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## International University Competitiveness, Student Satisfaction, and Socio-Cultural Challenges: A Case Study of Private Universities in California

Ram Paudel<sup>1\*</sup>, Sanaz Tehrani<sup>2</sup>, Vahick A. Yedgarian<sup>3</sup>, Md Masud Karim Rabbi<sup>4</sup>

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### ABSTRACT

This study investigates the influence of socio-cultural adaptation, service quality (academic and non-academic) and institutional structure on student satisfaction and institutional competitiveness of private universities in the California context. For this, data was collected from 120 students using self-administered surveys using a quantitative research design. The data were analyzed using statistical tools such as SPSS, SEM and AMOS, Cronbach's Alpha and EFA were done for reliability and validity. The study findings suggest that enhancing socio-cultural adaptation strategies and service quality, in particular, international students, will greatly help the student satisfaction and institutional competitiveness. These outcomes also depend on the strengthening of institutional structures. However, these mediation and moderation effects were weaker than we had anticipated, suggesting that there are additional factors to be explored in future research. The study provides insights into the effects of socio-cultural adaptation and service quality dimensions on student outcomes and institutional success in a globalized higher education market.

### INTRODUCTION

Global competence, which encompasses the elements of mindset and cross-cultural social skills enables students from all over the world to develop mutual understanding, thus resulting in positive inter-student relations. This improves satisfaction among students, increases the enrollment rate, and consolidates the university campus milieu (Zhou, 2022). As the market saturated, in today's environment, it is imperative for universities throughout the world to be able to respond to the increasing need of students. There is always a negative correlation between student satisfaction and institutions in terms of student retention and recruitment if the latter is not addressed (Tubulingane & Baporikar, 2020). As competition intensifies, the viability and success of educational organizations are crucially defined by the ways in which institutions set themselves apart from their competitors, through diversified value propositions and strategic approaches (Diez-Busto *et al.*, 2023). It suggests new situations for global educational market, which universities worldwide, including those in the United States, strive to attract and retain students. The challenges are the ways of crossing gulfs in cultural differences, ways of offering the appropriate educational experience, and ways to guarantee that students are ready to enter the labor market (Mendoza-Villafaina & López-Mosquera, 2024). There is growing importance in employability in that the labor market has changed to require not only task-related competencies or technical skills, but also interpersonal competencies, or values and attitudes (Diez-Busto *et al.*, 2023). It is crucial thus to be able to communicate and adapt in a global environment to as a future advantage.

More often, private higher learning institutions in the USA are considered to have a competitive edge due to the quality of academic services delivery and customer patronage. These are, namely: a high level of education service satisfaction, students' activity, and perceived quality (Nursyamsi *et al.*, 2022). However, when it comes to the students from other countries who come to other countries to learn has been considerably little investigated in relation to global competence, although it is known that international students have specific issues that may affect their inclusion in what is new to them (Zhou, 2022). Therefore, the colleges and universities in the U.S. need to ensure that the challenges interviewed above affect not only the students' satisfaction but also their retention within their universities since culture rapport bargaining impacts their competitiveness in the marketplace of the international higher learning institutions. This study focuses on the impact of socio-cultural factors on student satisfaction and Institutional competitiveness in private universities in California. It examines how socio-cultural adaptation, service quality academic and non-academic services, the structuration of school environment influence the satisfaction of students and therefore the competitive advantage of a school. By cognizing these dynamics, the higher education institutions can improve the students' experiences and the sustainability of higher education organizations in view of the growing diversity of the students and the intensification of competition. In addressing these issues, the study aims to answer the following research questions:

a. What role do socio-cultural factors play in student satisfaction and institutional competitiveness?

<sup>1</sup> Business Administration, International American University, Los Angeles, California, USA

<sup>2</sup> Westcliff University - Main Campus, Irvine, California, USA

<sup>3</sup> University of California (UCLA), Los Angeles, California, USA

<sup>4</sup> Business Analytics, International American University, Los Angeles, California, USA

\* Corresponding author's e-mail: [ram.paudel.iacula@gmail.com](mailto:ram.paudel.iacula@gmail.com)

b. What is the relationship between academic and non-academic service quality, student satisfaction, and institutional competitiveness?

c. What is the relationship between the structuration of school setting support, student satisfaction, and institutional competitiveness?

