

Assessment of International Students' Satisfaction with Regard to the Information Systems at the Overseas Educational College (OEC) of Jiangsu University, China

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Abstract

This study explored factors that influence user satisfaction of information portal of higher education institutions. Data for the study was obtained from some selected undergraduate and postgraduate overseas students of Jiangsu University, China. A sample of 500 students was selected using proportional stratified sampling technique. A self structured questionnaire was used to collect data from the study respondents. The data was analysed using the PLS-SEM technique and a detailed analysis of basic factors impacting the user satisfaction. The result shows that all the information system characteristics (system quality, information quality and service quality) positively influence user satisfaction. The system quality had the highest influence among the factors affecting user satisfaction ($\beta = 0.391$). This study further revealed that sustaining information quality eventually leads to user satisfaction with information quality ($\beta = 0.352$) and influence students' satisfaction of the web portal. However, among the the three user satisfaction influencing factors, the service quality factor was observed to cast a minimal direct impact on the user satisfaction service quality ($\beta = 0.200$). This study contributes to the literature on higher education institution management.

Keywords: Student Satisfaction, Information Quality, Service Quality and System Quality.

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1. Introduction

The substantial development in the education sector in China has given a significant rise to competition among organizations within the sector. Located in China, Jiangsu University is one of the leading universities in China with respect to the number of international students and study programs. The Student Facilitation or Information system assists the management of student-related information throughout the fundamental business activities i.e. admission, accommodation, examination, registration, grade distribution, the offering of courses, class timetables and records. The major motive of this study is the assessment of international student satisfaction with regard to the information systems in international college i.e. overseas educational college (OEC) (Gao & Wit 2017).

Due to the advancement of communication and information technologies as well as the internet, a dramatic change has been noticed in the computing experience and environment of the end user. Furthermore, this progress has affected the process of delivering information and services. Unlike the conventional halted information systems, the advanced information systems are now web-enabled. Web portals being one of the biggest parts of the advanced information systems.

A Web portal is an access to data and facilities from several sources in an integrated method, by a particular, exclusive user interface (A. Tatnall 2005). A Web portal generally fulfills a particular set of functions involving database access, mechanisms for search, user registration and individualized options. Web portals fulfill several causes, such as private, administrative, informational, entertaining and educational commitments (A. Tatnall 2009). Regardless of the rapid increase in web-based information systems and the dramatic changes in the computing environment of end-user over the past decade, there still has been the inappreciable amount of research done on quantification of user satisfaction throughout the web-built information systems, particularly in the academic domain. The usage of web portals has enabled the universities to set a foothold for enlargement, the introduction of up-to-date utilities and the development of qualitative and quantitative processes of conveying data and functionalities in overseas education. Moreover, the increase in user informational requirements in the education sector has caused extensive investment in web portals for Overseas Education College. Therefore, there is a required need for stakeholders to rationalize this huge investment in this sector by determining the influence of the information system on the satisfaction of end-users. The user's satisfaction is considered as the entity's usability criteria towards the computer, or behavior for other activities necessary to perform in an organization (Rainer & Harrison 1993).

For the sake of descriptive survey of the Jiangsu University for the overseas students' satisfaction, 500 representatives as a sample of international students were chosen through a proportional stratified sampling method. Data collection was carried out through a self-structured questionnaire and analyzed through descriptive and inferential statistics. Use need to be placed behind client satisfaction during the process sense, yet constructive participation with utilization will cause more projecting user contentment in a casual way. Greater user

contentment perpetually prompts a higher goal to utilize. Client satisfaction is estimated by the clients' dimension of satisfaction with reports, websites, and support services. To measure information system's performance, client satisfaction is perhaps the most broadly utilized single measure (Igbaria & Nachman 1990),(DeLone & McLean 1992),(Igbaria & Tan 1997).The web portal for Jiangsu university Liu *et al.* (2019) overseas education college was outlined to suffice the online services to both undergraduate and postgraduate students including effective admission processes, registration, payment of tuition fees, appeal for accommodation, verification of admission status and provision of fundamental details about the University. Regardless of the useful advantages of this system towards international students, its success will still be largely dependent on the students' satisfaction. The OEC web portal's performance can be measured successfully only through feedback from users. Through this feedback, acting as an indication and a weighbridge, users can validate their speculation and assess their strength in the progress of the system. The essential criticism can only be accomplished successfully through an analysis to discover the unguarded view of web portal's operators. The study will conclude to the forefront that which information system measurement indices are considered the most in users' contentment. The result will help users to manage assets suitably on the basis of the satisfaction directories observed initially.

