Exploring Students' Contentment Level of the Infrastructure at a Public Higher Education Institution in Malaysia

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Abstract This paper attempts to assess the factors that influence the students' satisfaction level towards higher learning education system. The study was conducted at a public university located in the east coast region of Malaysia involving 401 respondents. This study overviewed the students' satisfaction towards the infrastructure provided by the university which includes the resource center or library service, ICT service, and the campus environment. This study used simple random sampling in selecting the respondents and descriptive statistics to analyse the data. The findings reveal that the services that gave the lowest satisfaction was the campus environment resulted from the lack of availability of parking space for students and lack of availability of food service in the campus and hostel. The university's management should seriously consider these factors in order to improve the level of students' satisfaction.

Keywords Campus environment; infrastructure; student satisfaction.

1   Introduction

Higher education in Malaysia is fast growing with the increasing number of public higher education institutions (IPTA) and private higher education institutions (IPTS). Both of these higher education institutions are responsible in producing excellent quality and competitive graduates. Hence, environmental conditions that cover various aspects of campus facilities can support and influence the university to achieve this goal.

Satisfaction is a well-researched topic in both academic and non-academic (workplace) settings. In the academic settings, students' satisfaction data help colleges and universities to be more responsive to the needs of a changing marketplace. Students' satisfaction is an important element in determining the quality services offered by the Higher Education Institutions (HEIs). The emphasis on students' satisfaction is very important to project a better image and develop positive perceptions towards the services provided. Therefore, to ensure improvement in the quality of the given services, each HEI should take into account the needs of the users as the key to succeed in the educational sector.

Furthermore, the factors that could influence students' perceptions in determining the performance of many higher education services do have implications to the staff and lecturers in institutions of higher learning in general. Students give a different perception of the services offered based on internal and external factors. HEI has a responsibility and a challenging task in providing services that satisfy the students who are also the customers. It must be noted that the increasing number of students and higher education institutions in Malaysia has caused fierce competition between HEIs to attract students to pursue their studies at the respective higher education institutions.

It cannot be denied that students are an important asset for an HEI. Thus, this causes universities in Malaysia to compete with each other in producing more quality students. Therefore, the quality of the services provided by each university must satisfy the students' needs. Based on the provision, this study was conducted to examine the extent of the quality of service, security and other factors influence students to pursue their studies at a particular university. In this study, several key services and facilities in the university were taken into consideration to be used as items in measuring the

students' satisfaction level. It is important to analyse the students' satisfaction level as it can be used to measure the services whether they are delivered in an efficient and effective manner as well as to fulfil the students' needs. The objective of this study is mainly to examine the satisfaction level of students towards the services provided by this university. The services analysed in this study include the infrastructure, which encompasses the resource center or library service and the Information and Communication Technology (ICT) service. Other than that, the campus environment has also become an important item as it will reflect whether the students are comfortable with the atmosphere in the campus including the food, transportation, accommodation and so forth.

2   Literature Review

The sheer number, as well as the growth rate of students in tertiary education indicates the increasing importance of the higher education sector and hence the need for a systematic approach to achieve the goals of the participants in the industry. As the higher education industry becomes increasingly competitive, marketers in this industry are required to improve their service quality through understanding of the attributes of an excellent college or university and through narrowing the gap between the expectations and perception of the educational service.

According to Jamelske (2009), students who are satisfied with the services provided by institutions are more likely to be committed in their studies compared to unsatisfied students, who are likely to be less willing to regularly attend classes, and are more likely to quit their studies. In view of this, it is important for HEIs to provide good quality services in order to attract more students to enjoy the services offered to them. So, the views, opinions and needs of the students should be taken into consideration in order to guarantee a good quality of service. Most of the opinions and needs of the students are important as service learning is based on the pattern of demand and needs of the students and not on learning management needs alone.

HEI sensitivity in providing services to the students is important to attract more students. High-quality educational services provided by each university can be seen through the perspective of students as key respondents involved in various aspects of campus

life. Zeithaml (1988) stated that satisfaction is the subsequent outcome of an institution's administrative as well as educational system's coherent performance. This is because the students will be more satisfied and motivated in completing their studies if the institution provides an environment which facilitates learning. Meanwhile, Rodie and Kleine (2000) posited that the students will be more motivated, loyal and good performers if their institution provides essential educational facilities with affective teaching and training staff.