Through answering these questions, the study aims to provide guidelines on the ways to enhance the students' satisfaction level, to promote the retention rate, and to advance the position of the private CA universities on the international level. The results of this study will expand the literature on international student integration and provide recommendations to positively enhance the university services for international students.

### LITERATURE REVIEW

Education has the overall responsibility of developing the intellectuals and other professionals in the society and in their delivery, higher education presents to the student knowledge both in the traditional academic ways as well as practical knowledge (Ma, 2010). In the educational process organizational, cultural as well as social structures

encompass knowledge flow and academic success (Tubin, 2015). Activities and rhythms which constitute the structuration process as well as leadership, student affairs, course timetables, and evaluation schemes enable or facilitate students' successes and institutional standards or rankings (Tubin, 2015). Thus, as Ma (2010) notes, theory for learning entails intellectual resources to assess, problematize and develop learning processes to make ethical, cultural and social choices. The Structuration Theory as suggested by Giddens (1984) has a significant role to interpret the position of the social structures and active moves in the context which students encounter. As postulated by Giddens, social institutions are constituted and reconstituted by people's practices and structures in and through which they practice. This co-circularity shapes how higher education systems, faculty, staff and learners engage to co-create academic experiences (Pham, 2019). Consequently, structuration theory provides theoretical tools for understanding repetitive practices and communications among students, professors, and administrators as they affect learning.

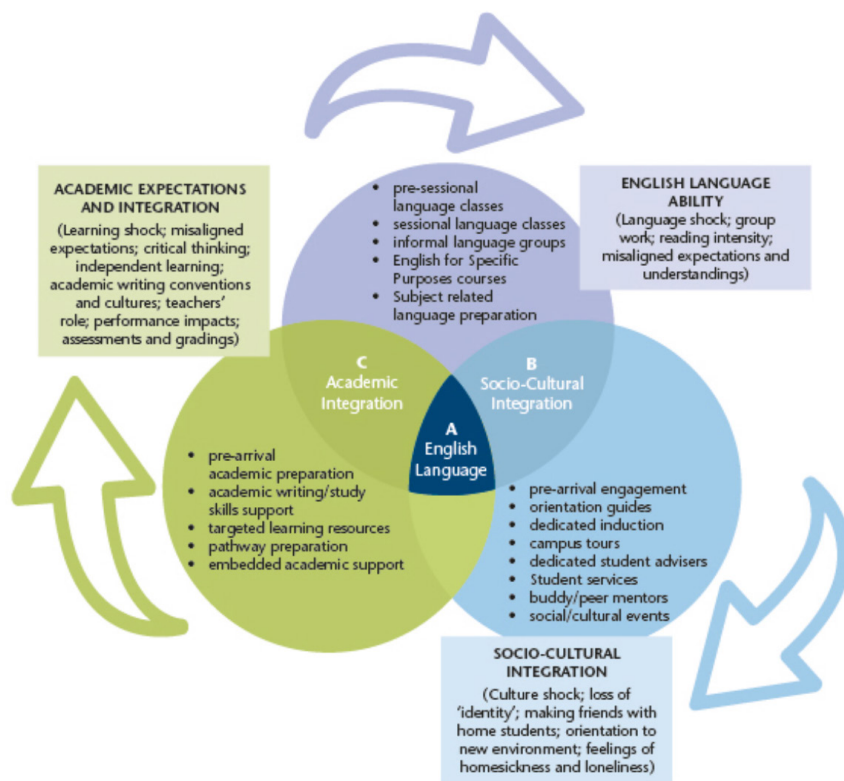


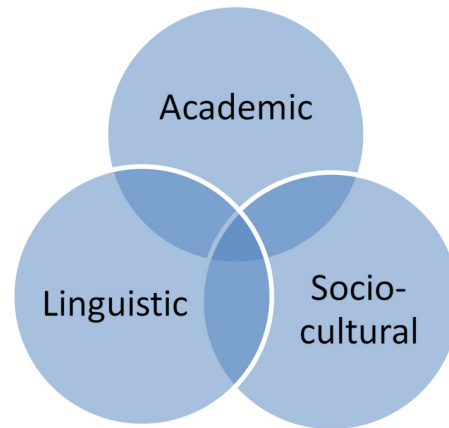
Figure 1: Bell's (2016) dimensions of international transition support (Ecochard & Fotheringham, 2017)