1.1 Need for Implementing An Information System

Knowledge is the outcome of a continuum of how we progress raw data into valuable information (Whitten & Bentley 2007). to convert data into beneficial information for awareness-based assessment making at any level, data must be gathered, structured, examined and reproduced upon (Tolley & Shulruf 2009). Information is perpetually increased in all organization. The careful management and utilization of this information are on the growing concern to all organizations, and storing of functional information in an information system that can aid organizing and consolidating organization's information will produce considerably improved management choices. School can efficiently preserve records of students profile, grades, marks, timetable, absences, behavior statistics, medical record, and demographics (Creemers 2002).

The organization uses an information system for complete and consistent information that will be accessible when it is needed. As it is a difficult task to calculate the need for information, many organizations use technology i.e. computer to maintain corporate transactions. When a report must be created, this raw information can be recovered and deployed to produce the needed information Van et al. 2010.

Moreover, the growth in the number of students increases the complexity of handling the class schedules increases hence an information system helps to manage the timetables effectively at an education institute.

1.2 Research Objective

The following study focuses to comprehend the efficacy and satisfaction of the prevailing student information portal of overseas education college with regard to performance including system quality, user satisfaction, quality of service and information.

This research concludes the serviceability of the information system and the way students (undergraduate and postgraduate) discern its functionality in completing their requirements on the system.

1.3 The Measure of Information System Success

The key focus of the introducing of an information system into an organization is to enhance individual decision-making performance along with the efficacy and productivity of the overall organization. The success of the system plays an important role in the expected benefit in terms of organizational goals through the implementation and adoption of the information system. As mentioned earlier, the success of the information system is a multi-dimensional design (Saarinen 1996). For this reason, substitute methods have been developed and used to estimate the realization of the information system. The surrogate measures namely system usage (Nolan & Seward 1974),(Nolan 1974),(Segev *et al.* 1984),(Snitkin & King 1986) and user satisfaction (Bailey & Pearson 1983),(Ives *et al.* 1983),(Baroudi & Orlikowski 1988) are the two of them; described after examining 180 studies for information system success measures. Corresponding to them, the study has focused on the following areas: the quality of the system, quality of the information, user satisfaction, individual and organizational influence. Their model highlights the effects and inter-relationships among these numerous modules (Amoroso & Cheney 1991). It has been also observed that information quality and system quality are two considerable components of user satisfaction. The model further proposes that user satisfaction, as well as system usage, are influenced by the two factors mentioned above Tan *et al.* 2004.

However, this study does not cover the effect of all the factors on the dependents rather it deals with the insight and explanation of the association among the following factors: the quality of the system, the quality of the service, and information quality and user satisfaction. This model classified the factors of the success into six credible dimensions along with the consolidation with the prior findings. Nevertheless, the suggested associations in their model were not put to a test factually. Various other studies (DeLone & McLean 2002) empirically examined the association between the measures of the information system's success. In (Garrity & Sanders 1998)

determines the information system's realization at different stages – how a system subsidizes to the organizational presentation, proficient use of assets and the users' perception of utility and satisfaction.

2. Methodology

To scrutinize the information system users' contentment indices amongst the overseas students (undergraduate and postgraduate) of Jiangsu University in China a detailed survey design was applied. The sample of the students for this study comprises of overseas students from all departments in the university. This sample of 500 students was selected on the basis of proportional stratified sampling technique across the various faculties of the university. For the collection of the data, a self-structured questionnaire regarding information systems was designed. The survey was carried out directly (one to one) with the respondents. After the distribution and retrieving of the questionnaires, the data was acquired and found appropriate for the analysis of the data. Explanatory and inferential statistical methods were used for data analysis.

2.1 Research Design

The survey for the study was conducted using 5 point Likert's Scale Song *et al.* 2011 as the research design. It discusses the gathering of statistics from the users (overseas undergraduate and postgraduate students) of portal systematically. Their feedbacks are evaluated to provide a clear insight into the valuation of the user satisfaction level of the web portal information system.

3. Related Literature

The idea of user satisfaction can be drawn back to numerous years (Swanson 1974). With reference to (Bailey & Pearson 1983) satisfaction is one's behavior towards a given situation and the factors affecting the situation". Along with the utilization of the system, various measures have been put forward for the evaluation and the calculation of user satisfaction (Baroudi & Orlikowski 1988). In (kim 1989) explains user contentment with regards to the standard of information, the effectiveness of the system and attitude of the user. In (Doll & Torkezadeh 1989) Considered user contentment with regards to the quality of the system and quality of information. In (Peter 1996) this research, 33 articles were attached highlighting the matter of user satisfaction. For the conclusion they proposed, the availability of the authentic tools to measure user satisfaction has made the user contentment as the widely used measure of information system success, while other measures are prone to failures.

There is a number of researches carried out on various approaches to estimating the functionality and efficacy of specific online service. The studies differ from the criteria adopted to evaluate the factors affecting the user satisfaction of a particular service provided online and the technology adoption model Qawasmeh *et al.* 2014 several models have been acquired by the researches to describe what factors make an information system 'successful.'