The modern infrastructure and a vibrant business environment will ensure that the learning facilities offered are at the highest level. According to Che Din, Rajadurai and Daud (2007) infrastructure comprises of facilitating goods, which include the lectures and tutorials, presentation slides, supplementary handout documents/materials and the recommended module texts. It also includes the physical facilities such as the lecture theatres and tutorial rooms and their level of furnishing, decoration, lighting and layout as well as ancillary services such as catering and recreational amenities. Malaysia is known for its capability to provide comfortable educational facilities. This is according to the report by World Bank (2007) that stated that most universities in Malaysia have excellent infrastructure and modern technology to support the teaching and research activities. Besides the facilities, the setup of foreign university campuses in Malaysia along with the high quality and affordable standard of living also become one of the factors attracting the international students to choose Malaysia as their destination to further studies and obtain new knowledge, expertise and skills.

Konting, Kamaruddin and Man (2009) stated that quality improvement in higher education is a dynamic ongoing process which can influence the students and other stakeholder perceptions towards the higher education institution. In the action of rendering quality, it includes the improvement in learning and teaching process, facilities and also the services being offered (Konting et al., 2009). Meanwhile, Hanaysha, Abdullah and Warokka (2011) conferred that consumers are not only concerned with how the services were being delivered, but also the quality of output they receive. Thus, it is crucial for the higher education institutions to ensure the sustainability in providing their services to meet the expectations of students regarding the quality services. In addition, Parri (2006) stated that quality assessment in higher education should include how the quality is defined, set the assessment standards, compare the

assessment standards with the real outcome and decide to what extent the standards are met. Quality in higher education services is not just to put more attention on individuals, but also involves the education programme which enables the students to get employment, be recognized by others and secure a bright future (Sein , Khoon & Tan, 2012).

Since higher education institution provides services to the students as its main customer, the integral part is to ensure the students' satisfaction could be met. The education process should ensure students achieve their goals, thus, satisfy the needs of the society which in turn can contribute to the nation's development (Mishra, 2006). Although, customer satisfaction is an abstract or rather ambiguous concept (Munteanu, Ceobanu, Bobalca & Anton, 2010), the effort to measure satisfaction will help the delivery of services provided by higher education to fulfil the needs of their customers and recover any flaws that occur.

Several previous literatures have reviewed satisfaction in various perspectives for example, Kotler and Clarke (1987) stated that satisfaction can be identified when a person has experienced performance or an outcome that fulfil his or her expectation. It is supported by Hanaysha et al. (2011) who viewed satisfaction as a function or relative level of expectations and its performance. While Ham (2003) expressed that, an individual is able to achieve satisfaction when the perceived quality services exceed the expectation, however, if it does not meet the expectation, it will lead to customer dissatisfaction. In the measurement of students' satisfaction towards higher education institution, several researchers such as Barnes (2007), Hanaysha et al. (2011), and Sein et al. (2012) used the service quality dimension or SERVQUAL from the study of Parasuraman, Berry and Zeithaml (1991). SERVQUAL comprises of five dimensions which are tangibility, reliability, responsiveness, assurance and empathy. This service quality dimension provides a basic framework to measure the customer's satisfaction of the services provided by the institution.

Meanwhile Yeop Yunus, Ishak and Abdul Razak (2010) were interested to discover the relationship between the lecturers' motivation, empowerment, and service quality with the students' level of satisfaction. The study found out that the three elements had only contributed to only 35.5% of students' satisfaction. Gruber, Fu, Voss and Glaser-Zikuda (2010) used new measurement tools that

consist of fifteen dimensions that cover most aspects of the students'
life to examine the students' satisfaction in higher education. The
study by Gruber et al. (2010) shows that the students' satisfaction
towards university was based on a stable person-environment
relationship reflected from their satisfaction towards building
placement and the atmosphere among students. However, Che Din et
al. (2007) found that the quality of the core services in higher
education, which is the lectures tend to affect students' satisfaction
more significantly. In other words, students' satisfaction level is
influenced more by the outcome of the lecture process than any other
dimensions.