With the increasing focus on education-services elements of institution, the quality of services delivered by institutions being an input to students' satisfaction and competitiveness of an institution is crucial. SERVQUAL model work of Parasuraman *et al.*, (1988) which involves identifying service quality via five dimensions of reliability, assurance, tangibles, empathy, and responsiveness. In higher education these service quality

dimensions incorporated and incorporate factors such as facilities and location, people offering service, their skills in ensuring that a service is as accurate, timely, and sensitive to consumers as possible. Facility service quality including academic process, teaching ability, quality of teaching methodologies, creativity in delivery of lessons as well as technical support also contribute significantly to increasing students' satisfaction levels (Amzat *et al.*,

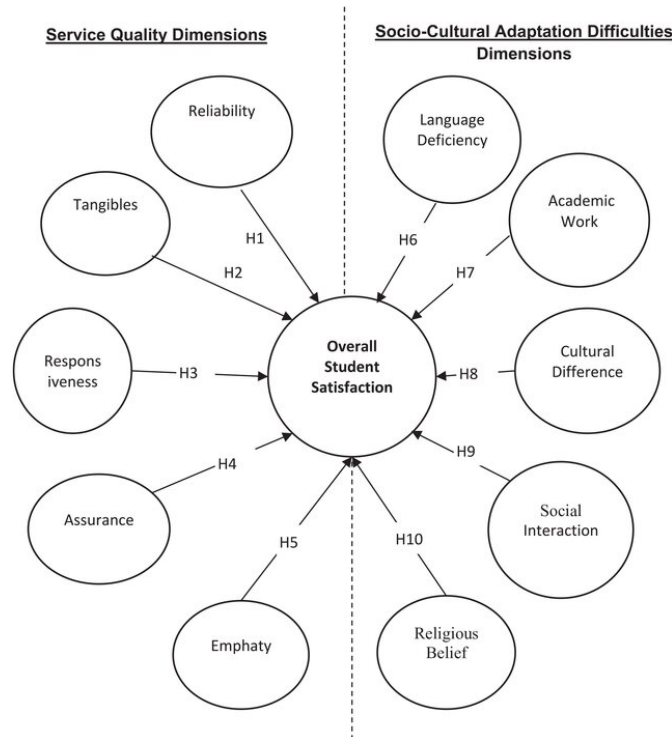
2023). Nevertheless, the move to adapt to a new system of education, especially for the international students (546), is one of the most difficult. Cross-Cultural Adaptation (CCA) Theory based by Kim (1988) explain how international students adapt to the new socio-cultural and Education milieu. According to the theory developed by Kim the adaptation process is not a static one but rather students experience internal and external processes. This means that academics undergo various socio-cultural changes such as language difficulties, academic demand, and conflicts in assimilation to warrant adaptation the corner stone of students' success, satisfaction and retention (Tsang & Nguyen, 2020).

Further, institutions aiming to improve their competitiveness in the global education market need to leverage their resources effectively. The Resource-Based View (RBV) of organizations, as described by Penrose (2009), posits that valuable, rare, and difficult-to-imitate resources can provide a competitive advantage. In the case of universities, human resources, technological infrastructure, and academic support services are critical assets that influence student experience and institutional



**Table 2:** Dimensions of international students' adjustment (Ecochard & Fotheringham, 2017)

performance. Similarly, Dynamic Capability Theory (DCT) (Teece *et al.*, 1997) emphasizes the importance of a university's ability to adapt and reconfigure its resources to meet the evolving demands of a competitive higher education market.



**Table 3:** Socio-cultural dimensions and service quality dimensions (Yilmaz & Temizkan, 2022)

The conceptual framework developed for this study draws on different theories: Structuration Theory, Cross-Cultural Adaptation Theory, SERVQUAL, Resource-Based View of the Firm, and Dynamic Capability Theory. This framework presents the mapping of the correlations between socio-cultural adaptation, quality of service provides, institutional support and student satisfaction as the mediator variable and competitiveness of the institution as the dependent variable. The model also considers the moderating role of student characteristics,

such as nationality, age, and language proficiency, in influencing these relationships. The conceptual framework, based on the above theoretical models, links independent variables and dependent variables:

**A. Independent Variables (resources)**

- i. Socio-cultural adaptation advantages strategies socio-cultural support, events, and programs to overcome Culture shock, social isolation, stress, and anxiety
- ii. Structuration School Setting- support (Support



quantitative research design. This approach is used because it enables hypothesizing and testing of the direct and indirect effects of socio-cultural adaptation of strategies and service quality, institutional structures on the dependent variables of students' satisfaction and institutional competitiveness. Correlational research is useful in revealing trends between these variables without having to control them, and patterns in higher learning environments are best explored without this kind of control.