To describe the reason for the acceptability of an information system, "Theory of Reasoned Action and Theory of Planned Behavior" was used by the Technology Acceptance Model (TAM) (Fishbein 1977). However, acceptance is not identical to success; however, it is required pre-requisite for success. Delone and Mclean's information models are the one widely cited (Vardi & Weitz 2002).

Caused by the complexity, multi-dimensional factor, and interdependency of information system success, the initial efforts to explain information system lacked the definition of success. To quantify the problem, a research's review was published (1981-1987) by DeLone and McLean (Petter & McLean 2009), thus establishes a taxonomy of the realization of the information system on the foundation of this review. They pointed out six components of the information system's success in 1992, which are as follows: satisfaction of users, quality of the system, information quality, use, organizational and individual impact.

Nonetheless, these six modules are not self-supporting success measures but are dependent on each other. Many information system researchers started modifying the model after the D&M model's publication. Seddon & Kiew (Seddon & Kiew 1996), after receiving the proposal for 'further development and validation' researched on a specific portion of the information system model. As part of their judgment, researchers revised the factor 'use' as they 'estimated that the fundamental successes constructs indicate that researchers have been attempting to tap are Usefulness, not Use. Although, the Seddon and Kiew's idea of usefulness is similar to the concept of identified usefulness in the Technology Acceptance Model (TAM) proposed by Davis (Davis 1989). They advanced that, 'use' is a suitable measure for the elective systems, but usefulness is superior to use the measure of information success if the use of the system is compulsory. In response to that, DeLone & McLean (Delone & McLean 2003) argued that the 'use' factor should be retained due to substantial variability of 'use'. It is also recommended by researches to include service quality to the D&M model. An instrument known as SERVQUAL from the marketing literature has become noteworthy in the success of an information system from the past decade.

"SERVQUAL estimates the quality of service of IT departments, unlike the discrete IT applications, by quantifying and comparing expectations of the user and their understating of the IT department. Furthermore, Pitt *et al.* (1995) "assessed the instrument from the perspective of information system and proposed that the service

quality component should be a part of the D&M model. Some researchers have withstood this alteration (Seddon 1997), while the rest have supported it Jiang *et al.* (2002). After the careful review and evaluation, “DeLone and McLean decided to add a variable “service quality” in their updated information system model.

Another widely known amendment to the D&M model is the one proposed by (Seddon 1997) He declared that the D&M model on its own was obscuring due to the combination of process and variance models in the same framework (Desai & Mahalakshmi 2018).

DeLone and McLean “argued on the amendment proposed by the Seddon, declaring that this was the strength of the model rather than a shortcoming because the two variables were richer together than alone. Moreover, Seddon recommended that the idea of ‘use’ is debatable and required a further explanation for this construct.

Seddon concluded three different possible definitions for the construct ‘use’ along with splitting the two portions process and differences within the model. The changes made by the Seddon complicated the model and thus affecting its impact while the D&M model of the information system was supposed to be ‘complete and parsimonious’. Notwithstanding the changes proposed by Seddon, there have been different calls to reexamine or broaden the model. A few analysts have altered it to assess the performance of explicit applications, for example, knowledge management (Jennex & Olfman 2002),(Kulkarni et al. 2006) and internet business(Molla *et al.* 2001), (Zhu *et al.* 2005). Different specialists have made increasingly broad proposals concerning the model (Munro *et al.* 1996). Perceiving these proposed changes to their model, D&M, in subsequent work, looked into experimental examinations that had been performed during the years since 1992 and overhauled the first model likewise. This refreshed IS performance model acknowledged the Pitt *et al.* (1995) proposal to incorporate service quality in the role of a constructor. Another additional update in the model tended to the analysis that a data framework can impact levels aside from individual and level. Since IS performance influences workgroups, ventures, and even social orders (Myers et al. 1997),(Nolan 1973),(Seddon et al.1999). D&M supplanted the factors, singular impact, and authoritative effect, with net benefits, in this way representing advantages at various dimensions of examination. This correction enabled the model to be connected to whatever dimension of examination the specialist considers generally important. The last change added to the D&M model was an explanation of use construct. The builders explained the construct as pursues: 'Utilize should be prioritized before "client satisfaction" in a method way, however, positive participation with "use" will lead to noteworthy "client satisfaction" in a causal way (Delone & McLean 2003). They proceeded to convey that extended client satisfaction will influence a much higher aim to utilize, which will along these lines influence use. “The D&M model has likewise been observed to be a valuable structure for getting sorted out IS performance estimations. The model has been broadly utilized by IS specialists for comprehension and estimating the elements of IS performance. Moreover, every one of the factors depicting the accomplishment of a data framework was reliable with at least one of the six noteworthy performance measurements of the refreshed model. The components of accomplishment include:

System Quality – the characteristics which are desired in an information system. For example, system flexibility, reliability, the learning curve, ease of use, and other system features of sophistication, flexibility, response times, and intuitiveness(Petter *et al.* 2008). Strong support has been acknowledged for the relationship between user satisfaction and system quality (Iivari 2005). Upon examination of more general ISs, a strong relationship was found between the quality of the system and user satisfaction (T. W. P. A 2005).