Despite of the reputation and performance of education
institution, some other essential factors namely the physical aspects
and the location of the institution help to encourage students to
achieve academic excellence (Ali, Mohamed Isa & Ibrahim, 2011).
Educational resources such as books, journals or newspaper have to
be periodically updated and ensured the latest version is available.
Ali et al. (2011) also confirmed that educational expertise, general
facilities and effective library system have an impact on the students'
success as well as their satisfaction level. Therefore, studying the
students' satisfaction level is vital because various research have
reported that 20 – 30% of students did not return to their initial
institutions for the second year, while some other research reported
that satisfaction from the university also can affect the students'
performance (Sojkin, Bartkowiak & Skuza, 2012).

Wright (1996) stated that colleges and universities should try
to build their quality in an area of importance that promotes their
well-being. Hence, students have the opportunity to express their
level of satisfaction of their academic experience. As a return, any
weaknesses occurred will be improved by the colleges and
universities to promote quality and good services. Therefore, this
study is significant to the educational administration in order to
improve the institutional quality attributes in order to attract students
to select the institution as their first choice for their tertiary
education. This is because students nowadays use quality as the
prime criterion to select the institutes for admission and education.

3   Research Methodology

The questionnaire used for this study comprises of five sections; Section A to Section E. Section A consists of closed-ended questions seeking demographic information such as gender, programme courses, study experience and their current semester. Section B onwards are designed based on a five point Likert-Scale ranging from 1 for strongly disagree and 5 for strongly agree where the respondents can tick the scale based on their experiences. The items in Section E were designed to examine the students' satisfaction towards the resource center or the library service and Section C is for the ICT services. Section D contains the statements about the campus environment while Section E intends to measure the students' satisfaction level towards the university in general. This study used simple random sampling in which every individual has the equal chance to be the sample of the study. Since this study is interested to examine the satisfaction level among students, the selection of random sampling will reduce potential biased and it also allows generalisation be made to the population.

A pilot study was conducted on 20 respondents. This was to ensure the reliability and validity of the questionnaire as it was reconstructed based on the study of Che Din et al. (2007). For this study, a total of 401 questionnaires were distributed and all of them were competed and returned. This also means that, a 100% response rate was obtained. The respondents for this study were the students from various semesters and diploma programmes which include Diploma in Accountancy, Diploma in Business Studies, Diploma in Banking, and the Diploma in Office Management. The data were analysed using the Statistical Package for Social Sciences (SPSS) Version 21.

4   Data Analysis

In order to measures the students' satisfaction towards the university's infrastructure; several categories were used such as resources center/library services, ICT services, and campus environment. All questions constructed were checked for their reliability, thus the reliability analysis are tabulated in Table 1.

4.1   Reliability Result

Reliability of scales was calculated using Cronbach's *a*. The Cronbach's values of all items are shown in Table 1. According to DeVellis (2003), if Cronbach's *a* value is 0.6 it is "acceptable", whereas if Cronbach's *a* value is 0.7 it is "respectable". Nunnally (1978) suggests that reliability coefficients (Cronbach's *a*) around 0.90 is considered as "excellent", values around 0.80 for "basic research" and values between 0.5 and 0.60 for "exploratory research". Thus, it means that students' satisfaction towards resource center/library service (0.849), ICT service (0.968), and the campus environment (0.898) are considered as "excellent".

Table 1: Reliability Result for Cronbach's Alpha

	Reliability (Cronbach's Alpha)	N of Items
Resource Center/Library Service	0.849	7
ICT Services	0.968	7
Campus Environment	0.898	12

4.2   Correlation Analysis

Pearson correlation was used to measure the strength of the linear correlation between two variables X (independent variables which are campus environment, library services and ICT services) and Y (dependent variable which is students' satisfaction), giving a value between +1 and -1 inclusive, where 1 is total positive correlation and -1 is negative correlation. High correlation indicates 0.50 to 1.0 or -0.50 to -1.0. For medium correlation, Pearson correlation shows between 0.30 to 0.50 or -0.30 to -0.50. Meanwhile for low correlation, Pearson correlation indicates 0.10 to 0.30 or -0.10 to -0.30. As shown in Table 2, we can conclude that all independent variables have positive relationship with dependent variable where if all independent variables increase, the dependent variable would also increase. The findings from the correlation table are also useful to answer the following hypotheses that were developed to identify the relationships between the students' satisfaction level with the services provided.