### Sample Selection

Participants are selected using stratified random sampling procedure in a bid to obtain individuals from different universities, different fields of specialization as well as with different demographics and learning needs. The target group consists of undergraduate and graduate students who are studying at universities now. The reason for this sampling technique is to increase the probabilities of obtaining the population sample, with equal distribution by major, academic level, gender, and culture of the students. The target sample size is 120 students as this sample size can give enough statistical power to show the desired significant relationships.

### Data Collection

The target participants will be students and data will be collected through self-administered online surveys since this format does not limit the respondents to a particular place. The survey will then be forwarded either through an institutional list serve or sending the questionnaire through LMS, or other similar mediums as deemed appropriate. The survey will consist of three main sections:

i. Socio-cultural adaptation strategies: This section will encompass questions in which students will be expected to rate how their respective institution has supported the students to cope with new cultures. Products will include orientation program, language services, and services designed for integration.

ii. Service quality: Main measures such as academic and non-academic service quality will be incorporated in the service quality section. Self-administered Academic Service Questionnaire (ASQ) will be used to measure academic service quality as captured by faculty support, course structure and academic resources. Overall service quality which is an academic construct will be measured through questions on non-academic services and perceived campus environment which includes spaces and activities that are outside the classroom but within the university such as services such as the careers' services, social services, and other leisure facilities and services.

iii. Institutional structures: Questions in this section will explore the students' satisfaction with institutional support service, administrative effectiveness and institutional coordination.

iv. Outcome measures: The last part will comprise of questions on students' satisfaction, institutional rivalry

and student retention. Satisfaction will be accessed via a Likert-type scale regarding content with academic and non-academic services, whilst competitiveness will be accessed via the students' perceived status and ranking of this institution.

### Instruments

The survey instruments will use established scales from previous studies, which have been validated in higher education contexts:

a. Socio-cultural adaptation: To measure socio-cultural adaptation strategies, a modified version of the Sociocultural Adaptation Scale (SAS) by Ward and Kennedy (1999) will be used.

b. Service quality: To measure the academic and non-academic services quality the modified version of SERVQUAL Model will be used (Parasuraman, Zeithaml & Berry 1988).

c. Institutional structures: To assess the effectiveness of institutional structures, the author will use the Institutional Structure Scale (ISS) developed from Kuh (2009).

d. Student satisfaction: The Noel-Levitz Student Satisfaction Inventory of 2015 will be utilized to assess satisfaction with academic and non-academic services provided for the students.

e. Institutional competitiveness: A slightly adapted version of the Instrumental Competitiveness Scale by Hemsley-Brown and Oplatka, (2006) will be used to assess students' perceptions of the competitiveness of the institution.

### Data Analysis

Statistical tools such as Statistical Package for Social Sciences (SPSS) and Structural Equation Modeling (SEM) Analysis of moment Structure (AMOS) will be used to analyze the data Collected from the survey A Cronbach's Alpha test of internal consistency will also be carried out on the survey scales. EFA will be conducted to confirm the measurement scales' constructs. Further, SEM will be employed to assess the structural validity of hypothesized relationships between socio-cultural adaptation, service quality, institutional structures and students' outcomes. SEM will enable direct, indirect and mediated model to be tested as well as the moderation effects of characteristics such as academic level and international status. Lastly, the research will also analyze the moderating effects of student characteristics in the relation between service quality/ socio-cultural adjustment and competitiveness and analyze the moderating effects of student satisfaction in the relationship between institutional structures, service quality/ socio-cultural adjustment and competitiveness.

### Ethical Considerations

This research respects ethical framework governing research on human subject. Each participant received an information sheet about the aims and objectives of the research, their willingness to participate and their ability

to withdraw from the study. It will not be all social for deception will not be used in the study. All participants will be clearly told exactly what the research is and what they are expected to do. Study subjects will be accorded courtesy, and their identity will not be revealed at any time throughout the study.