Information quality- the advantageous characteristics of the outputs of the system; including web pages and management reports. Such as accuracy, conciseness, completeness, understandability, relevance, usability and timeliness (Petter *et al.* 2008). The association between user satisfaction and information quality is highly encouraged in the literature (Wu & Wang 2006). Service quality- A measure to determine the support quality provided to the system users by the IT employee staff and the information system department. Such as technical capability, responsiveness, reliability, and accuracy (Petter *et al.* 2008). a case study carried out by (Leclercq 2007) found that the association among the information system function and users along with the support quality and services influenced on user satisfaction.

4. Result

4.1 Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis is used in the verification of the structural factor pertaining to the set of obtained values (Thompson & Nier 2005).Since we are testing for the common method variance in our study, the Factor test was adopted and EFA was used for the test. This account for about 88.40% of the variance in the sample (See Table 1).

Table 1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.884
Bartlett's Test of Sphericity	Approx. Chi-Square	1936.477
	Df	15
	Sig.	.000

4.2 Reliability and Validity of Scales

EFA was utilized through SPSS in measuring the underlying dimensions associated. Bartlett's Test of Sphericity was used in measuring the construct validity while the Kaiser-Meyer-Olkin (KMO) was used to measure the Sampling Adequacy of individual variables. Note that the overall of the KMO should be 0.6 or even more for the factor analysis (Özdamar 2017). According to the above results, it revealed that both are significant and it is suitable for the factor analysis (See Table 1). The cumulative variance in the table shows 88.40%, which exceeds the minimum acceptance level of 60% (Özdamar 2017). The table again indicates that Bartlett's Test of Sphericity is sufficient for the correlation between the variables, it shows 1936 and significant ($P > 0.000$). While the factor loadings of the entire construct exceeded 0.5 (Hair *et al.* 1987). These values represent evidence that there is convergent and discriminant validity (See Table 4).

4.3 Characteristics of Respondents Based on Demographics

Table 2 contains the characteristics of the respondents based on the demography. Almost 52.4% of the respondents were male and almost 46.6% of the others were females. Age wise, those respondents who were aged 17-23 contributed with the highest percentage (51.2), following by the respondents of age 24-30 (32.8). Those between 31-37 and 38-44 years were (12.4) and (2.0) respectively, (1.6) for other ages. (58.2) of respondents were an undergraduate student while (41.8) were postgraduate students.

Table 2 the characteristics of the respondents based on the demography

Variable	Measurement	Frequency	Percent
Gender	Male	262	52.4
	Female	238	46.6
age	17-23	256	51.2
	24-30	164	32.8
	31-37	62	12.4
	38-44	10	2.0
	Other	8	1.6
Qualification	undergraduate	291	58.2
	Postgraduate	209	41.8

5. Measurement Model Reliability and Validity

5.1 Data Analysis

The simulation work in estimating the result of the perceived variables and their latent constructs on the contentment of user was implied in smart-PLS version 3.2.7 (Ringle & Becker 2015) PLS-SEM is widely applied for theory development in analytic research (Bamgbade *et al.* 2017) The key applications of SEM are as follows: confirmatory factor analysis, regression models, path analysis, second-order factor analysis, correlation structure models and covariance structure models (Lin *et al.* 2017). In addition to that, SEM allows the examination of the linear associations between the manifest variables and the latent constructs. It also supports the creation of accessible parameter estimates for the association between undetected variables. Generally, SEM allows numerous relationships to be examined at once in a single model with different relationships rather than testing each relationship individually. Smart-PLS version 3.2.7 is more advantageous than a method based on regression for assessing various latent constructs with several manifest variables (Gefen 2000) PLS has a two-step process as suggested by Henseler *et al.* (2009) that includes the assessment of the inner structural model and outer measurement model. Furthermore, PLS-SEM is chosen as the most familiar technique within social sciences studies that is the most suitable procedure for multivariate analysis (Hair *et al.* 2014), (Peng & Lai 2012).

5.2 Evaluation of Outer Measurement Model

The outer measurement model is directed to compute the internal consistency, reliability, and validity of the observed (assessed through the questionnaire) and unobserved variables (Ho 2006). Discriminant and convergent validity methods are applied to evaluate the validity while the consistency assessments are established on singled observed (Hair *et al.* 2012).