H^1: *There is a significant relationship between campus environments of the university with students' satisfaction.*

Table 2 shows that campus environment in this public higher institution has medium correlation with students' satisfaction. (Pearson correlation = 0.402)

H^2: *There is a significant relationship between library services provided by the university with students' satisfaction.*

The result also indicates that library services in this public higher education institution have strong or high correlation with students' satisfaction. (Pearson correlation = 0.501)

H^3: *There is a significant relationship between ICT services provided by the university with students' satisfaction.*

Table 2 shows that ICT services in this public higher education institution have medium correlation with students' satisfaction. (Pearson correlation = 0.4081)

The correlation analysis suggests that there are relationships between the students' satisfaction level and the infrastructure in this university. Nevertheless, the most significant relationship was recorded by the library services where it indicates that students are satisfied with this service as compared to the other two areas of services.

Table 2: Correlation Matrix

		Campus Environment	Library Services	ICT Services	Student Satisfaction
Campus Environment	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	335			
Library Services	Pearson Correlation	.553**	1		
	Sig. (2-tailed)	.000			
	N	335	337		
ICT Services	Pearson Correlation	.413**	.657**	1	
	Sig. (2-tailed)	.000	.000		
	N	335	337	337	
Students' Satisfaction	Pearson Correlation	.402**	.501**	.481**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	335	335	335	335

** Significant at 1% level (2 tailed)

4.3 Multiple Regression Analysis

Multiple regressions were conducted to examine whether the library environments, ICT services and campus environment influenced the overall students' satisfaction towards the infrastructure in the public higher education institution. The model summary of regression table shows that the adjusted R Square is .310 lower than 50% thus indicates that the cross-validity of the model is weak. Therefore, we might include the other factors to make the model stronger and able to be generalized for the whole populations and obtain a good prediction value from the model. We also can observe that the ANOVA table shows significant results for F change which is .000. The greater value of F change that represents 49.535 also shows that the model is adequately used to describe the analysis.

Despite the low value for R Square, explained by 31% of variance in productivity, it was revealed to be statistically significant, F 49.535, p < .001. The sig. (or p-value) is .000 which is below the .05 level; hence, we conclude that the overall model is statistically significant, or that the variables have a significant combined effect on the dependent variable. In other words, the model is able to predict the outcome variable of *X* and could influence *Y* representing the independent variables (resources center/library services, ICT services, and campus environment) and dependent variable (Satisfaction level) respectively.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.557[a]	.310	.304	.469

Table 4: ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32.746	3	10.915	49.535	.000[b]
	Residual	72.937	331	.220		
	Total	105.683	334			

Table 5 summarizes the coefficient results. The result for standardized coefficient (Beta) shows that the higher value of Beta is better than the lower value of Beta. From the analysis, the higher value of Beta is .253 represents the variable of Library Environment whereas Campus Environment is .162 and the ICT Service is .245 respectively. The positive value for Beta means that there are positive relationships between the independent variables and dependent variable.

Table 5: Coefficient Result

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	Constant	1.665	.189		8.791	.000
	Campus Environment	.145	.049	.162	2.954	.003
	ICT	.223	.060	.245	3.692	.000
	Library Environment	.252	.061	.253	4.164	.000

4.4   Demographic Profile

Table 6 shows the respondents' demographic. There were 107 (26.8%) male and 293 (73.3%) female respondents. The respondents can be divided into several parts which were 5 respondents from Part 1 (1.3%), 76 respondents from Part 2 (19.0%), 2 respondents from Part 3 (0.5%), 71 respondents from Part 4 (17.8%), 103 respondents from Part 5 (25.8%), 141 respondents from Part 6 (35.3%) and only 1 respondent from other parts which was from Part 7(0.3%). The majority of the respondents which was 368 respondents or 92% did not have any experience studying at other universities or colleges before they registered to the public university, while the remaining which was 32 respondents (8%) have had the experience of studying at other universities or colleges previously.