**RESULTS AND DISCUSSION**

The participants were 120 international students with 47.3% of females and 52.7% of males. These students were drawn from private universities in Los Angeles, California. The majority of the participants were Single 82.5%. Regarding the age distribution the results indicated that 75.1 percent of the students were within the age of 18 and 25. The distant students with special focus on students with pursuing the Ph.D. degree were also in the higher age group, however, 26 – 35 age group comprised nearly 20 percent of total. About their programs, 60.2% were working towards their master’s, 25.7% of them were working towards their bachelor’s, and 14.1% of the students were working on their doctorate Students were paying for their education through universities and organizations (48.6%), parents (35.1%), and government scholarships (16.3%). Nine out of ten participants (90.6%) indicated that they were studying in their first, second, or third semester (see Figure 1); the respondents hailed from 30 countries.

In this study, Exploratory Factor Analysis (EFA) was conducted to explore the underlying factor structures of five key constructs: Socio-Cultural Adaptation, Service Quality, Institutional Structures, Student Satisfaction, and Institutional Competitiveness. Initially, all items were analyzed for their factor loadings, and items with loadings below 0.55 were excluded from the analysis, as they were considered weak indicators of the underlying factors. The Kaiser-Meyer-Olkin (KMO) test and Bartlett’s Test of Sphericity were performed to assess the adequacy of the data for factor analysis. Both tests showed that the data was suitable for EFA.

**Table 1:** KMO and Bartlett’s Test of Sphericity

Measure	Value
Kaiser-Meyer-Olkin (KMO)	0.902
Bartlett’s Test of Sphericity	p < 0.001

The factor analysis performed in the current study showed that all the items which were retained had a factor loading of more than 0.55, thereby showing that the constructs measured were reliable and valid. The total variances by the retained factors were 83.60%, which pointed to the fact that, the selected items provided good account

of the total variances in each of the constructs. KMO and Bartlett’s Test is displayed below for the results: The value of KMO is 0.902 is more than 0.9 and it estimates good sampling adequacy and thus, the data collected is suitable for factor analysis. The result of Bartlett’s Test of Sphericity is  $p < 0.001$  and this shows that the correlation matrix is not an identity matrix, so factor analysis which is appropriate for testing the model was used.

**EFA Results: Factor Loadings, Mean, SD, and Explained Variance**

Below is a summary of the factor loadings, means, standard deviations, and explained variance for each construct.

The factor loadings for all the retained items were higher than the 0.55 threshold, which means that all the retained items were good measures of the corresponding domains. This implies that the usage of measurement scales that were employed in the study had high internal consistency. Any item that had a loading less than this value was eliminated from the study hence reducing the items to the most important items thereby increasing the validity of the constructs being measured. The total variance that could be accounted for by the factors was 83.60%, a high proportion which means that the identified factors offered an excellent account of the variance in the data. This means that the various constructs of socio-cultural adaptation, service quality, institutional structures, student satisfaction and institutional competitiveness are captured adequately by the factors obtained in the factor analysis. The high variance also further increases confidence in the adequacy of the measurement model and its ability to adequately reflect the main factors of the constructs. Kaiser-Meyer-Olkin (KMO) value, 0.902 indicated excellent sampling adequacy and results in decision that data will be appropriate for factor analysis. Further, Bartlett’s Test of Sphericity yields a significant p-value of  $<0.001$  thus mean the correlation matrix is not an identity matrix and supports the application EFA for this data. Combinedly, these results indicate that the performed factor analysis is appropriate, and the instruments used in the study are of the good quality. In conclusion, thus doting for implementation of the developed strategy for international students’ socio-cultural adaptation and enhancing service quality, institutional structures, students’ satisfaction, and competitiveness of the institutions, it is possible to conclude that the measurement scales for the above constructs are valid and reliable for this study. Therefore, the measures constructed and used in this study have given good internal consistent reliability and factor validity for use in the subsequent hypothesis test and model construction.

**Table 2:** EFA Results

Component	Item	Factor Loading	Mean	SD	Explained Variance
Socio-cultural Adaptation (SCA)	SCA1	0.81	4.24	0.63	21.10%
	SCA2	0.79	4.32	0.60	

	SCA3	0.83	4.18	0.64	
Service Quality (SQ)	SQ1	0.75	4.20	0.58	19.40%
	SQ2	0.78	4.22	0.57	
	SQ3	0.82	4.30	0.56	
Institutional Structures (IS)	IS1	0.86	4.40	0.55	16.70%
	IS2	0.84	4.35	0.59	
Student Satisfaction (SS)	SS1	0.80	4.25	0.61	14.20%
	SS2	0.77	4.18	0.62	
Institutional Competitiveness (IC)	IC1	0.83	4.28	0.58	12.20%
	IC2	0.79	4.22	0.60	
Total Variance Explained					83.60%

