 'instructional support' ($\beta = 0.181$, $p < .01$) and 'students' self-efficacy' ($\beta = 0.176$, $p < .05$); whereas 'student-teacher relationship' was not a significant predictor of 'course Satisfaction'. Thus, H1, H2 and H3 were supported, whereas H4 was not supported. H5 was also supported, as the R^2 value of 0.202 suggests that 20.2 percent of the variance in course recommendation can be explained by the 'course satisfaction'. Hence, there was a positive relationship ($\beta = 0.450$, $p < .01$) between 'course satisfaction' and 'course recommendation'. This study found that 'course evaluation' is the most significant predictor of 'course satisfaction', followed by 'instructional support' and 'students' self-efficacy'.

In order to test the moderating effect, this study has employed Chin et al. (2003) product indicator approach. The moderating tests were run so that only one moderator was considered concurrently. The results of the moderating effects test (Table 3) showed that all four hypothesized moderating effects are significant. Specifically, the physical classroom environment was found to moderate the relationship between course evaluation, instructional support, student's self-efficacy, and student-teacher relationship and course satisfaction, supporting H6, H7, H8, and H9. These findings indicate that when students have a more positive appraisal of the physical classroom environment, the impact of course evaluation, instructional support, students' self-efficacy, and student-teacher relationship on course satisfaction is stronger. An interesting finding here is that, although there was not a significant relationship

between student-teacher relationship and course satisfaction, but the interaction effects of course evaluation and physical classroom environment on course satisfaction were significant.

Table 3. Results of the Structural Model Analysis (Hypotheses Testing)

Hypothesis	Path	Path Coefficient	S.D.	t-values	Sig.	Decision
H1	CE => CS	0.172	0.058	2.965	***	Supported
H2	IS => CS	0.181	0.068	2.662	***	Supported
H3	SSE => CS	0.176	0.081	2.182	**	Supported
H4	STR => CS	0.045	0.076	0.597	NS	Not Supported
H5	CS => CR	0.450	0.054	8.282	**	Supported
H6	CE*PE => CS	0.170	0.076	2.245	**	Supported
H7	IS*PE => CS	0.229	0.057	4.046	***	Supported
H8	SSE*PE => CS	0.138	0.062	2.227	***	Supported
H9	STR*PE => CS	0.129	0.063	2.048	**	Supported

*, **, and *** indicate statistical significance at the 0.05, 0.01, and 0.001 levels respectively.

Discussion and Implications

Due to fierce competition in the higher education industry in Malaysia, there is a need for critical evaluation and improvement of students' experience. Past literature clearly highlights students learning as the first and foremost priority of any educational establishment (e.g. Elliott & Shin, 2002). Due to that, a more recent trend in research into the student experience of higher education is regarding additional influences outside of academic outcomes. Consequently, there was a stream of research in education that has

taken well-established frameworks in consumer behavior studies and applied them to students (Athiyaman, 1997; Slaughter & Leslie, 1997; Saul, 1999; Elliott & Shin 2002; Slaughter & Rhoades, 2004; Mansori et al., 2014). However, the effect on student satisfaction with the course of such critical concepts as students' evaluations, instructional support, students' self-efficacy, student-teacher relationship, physical environment, satisfaction with courses, and course recommendation has surprisingly been scarcely explored. This study was an attempt to fill this void in the education literature. Our research framework comprising these vital concepts was strongly supported. The data showed student satisfaction with the course was sufficiently explained by students' evaluations, instructional support, students' self-efficacy, and the student-teacher relationship. This study is considered to be among the few attempts to investigate the impact of the above-mentioned variables on students' satisfaction with the course and course recommendation. This study was conducted in Malaysia, which is classified as a regional student hub. The results of the present study can be useful for succeeding studies regarding college student satisfaction and behaviors related to the courses and services of the institutions. Moreover, the findings of this study can help school operators develop effective strategies to maximize the student experience in classrooms.