Table 6: Respondents' Demographic

Demographic		Frequency	Percentage (%)
Gender	Male	107	26.8
	Female	293	73.3
Part	Part 1	5	1.3
	Part 2	76	19.0
	Part 3	2	0.5
	Part 4	71	17.8
	Part 5	103	25.8
	Part 6	141	35.3
	Others	1	0.3
Have you studied at other universities/colleges before?	Yes	32	8
	No	368	92

4.5 Resource Center/Library Service

Table 7 indicates the students' satisfaction towards the resource center or the library service. Currently, this university has two libraries to support the increasing number of students' enrolment. 216 respondents (53.9%) agreed that they felt satisfied with the services offered by the library in the sense of the availability and suitability of study places. Next, 214 respondents (53.4%) agreed that they were satisfied with the arrangement of the books which makes it easier and quicker to find the needed books since they are placed according to the serial numbers. The services that contribute to the high level of satisfaction among students were updated version of reference books and their availability which recorded 51.6% agreed for both services. However, four (1%) respondents strongly disagreed with the helpfulness and politeness of the resource center staff and two (0.5%) respondents strongly disagreed with the availability of photocopiers. At present, the libraries provide three photocopiers for students to be used for printing and photocopying purposes. Among these services, most of the respondents were satisfied with the availability and suitability of libraries as a place to study as it had the highest mean of 4.00. During the study week and examination week, the libraries operate as usual and they extend the operating hours and open on weekends to provide students with a suitable place to study or have discussion.

Table 7: Students' Satisfaction Level towards the University's Resource Center/Library Service

Resource Center/ Library Service	Strongly Disagreed		Disagreed		Neutral		Agreed		Strongly Agreed		Mean
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
The resource center opening hours	1	0.3	24	6.0	107	26.7	201	50.1	67	16.7	3.77
The helpfulness and politeness of the resource center staff	4	1.0	32	8.0	130	32.5	189	47.3	45	11.3	3.60
The availability of recommended books	1	0.2	14	3.5	118	29.4	207	51.6	61	15.2	3.78
The availability and suitability of study places	1	0.2	3	0.7	87	21.7	216	53.9	94	23.4	4.00
The "up-to-date" of books	1	0.2	16	4.0	129	32.2	207	51.6	48	12.0	3.71
The availability of photocopiers	2	0.5	18	4.5	139	34.7	195	48.6	47	11.7	3.67
The range of books	0	0	16	4.0	109	27.2	214	53.4	62	15.5	3.80

4.6   ICT Services

Next, Table 8 shows the students' satisfaction towards ICT services at the university. From the table, most of the respondents agreed that they were satisfied with the number of workstations provided; 49.1% respondents agreed. On top of that, 48.9% of the respondents agreed with the availability of computers for the students' use. 47.6% of the respondents agreed that they were satisfied with the helpfulness and politeness of the IT staff when they needed help or assistance. Furthermore, 47.1% respondents agreed with the opening hours of the computing labs. Moreover, 14 respondents (3.5%) and 11 respondents (2.8%) strongly disagreed with the speed of the computer systems and the availability of the internet access respectively. Then, there were 41 respondents (10.2%) who strongly agreed with the physical environment of the computing labs. The most satisfied services offered with regard to ICT services were the opening hours of the computing labs and the availability of computers for the students' use with the highest mean of 3.62 for both services.

Table 8: Students' Satisfaction Level towards the University's ICT Services

ICT Services	Strongly Disagreed		Disagreed		Neutral		Agreed		Strongly Agreed		Mean
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
The opening hours of the computing labs	2	0.5	18	4.5	152	37.9	189	47.1	40	10.0	3.62
The number of workstations provided	0	0	28	7.0	141	35.2	197	49.1	34	8.5	3.59
The speed of the computer systems	14	3.5	31	7.7	164	40.9	156	38.9	36	9.0	3.42
The physical environment of the computing labs	2	0.5	25	6.2	154	38.4	179	44.6	41	10.2	3.58
The availability of the internet access	11	2.8	30	7.5	138	34.7	177	44.5	42	10.6	3.53
The helpfulness and politeness of the IT staff	5	1.2	35	8.7	138	34.4	191	47.6	32	8.0	3.52
The availability of computers for students' use	6	1.5	17	4.2	142	35.4	196	48.9	40	10.0	3.62