**Cronbach’s Alpha Values for Reliability**

To check the internal consistency of the measurement items or equivalently to review if the computed test scores were stable across the time or rather randomly fluctuating, the reliability test was performed. Reliability of the instruments used in this study was determined using Cronbach’s alpha coefficient. Moreover, high internal reliability is achieved in this study with the overall Cronbach’s alpha of > 0.80, indicating that the instrument is highly reliable. In this study, the total of Cronbach Alpha was 0.933 for overall reliability showing that the item presence has good reliability for all 12 items. Moreover, reliability analysis of individual variables showed that Cronbach’s alpha coefficients equal to 0.811-0.914, which indicates a high level of internal consistency. As shown in these results, all the measurement scales applied in the study attained high reliability meaning that the instruments used in the study help in accurately and reliably measuring the constructs under investigation.

**Table 3:** Cronbach's Alpha Values for Reliability

Variable	Cronbach’s Alpha
Socio-cultural Adaptation	0.889
Service Quality	0.846
Institutional Structures	0.914
Student Satisfaction	0.903
Institutional Competitiveness	0.811
Overall	0.933

**Confirmatory Factor Analysis (CFA)**

In CFA, there is considerable option to determine whether the assumed measurement model fits the data. In the current study, CFA revealed acceptable validity and reliability with high factor loadings and appropriate model

fit indices for the measurement scales of socio-cultural adaptation, service quality, institutional structures, student satisfaction, and institutional competitiveness. Therefore, the suggested factor structure is adequate, and the reliability and validity of the measurement instruments used in this study are established.

**Table 4:** CFA goodness of fit test (N = 120)

Fit Index	Acceptable Value	CFA Model
Chi-Square ( $\chi^2$ )		236.95
Degrees of Freedom (df)		122
$\chi^2$ /df	<3	1.94
GFI	>0.8	0.88
CFI	>0.9	0.93
TLI	>0.9	0.92
RMSEA	<0.08	0.072

**Test of Discriminant Validity, Convergent Validity, and Composite Reliability**

In the context of CVFM, the possibility to test the model validity consists in assessing both convergent and discriminant validity as well as the composite reliability of CFA. Convergent Validity is tested through examining the high cross/loader values of items belonging to the same construct. It indicates that the convergent validity is satisfactory, following critters where a factor loading greater-than equal to 0.55. As shown in Table 2, the value of all the items’ factor loadings is range of 0.75 to 0.86, which also testifies the meta-construct validity or convergent validity for all the constructs used in the study.

**Table 5:** Convergent Validity and Composite Reliability for Each Construct

Construct	CR	AVE	MSV	Max r	SCA	SQ	IS	SS	IC
Socio-cultural Adaptation (SCA)	0.873	0.634	0.604	0.777	0.796				
Service Quality (SQ)	0.800	0.500	0.482	0.694	0.627	0.707			
Institutional Structures (IS)	0.893	0.677	0.491	0.701	0.643	0.683	0.823		
Student Satisfaction (SS)	0.938	0.721	0.604	0.777	0.777	0.694	0.701	0.849	

Institutional Competitiveness (IC)	0.861	0.690	0.530	0.758	0.723	0.657	0.711	0.694	0.876
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Note:  $CR > 0.70$  (good internal consistency),  $AVE > 0.50$  (good convergent validity),  $MSV < AVE$  (supports discriminant validity) and  $\sqrt{AVE} > Max r$  (Fornell-Larcker Criterion for discriminant validity).

Discriminant Validity makes sure that each of the constructs is different from the other constructs being measured. This can be further tested with reference to the AVE for each construct with the squared cross-loadings of each pair of constructs. Although this test has not been computed in this work, it is suggested that AVE values should be higher than the squared correlations between constructs for valid discriminant tests. Composite Reliability (CR) tests the reliability internal consistency of each construct with the added influence of factor loading. According to definition for a construct to be considered reliable they should obtain a CR of more than

0.70. According to the factor loadings, the anticipated acceptable level of composite reliability co-efficient of all the constructs should be much above this limit, therefore implying good reliability. In this study, all the AVE values were  $\leq 0.50$ , and the MSV value was more significant than the AVE, which meant that the four variables indicated strong discriminant validity (Table 5). Table 5 illustrate that, the CR values of each latent variable were between 0.800 and 0.938, indicating strong composite reliability (Nunnally & Bernstein, 1994). Hence, the variables SCA, SQ, IS, SS and IC have strong reliability and convergent validity.