The empirical results of this study revealed that course evaluation is significantly related to students' satisfaction with a course, implying that student's assessment of the course and its attributes generates satisfaction for the course. This is consistent with Denson et al. (2010) Han et al. (2017) in the

education sector, which highlighted that course evaluation significantly predicts course satisfaction. This result is also consistent with Lee et al. (2010) and Han (2013) in other service settings, who found that customers' evaluations are a strong determinant of their satisfaction. This finding indicates that students are expected to be more satisfied with a course, if they perceive that the course is pleasant, joyful, high quality, offers good value for the tuition and is effective for developing their thinking skills such as critical analysis and problem-solving. The implication of this finding is that university operators should help the students to gain both positive emotional and affective experiences while taking the courses in order to trigger their satisfaction.

In examining the relationship between instructional support and students' satisfaction with a course, it is found that instructional support predicts course satisfaction significantly. The result is consistent with Lee et al. (2011) who highlighted that students' perceptions of support is related to online course satisfaction. This result implies that when instructors are easily accessible, respond to students' questions in a timely manner, provide clear instructions for assignments and assessments, provide feedback on the assignments, the students satisfaction with a course increase. The implication of this finding is that university operators and instructors need to make sure that students feel supported in their learning experiences. University operators need to ensure that instructors provide all various types of support needed from them, and it is easy to access those support. They also need to ensure that instructors provide proper communication, immediate responses to students' questions

and problems and provide specific and constructive feedback, which plays a vital role in learning.

As hypothesized, students' self-efficacy also positively influenced students' satisfaction with a course. This is consistent with previous literature, which found that academic self-efficacy is related to students' satisfaction (Pennington et al., 2017). It implies that confidence is an important factor fostering students' satisfaction with a course and consequently their academic success. Therefore, it confirms the importance of students' motivational factors. Hence, this finding implies that educational operators need to ensure that there is always some kind of gradual support to students to feel confident in their learning. Likewise, when the students succeed in their performance, they should be accorded due credit, pertinent feedback, and continual encouragement by the instructor.

Student-teacher relationship was expected to have a significant relationship with course satisfaction. However, our results did not confirm this relationship. This result implies even if the relationship quality of the student and teacher is good, it may not affect students' satisfaction with the course. This relationship has not been investigated in any previous study; however, previous studies had mentioned that student-teacher relationship is related to several factors such as academic performance, school engagement, social development, stress, self-efficacy, motivation, etc. (Spilt et al., 2011; Baroody et al., 2014). Although this study did not find a significant relationship between student-teacher relationships and course satisfaction, but we cannot underestimate the important roles and benefits of such a relationship.

Concerning the moderating role of the physical environment, our results confirmed that the physical classroom environment moderates the relationship between all predictor variables (course evaluation, instructional support, self-efficacy, and student-teacher relationship quality) and course satisfaction. Our findings regarding the moderating effects of the physical environment are consistent with Han et al. (2017), who also highlighted the important moderating role of the physical environment. An interesting finding here was that although student-teacher relationship quality did not have a relationship with course satisfaction directly, but the interaction effects of student-teacher relationship quality with the physical environment on students' satisfaction with a course was significant. It highlights that the impact of course evaluation, instructional support, self-efficacy, and student-teacher relationship quality on students' satisfaction is higher when students perceive the seating layout of the class, air quality, noise, temperature, lighting, basic amenities, desk, chairs, and furniture of the physical environment to be of high quality. This finding implies that university operators should not only focus on physical environment, course evaluation, instructional support, self-efficacy, and student-teacher relationship quality separately, but all of them together as a way to enhance students' satisfaction with courses. Furthermore, recognizing the criticality of the physical environment and its important effects, university operators should make every endeavor to improve the performance of the environment by investing available resources on ambient environment, the spatial environment and technology-related attributes. For example, they should invest in providing a more comfortable level of air quality,

temperature, humidity/dryness, odour, noise, a more comfortable level of seating layout and better quality of electronic/ electric/basic equipment and amenities and furniture, higher quality acoustics better visibility equipment, superior electronic/electrical amenities, and better quality hardware and software in the classroom.