4.7   Campus Environment

The result in Table 9 indicates the students' satisfaction towards campus environment. From the table, it shows that 50.3% of the respondents' stated that the physical environment of the campus was the main element that made students felt satisfied compared to other elements. 45.9% of the respondents felt neutral about the helpfulness of the maintenance and transport staff. 182 from the total respondents (46%) expressed that they agreed with the arrangements for their physical safety and security within the campus and 179 respondents (45.2%) agreed that currently they were satisfied with the maintenance and cleanliness of the campus. 41 respondents (10.3%) strongly disagreed with the availability of parking space for students. This factor was due to the increasing number of students' enrolment and the inadequate number of hostels forced them to rent outside the campus and this required them to have transportation to ease their movement. Next, some of the respondents strongly disagreed with the availability of food services on campus and the element of safety at the hostel with 7% and 6% disagreed respectively. As for the overall students' satisfaction towards campus environment, the respondents were most satisfied with the physical environment of the campus which recorded the highest mean of 3.69.

Table 9: Students' Satisfaction Level towards the University's Campus Environment

Campus Environment	Strongly Disagreed		Disagreed		Neutral		Agreed		Strongly Agreed		Mean
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
The physical environment of campus	0	0	26	6.5	121	30.4	200	50.3	51	12.8	3.69
The comfort of class rooms	1	0.3	35	8.8	176	44.1	169	42.4	18	4.5	3.42
The maintenance and cleanliness of washroom facilities at campus	16	4.0	56	14.0	164	41.1	142	35.6	21	5.3	3.24
The maintenance and cleanliness of campus	9	2.3	33	8.3	148	37.4	179	45.2	27	6.8	3.46
The arrangements for your physical safety and security within the campus	4	1.0	30	7.6	155	39.1	182	46.0	25	6.3	3.49
The college's transportation services	18	4.5	42	10.6	140	35.2	167	42.0	31	7.8	3.38
The availability of parking for students	41	10.3	52	13.0	165	41.4	125	31.3	16	4.0	3.06
The availability of food service at campus	28	7.0	65	16.3	156	39.2	132	33.2	17	4.3	3.11
The physical environment of hostel	20	5.0	41	10.3	165	41.4	153	38.3	20	5.0	3.28
The feeling of safety in hostel	24	6.0	36	9.0	174	43.6	137	34.3	28	7.0	3.27
The availability of food service at hostel	23	5.8	65	16.3	175	44.0	122	30.7	13	3.3	3.09
The helpfulness of maintenance and transport staff	19	4.8	37	9.3	183	45.9	142	35.6	18	4.5	3.26

5 Conclusion

The infrastructure and facilities provided by the public universities aim to create a comfortable environment for the students to learn. The findings indicate that most of the students were satisfied with the infrastructure provided by the university. The majority of the respondents agreed with the suitability and availability of study spaces at the resource center or library. The lowest satisfaction was the lack of availability of parking space for students, lack of availability of food services on campus and at the hostel. So, the university should increase the number of parking spaces as well as the number of cafés in order to support the rising needs of the student's enrolment at the university. The university's management should consider these factors seriously in order to provide good campus environment to the students.

From the correlation analysis, it can be concluded that all independent variables have positive relationship with the dependent variable where if all independent variables increase, the dependent variable would also increase. All independent variables have strong and weak significant correlation with the dependent variable, which is the students' satisfaction.

The findings from multiple regression analysis suggest that the students' satisfaction is not solely based on the infrastructure provided by the university. Their satisfaction level should, therefore, be determined by other factors. These factors could be investigated further in future research.

This research also has some limitations where it only focuses on the underlying infrastructure which includes the resources center/library services, ICT services, and campus environment. Future research should include factors other than infrastructure to add value in an attempt to discover the aspects that contribute to the students' satisfaction level. Besides that, the population should be expanded to include more respondents from various populations to generate more accurate overview of the level of satisfaction.

6   References

Ali, N., Isa, Z. M., & Ibrahim, D. (2011). Malaysian education on implementation of quality assurance standard. *Proceedings of International Conference on Sociality and Economics Development, 10*, 479-483.

Austrian Development Agency. (2009). Higher education and scientific cooperation: Strategy. *The Operational Unit of the Austrian Development Cooperation*. Retrieved from http://www.appear.at/fileadmin/icm/appear/workshop_wien/friday/flenner.pdf

Barnett, R. (1992). Improving higher education: Total quality care. *Hugh Glanville Higher Education, 26*(4), 472-475.