Construct reliability is the degree of consistency that is used to assess the extent to which various test items that review a similar construct establish comparable results. This is assessed through item loadings with an

acceptable value of 0.70 and again using Cronbach's Alpha level of acceptable region of 0.70(Hair & Sarstedt 2012) . From the table below, the construct displays that the item loadings are all higher than the recommended 0.70.

The reliability of a detected variable defines the variance of a single observed individual when compared to an unobserved variable. This is done by assessing the standardized outer loadings of all detected variables (Götz et al. 2010). Acceptable values of the outer loading, of observed variables, are 0.7 or a value greater than that. Outer loadings with a value below 0.7 should be discarded right away[68].

For this specific study, 0.7 was determined to be the cut-off value for the outer loading. As noted in Table 3, the values for the outer loadings lied in between 0.7022 and 0.898. For the purpose of internal consistency evaluation in the construct reliability, Cronbach's Alpha and Composite Reliability (CR) were used. Upon comparison of the two, CR is believed to yield better results for internal consistency as the standardized loadings of the observed variables is kept (Chin & Marcoulides 1998).

All the variables in Table 3 depict that, the Cronbach's Alpha is above 0.70, and this indicates that all the constructs in the table have higher reliability in terms of measurement. According to Fornell & Larcker (Fornell & Larcker 1981), they explained in their works that, construct validity measures the degree to which a measurement represents and rationally associates the detected phenomenon to the construct through the major theory, while according to (Ringle & Becker 2015) , assessment is done through convergent validity and discriminant validity. From Table 3, The Average Variance Extracted (AVEs) and the composite reliability (CR) has satisfied the minimum of 0.5 and 0.70 respectively (Fornell & Larcker 1981),(Ringle & Becker 2015). This shows that the convergent validity is clearly adequate.

Table 3 Construct Reliability and Validity

Factor	Items	Loading	Cronbach's Alpha	composite reliability	Average Variance Extracted
Information quality	iq1	0.846	0.922	0.939	0.720
	iq2	0.898			
	iq3	0.868			
	iq4	0.869			
	iq5	0.818			
	iq6	0.789			
Service quality	sq1	0.835	0.868	0.901	0.603
	sq2	0.842			
	sq3	0.765			
	sq4	0.702			
	sq5	0.752			
	sq6	0.753			
System quality	syq1	0.827	0.908	0.929	0.687
	syq2	0.869			
	syq3	0.843			
	syq4	0.836			
	syq5	0.846			
	syq6	0.746			
User satisfaction	us1	0.869	0.948	0.958	0.793
	us2	0.896			
	us3	0.899			
	us4	0.916			
	us5	0.867			
	us6	0.896			

Moreover, the attempt taken afterward was the assessment of the latent constructs through discriminant validity. Discriminant validity elaborated that the definite variable in any construct is different from the rest of the constructs, including that the value for its cross-loading in the latent variable is higher than that in the rest of the constructs (Sarstedt et al. 2014).

Table 4 Discriminant Validity

	information quality	service quality	system quality	user satisfaction
information quality	0.849			
service quality	0.699	0.776		
system quality	0.755	0.633	0.829	
user satisfaction	0.787	0.693	0.783	0.891

Table 4 above shows the discriminant analysis with regards to the scales used in this study. Discriminant analysis requires a factor to correlate higher than with any other construct on its scale (Messick 1994). All the scales in Table 4 shows the constructs loading higher than any other factor on their scales. Information quality on its scale had a value of about (0.84) which is higher than any other construct on that scale. Service quality and system quality had a value of (0.77) and (0.82) respectively. user satisfaction is (0.89) which is higher than any other factors on their scales.

“The Fornell and Larcker model and cross-loadings were utilized to assess discriminant legitimacy [69]. The recommended standard is that a build ought not to demonstrate a similar variance as whatever other development that is more than its AVE esteem (Sarstedt et al. 2014).. Table 5 demonstrates the Fornell and Larcker paradigm trial of the model where the squared connections were contrasted and the relationships from other dormant develop. Table 5 demonstrates that the majority of the connections were small in comparison to the squared foundation of the normal difference applied along the diagonals, suggesting major discriminant legitimacy. This confirmed that the observed factors in each build demonstrated the given inert variable confirming the deviating accuracy of the model, though, Table 6 demonstrates that the cross-loading of every watched variable was more than the between inter-connections of the construct of the various watched factors in the model. In this manner, these discoveries affirmed the cross-loadings evaluation principles and gave satisfactory approval to the discriminant validity of the estimation model.

As this closes, the prescribed model was expected to be considerable, as to adequate unwavering reliability, discriminant validity, convergent validity and the evaluation of the research model.