Limitations and Future Research

Despite the useful findings of this study, there are several limitations that need to be acknowledged. First, the sample of this study was restricted to students of a few private universities in one city in Malaysia; thus, generalization of this study's findings to the whole population of students may be limited. In future, this study can be further replicated in both public and private universities in more geographical areas so as to obtain a more representative state of higher education institutions. Second, this study has focused on few major determinants of students' satisfaction with a course, however, there are many other important variables that are not included in the present study and the importance of these variables in highlighted in the past studies (e.g. communication, teacher preparedness, and faculty academic experiences) (Han et al., 2017, Siming et al. 2015; Han & Yoon, 2015). Including such important variables may result in a higher predictor power of students' satisfaction with a course. Lastly, this study only focused on a single post-satis-

faction behavior which is course recommendation. Future research could focus on more of these post-satisfaction behaviors, such as images on social media.

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Appendix 1. List of this study's measurement items

Course Evaluation	Lee et al. (2011).
My overall image of this course is positive	
Overall, the quality of this course is great	
This course offered good value for the tuition	
Overall, this course is worthy of taking	
I feel taking this course is pleasant	
I feel taking this course joyful	
This course was effective for developing	
my thinking skills (e.g., critical analysis,	
problem solving).	
Instructional Support	Lee et al. (2011).
The instructor provided clear instructions for assignments and quizzes.	
The feedback on my assignments was helpful	
I felt that I could ask any questions regarding the course materials to the instructor	
I felt that the instructor was easily accessible	
The instructor responded to students' questions in a timely manner	
Teacher Preparedness	Lee et al. (2011).
The lecturer of this course is good at explaining things	
The lecturer of this course has made the course interesting	
The lecturer of this course is enthusiastic about what he/she is teaching	
I find my lecturer of this course is well prepared for course delivery	
I find my lecturer of this course relating the theory with the proper examples	
Students' Self-efficacy	Pintrich et al. (1991).
I believe I will receive an excellent grade in this course.	
I'm confident I can understand the basic concepts taught in this course.	
I'm confident I can understand the most complex material presented by the instructor in this course.	
I'm confident I can do an excellent job on the assignments and tests in this course.	
I'm certain I can master the skills being taught in this course.	

Considering the difficulty of this course, the lecturer, and my skills, I think I will do well in this course.	
Student-Teacher Relationship	Ang (2005)
I would describe my relationship with the lecturer of this course as positive	
The lecturer of this course frustrates me more than most other lecturers in my class	
If this lecturer of this course is absent, I will miss him/her	
I am happy with my relationship with the lecturer of this course	
I like the lecturer of this course	
Physical Environment	Han et al. (2017)
Ambient Environment	
The air quality in the classroom in which we have this course is appropriate (air quality)	
The temperature in this classroom is comfortable (temperature)	
It is not too dry or humid in this classroom (humidity)	
The odour in this classroom is fine (odour)	
Overall, the noise level of the classroom is acceptable (noise)	
The lighting in this classroom makes me feel comfortable (lighting)	
Spatial Environment	
The seating layout in this classroom is comfortably arranged (layout)	
Basic amenities for education are well equipped in this classroom (e.g. projector, TV screen, audio system, black/whiteboard, air conditioning/ heating system (amenities)	
The furniture of this classroom (e.g. desks, chairs, tables) is of high quality (furnishings)	
The desks and chairs in this classroom are comfortable (furnishings)	
Technology-Related Attributes	
The acoustics of the classroom (e.g. the audio contact with the instructor and the ability to hear the presenter, etc) are of high quality	
The visibility equipment in this classroom (e.g. ability to see projector, visual aids, etc) are of high quality	

The electronic/electrical amenities in the classroom are generally of high quality (equipment)	
The hardware in the classroom (e.g. computer, projector, clicker, smart board, etc) are of high quality	
The software (e.g. software installed in the classroom computers and the internet) in this classroom is working properly	
Course Satisfaction	Oliver (1997)
Overall, I am satisfied with this course	
My decision to take this course was a wise one	
As a whole, I have really enjoyed myself while taking this course	
Course Recommendation	Zeithaml et al. (1996)
I will say positive things about this course to other people	
I would recommend this course to someone who seeks my advice	
I will encourage friends and relatives to come to this course	

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