Che Din R., Rajadurai J., & Daud S. (2007). *Establishing a student satisfaction index – A Malaysian case study*. The 5th ASEAN Symposium on Educational Management and Leadership (ASEMAL 5). Retrieved from http://repo.uum.edu.my/1696/1/ESTABLISHING_A_STUDENT_SATISFACTION_INDEX.pdf

Department of Higher Education. (n.d). *Malaysia's incentive and support package for higher education investment.* Private Higher Education Management Sector, Ministry of Higher Education.

DeVellis, R. F. (2003). *Scale development: Theory and applications*. 2nd Edition. Newbury Park, CA: Sage Publications.

Gruber, T., Fub S., Voss R., & Glaser-Zikuda M. (2010). Examining student satisfaction with higher education services: Using a new measurement tool. *International Journal of Public Sector Management, 23*(2), 105-123.

Ham, C. L. (2003). *Service quality, customer satisfaction, and customer behavioral intentions in higher education*. Retrieved from www.cmr-journal.org/article/viewFile/1101 /6151

Hanaysha, J. R. M., Abdullah, H. H., & Warokka A. (2011). Service quality and students' satisfaction at higher learning institutions: The competing dimensions of Malaysian

universities' competitiveness. *Journal of Southeast Asian Research.* http://dx.doi.org/10.5171/2011.855931

Hilmy Muslim, H., Hafazah, A. K., & Ishak, C. A. (2012). Satisfaction of students' living environment between on-campus and off-campus settings: A conceptual overview. *SciVerse Science Direct, Procedia-Social and Behavioural Sciences, 68*, 601-614.

Jamelske. (2009). Measuring the impact of a university first-year experience program on student GPA and retention. *Higher Education*, *57*(3), 373-391.

Konting, M. M., Kamaruddin, N., & Man, N. A. (2009*).* Quality assurance in higher education institutions: Exit survey among Universiti Putra Malaysia graduating students. *International Education Studies, 2*(1).

Kotler, P.. & Clarke, R.N. (1987). *Marketing for health care organizations*. Englewood Cliffs, NJ: Prentice-Hall.

Mishra, S. (2006). Quality assurance in higher education: An introduction. *National Assessment and Accreditation Council in collaboration with Commonwealth of Learning.* Retrieved from http://www.col.org/sitecollectiondocuments/pub_ qahe _intro.pdf

Munteanu, C., Ceobanu, C., Bobalca, C., & Anton O. (2010). An analysis of customer satisfaction in a higher education context. *International Journal of Public Sector Management, 23*(2), 124-140.

Nunnally, J. C. . (1978). *Psychometric theory*. New York: McGraw-Hill Inc.

Parasuraman, A., Berry, L. L., & Zeithaml, V. A. (1991). Refinement and reassessment of the SERVQUAL scale. *Journal of Retailing, 4*(67), 420-50.

Parri, J. (2006). Quality in higher education. *VADYBA / Management*, *11*(2), 107-111.

Rodie, A. R., & Kleine, S. S. (2000). Customer participation in services production and delivery. In T. A. Swartz & D. Iacobucci (Eds.). *Handbook of service marketing and management* (pp. 111-126). Thousand Oaks, CA: Sage Publications, Inc.

Sein, M., Khoon, C. C., & Tan B. L. (2012). Motives, expectations, perceptions and satisfaction of international students pursuing private higher education in Singapore. *International Journal of Marketing Studies, 4*(6), 122-138.

Sojkin, B., Bartkowiak, P., & Skuza, A. (2012). Determinants of higher education choices and student satisfaction: the case of Poland. *International Journal of Higher Education, 63,* 565–581.

Wright, R.E. (1996). Quality factors in higher education: the students' viewpoint. *College Student Journal, 30*(2), 269-272.

World Bank. (2007). *Malaysia and the knowledge economy: Building a world class higher education system.* Washington, DC. © World Bank. Retrieved from *https://openknowledge.worldbank.org/handle/10986/7861 License: CC BY 3.0 Unported.*

Yeop Yunus, N. K., Ishak, S., & Abdul Razak, A. Z. A. (2010). Motivation, empowerment, service quality and polytechnic students' level of satisfaction in Malaysia. *International Journal of Business and Social Science,1*(1), 120-128.

Zeithaml, V.A. (1988). Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence. *Journal of Marketing, 52,* 2-22.