Table 5 Fornell-Larcker Criterion

	Iq	Sq	syq	Us
information quality	0.849			
service quality	0.699	0.776		
system quality	0.755	0.633	0.829	
user satisfaction	0.787	0.693	0.783	0.891

Table 6 Cross Loading

	information quality	service quality	system quality	user satisfaction
iq1	0.846	0.619	0.732	0.704
iq2	0.898	0.617	0.696	0.710
iq3	0.868	0.592	0.604	0.657
iq4	0.869	0.625	0.671	0.715
iq5	0.818	0.565	0.547	0.581
iq6	0.789	0.537	0.574	0.622
sq1	0.639	0.835	0.581	0.618
sq2	0.542	0.842	0.448	0.562
sq3	0.504	0.765	0.385	0.469
sq4	0.368	0.702	0.419	0.403
sq5	0.492	0.752	0.514	0.463
sq6	0.640	0.753	0.562	0.643
syq1	0.617	0.548	0.827	0.666
syq2	0.604	0.494	0.869	0.648
syq3	0.602	0.541	0.843	0.642
syq4	0.670	0.575	0.836	0.687
syq5	0.621	0.467	0.846	0.634
syq6	0.641	0.520	0.746	0.611
us1	0.674	0.673	0.735	0.869
us2	0.702	0.571	0.721	0.896
us3	0.687	0.668	0.685	0.899
us4	0.732	0.637	0.722	0.916
us5	0.699	0.547	0.637	0.867
us6	0.709	0.603	0.679	0.896

5.3 Hypothesis Test

Hypothesis 1 (H1). Information quality attribute has a substantial and affirmative influence on user satisfaction (students)

Hypothesis 2 (H2). Service quality attribute has a substantial and affirmative influence on user satisfaction (students)

Hypothesis 3 (H3). System quality attribute has a substantial and affirmative influence on user satisfaction (students)

Similarities were found in the path coefficients in the PLS and the standardized b-coefficient in the Regression analysis. The significance of the hypothesis was verified using the b-value. Estimated variation in the dependent construct for a unit variation in the independent construct(s) was denoted by the value of b.

For the hypothesized model, the b-value was calculated for every path. The larger the b-value, the bigger the considerable effect was noted on the endogenous latent construct. However, the significance level of the b-value had to be tested using the T-statistics test. Through the process, an evaluation was done to determine the importance of the hypothesis (Chin & Marcoulides 1998). Now, to assess the significance of the path coefficient and the T-statistics values, a bootstrapping procedure was carried out for the study using 1000 sub-samples with no significant changes. It is described in Table 7.

Table 7 the significance of the path coefficient and the T-statistics values

Hypothesis path	Standerize beta	T statics	P value	Action
H1 Iq --- Us	0.351	8.025	0.000	accepted
H2 Sq---Us	0.200	4.892	0.000	accepted
H3 Syq---Us	0.391	10.354	0.000	accepted

In H1, we anticipated that the information quality would suggestively and definitely effect user satisfaction. As expected, the results in Table 7 and Figure 1 assured that the information quality pointedly impacted user

satisfaction ($b = 0.351$, $T = 8.025$, $p < 0.000$). Therefore, H1 was strongly encouraged. Moreover, when perceiving the direct and affirmative effect of the service quality feature on quality of the project (H2), the conclusions from Table 7 and Figure 1 recommended that the service quality feature certainly affected user satisfaction ($b = 0.200$, $T = 4.892$, $p < 0.000$), and confirmed H2. The impact of the system quality feature on user satisfaction was affirmative and important ($b = 0.391$, $T = 10.354$, $p < 0.000$), presenting that H3 was sustained.

The higher the beta coefficient (b), the more compelling the result of an exogenous latent construct on the endogenous latent construct. Table 7 and Figure 1 displayed that the system quality feature had the highest path coefficient of $b = 0.391$ when compared to other b values in the model. Whereas, the service quality feature had a minimum influence on the quality of the project with $b = 0.200$. Figure 2 displays the visual representation of all path coefficients of the model.

Figure 1 Structural modeling on quality of the system, quality of information, quality of service and user satisfaction

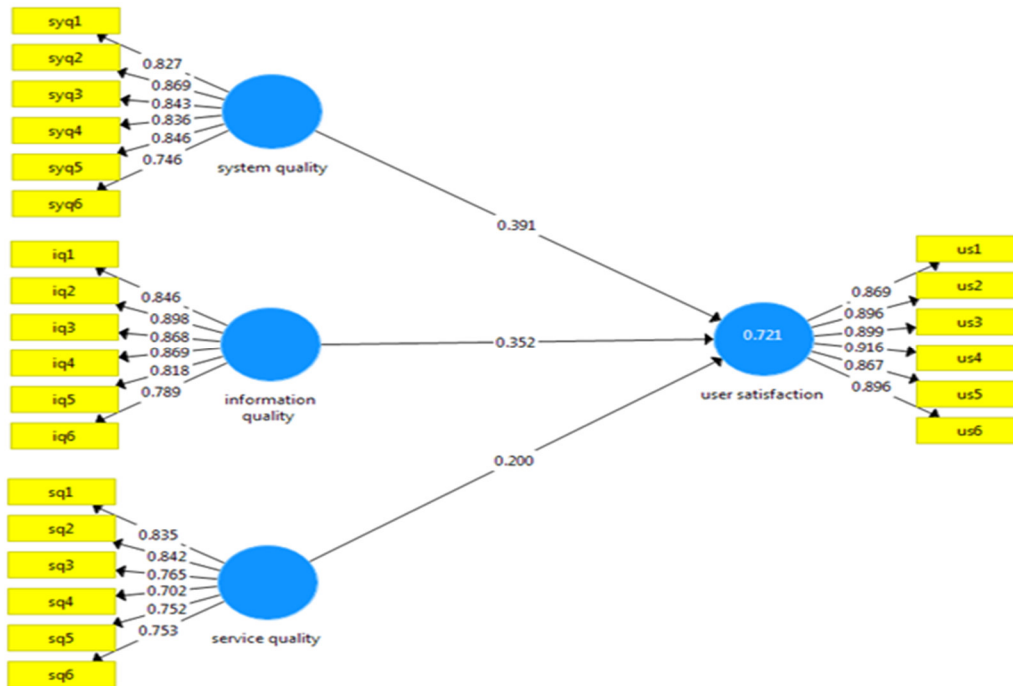
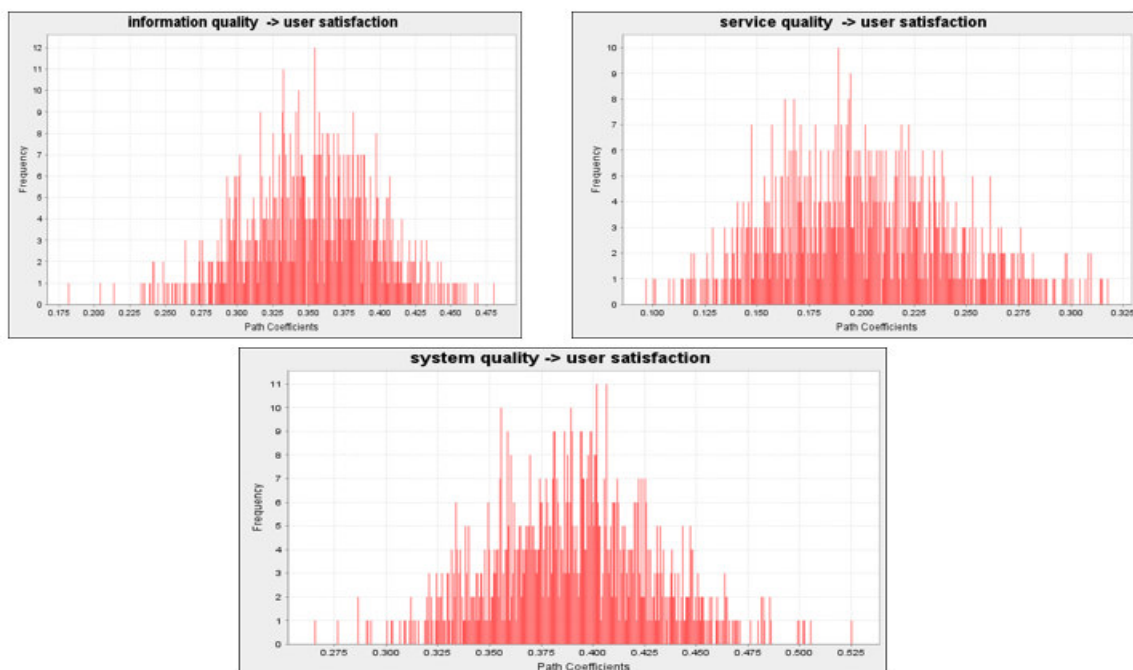


Figure 2. Graphical representation of the path coefficient.



5.4 Root Mean Square (Standardized SRMR)

SRMR is an index of the average of standardized obtained remainders between the observed and hypothesized covariance matrices (Fang 2007).

The obtained resulting value is the obtained measure of the fit estimate of the model. If the value of SRMR is ≤ 0.08 , following, the studied model has a good fit (Hu & P.M 1998), however, a lower SRMR value is always a better-suited fit. Table number 8 displays that pertaining to the model discussed in the course of this study, the value of SRMR was 0.06, which consequentially proves that the fit of the study's model was good. Apart from this, the Chi-square and the NFI were also measured and yielded values equal to 2005.072 and 0.818 respectively.

Table 8 Fit Summary

	Estimated Model
SRMR	0.067
d_ ULS	1.328
d_ G1	0.952
d_ G2	0.731
Chi-Square	2,005.072
NFI	0.818

5.5 Correlation Coefficient of Latent Variables

Table number 9 discusses the latent variable correlation coefficient. Table number 9 reveals that a major correlation exists between two constructs; latent exogenous and the latent endogenous.

Table 9 Latent Variable Correlations

	information quality	service quality	system quality	user satisfaction
information quality	1.000	0.699	0.755	0.787
service quality	0.699	1.000	0.633	0.693
system quality	0.755	0.633	1.000	0.783
user satisfaction	0.787	0.693	0.783	1.000

A detailed analysis of the structural and measurement models was carried out and it was concluded that both the models were affirmed. The hypothesis which was made was statistically significant and thus, were all accepted.

The outcomes of this process assist a higher and precise concept of the attributes influencing user satisfaction and can aid in establishing a set of plans to leave the user contentment failures behind.

6. Discussion

The prime goal of the study is to analyze the factor that influenced user satisfaction through the PLS-SEM technique and a detailed analysis of basic factors impacting the user contentment as observed by the Jiangsu University's overseas students.

Moreover, this study regarded the web portal functional information system and how the students comprehend its applications in completing their requirements on the system. The final conclusion exhibits the sustaining importance of the information on user satisfaction. The argument is based on the consequences of these interactions. The study states that the importance of information quality on the user satisfaction of the overseas education college web portal, with regards to completeness, accuracy, understandability, timeliness, and relevance of the data it contains. These factors underlie the insight of users and form criteria for analyzing the system's efficiency. The associations between information quality and user satisfaction are highly encouraged in the literature (Iivari 2005),(Wu & Wang 2006). Studies (Rai *et al.* 2002),(Chiu *et al.* 2010) show a consistent association between the quality of the information and user satisfaction at the separate unit of analysis. Studies particularly assessing the information quality factors of websites, such as layout and content have shown important relationships among user satisfaction and these constructs. Study (Kim *et al.* 2002) exhibits that sustaining information quality eventually leads to user satisfaction. This result is important as it concludes that the satisfaction with the information system is directly proportional to the satisfaction of the student. The last SEM results show that the information quality attribute had the largest coefficient in terms of path i.e. $b=0.391$ with the comprehensive influencing user satisfaction.

Assessing the quality of the service more widely, rather than just with the regards to active personnel and how they are trained, there is still controversial backing for its impact on user opinion. Applying the SERVQUAL tool, which assesses assumptions and insights that users have on the quality of the service (Lee *et al.* 1994), likewise, found that quality of service is emphatically and significantly associated to user opinion of information facilities in an interview of students grading the Computer Services department of the university. The study

observed the significance of service quality on user satisfaction of the overseas education college school web portal, measured when quantifying competence, speed, dependability, Responsiveness, and security, however Among the the three user satisfaction impacting factors, a service quality factor of ($b = 0.200$) was observed to cast minimal impact on user satisfaction

In two separate studies, (Palmer 2002) carried out on websites, quality of the system, considered as download time and reliability, was notably associated with user satisfaction. Moreover,(Devaraj & Kohli 2002) analyzed comprehend ease of use to be remarkably connected to user satisfaction. Therefore, firm support is there for the association between the level of user satisfaction and quality of the system (Iivari 2005).this study confirms the University of the system quality attribute in predicting IS performance in term of reliability, download time, ease of use, global standardization and accessibility, The system quality was concluded as the 2nd biggest influencing factor ($b = 0.351$) within factors affecting user satisfaction .

7. Conclusion

The study was a descriptive survey of overseas students of Jiangsu University The prime goal of the study is to analyze the factor that influenced user satisfaction through the PLS-SEM technique and a detailed analysis of basic factors impacting the user satisfaction as observed by the Jiangsu University's overseas students.

Moreover, this study regarded the web portal functional information system and how the students comprehend its applications in satisfying their requirements on the system. The final conclusion exhibits the sustaining importance of the information on user satisfaction. The argument is based on the consequences of these interactions. The study states that the importance of information quality on the user satisfaction of the overseas education college web portal, with regards to completeness, accuracy, understandability, timeliness, and relevance of the data it contains. These factors underlie the insight of users and form criteria for analyzing the system's efficiency. This study exhibits that sustaining information quality eventually leads to user satisfaction. This result is important as it concludes that the satisfaction with the information system is directly proportional to the satisfaction of the student. The last SEM results show that the system quality attribute had the largest coefficient in terms of path i.e. $b=0.391$ with the comprehensive influencing user satisfaction. The study observed the significance of service quality on user satisfaction of the overseas education college school web portal, measured when quantifying competence, speed, dependability, Responsiveness and security .this study confirms the University of the INFORMATION quality attribute in predicting IS performance in term of reliability, download time, ease of use, global standardization and accessibility.

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