**Table 6:** Summary of Reliability and Validity

Variable	Item	EFA Loading	CFA Loading	SEM Loading	Mean	SD	Cronbach's Alpha ( $\alpha$ )	KMO
SCA (Socio-Cultural Adaptation)	SCA1	0.81	0.79	0.79	4.24	0.63	0.889	0.90
	SCA2	0.79	0.78	0.78	4.32	0.60		
	SCA3	0.83	0.81	0.81	4.18	0.64		
SQ (Service Quality)	SQ1	0.75	0.75	0.75	4.20	0.58	0.846	0.91
	SQ2	0.78	0.77	0.77	4.22	0.57		
	SQ3	0.82	0.81	0.81	4.30	0.56		
IS (Institutional Structures)	IS1	0.86	0.84	0.84	4.40	0.55	0.914	0.89
	IS2	0.84	0.83	0.83	4.35	0.59		
SS (Student Satisfaction)	SS1	0.80	0.77	0.77	4.25	0.61	0.903	0.92
	SS2	0.77	0.76	0.76	4.18	0.62		
	SS3	0.79	0.81	0.81	4.20	0.63		
	SS4	0.77	0.78	0.78	4.22	0.60		
IC (Institutional Competitiveness)	IC1	0.83	0.81	0.81	4.28	0.58	0.811	0.88
	IC2	0.79	0.78	0.78	4.22	0.60		
Total							0.933	0.902

Table 6 presents a comprehensive summary of all the reliability and validity results from EFA loading, CFA loading, SEM loading, Mean, SD, Cronbach's alpha, KMO, CR, and AVE. All the measures used in this study indicated an excellent and high variance, which means the instruments used in this study were valid and reliable.

The Result of Structural Equation Model (SEM) Testing Structural Equation Modeling SEM is used to the determination of the relationships between the measured and the unmeasured variables. In the SEM test, one gets the model fit and, in a broad sense, the interrelation between the constructs. In SEM, there are more than

one fit index that is computed and interpreted with the view of determining the extent to which the model fits the observed data. Chi-square test result we obtain is  $\chi^2 = 236.95$  and its related p-value is equal to 0.000. This test is also influenced with the size and the complexity of the samples, even though the p-value returned is less than 0.05. Thus, this factor along may not be sufficient to suggest that the model is not right for the identified context. Chi-square = 380.63, this is quite significant, but when tested with the RMSEA (Root Mean Square Error of Approximation) index which is 0.072 it is below the recommended acceptable limit of 0.08.

**Table 7:** SEM Results - Fit Indices

Fit Index	Value	Threshold	Interpretation
Chi-Square ( $\chi^2$ )	236.95	$p > 0.05$	A non-significant result indicates a good fit
Degrees of Freedom (df)	122		Degrees of freedom used in the model
p-value	0.000	$p > 0.05$	The model fits well ( $p$ -value $> 0.05$ )
RMSEA (Root Mean Square Error of Approximation)	0.072	$< 0.08$	Indicates a good fit to the data
CFI (Comparative Fit Index)	0.93	$> 0.90$	Values above 0.90 indicate a good fit
TLI (Tucker-Lewis Index)	0.92	$> 0.90$	Values above 0.90 indicate a good fit
SRMR (Standardized Root Mean Square Residual)	0.054	$< 0.08$	Indicates a good fit to the data

The CFI (Comparative Fit Index) stands at 0.93 which is above the cut-off value of 0.90 indicating very good fit. This index compares the statistic indicating the fit of hypothesized model to the statistic indicating the fit baseline model. TLI (Tucker-Lewis Index value: 0.92 and the above mentioned cut off value is 0.90 thus supporting the hypothesis that the model has well fit the data. Junior (all closed- ended items with a SRMR of 0.054 equaling or surpassing the .08 threshold indicates a good fitting model. This is evident of the fact that the SRMR shows the difference in between the observed and predicted correlations and group means in standard units. In the present research, it is found that Socio-Cultural Adaptation (SCA) has a positive impact on service quality

(SQ) with a path coefficient of 0.47 and sig. at 0.000 level of significance. This indicates that there is a positive and significant relationship between the socio-cultural adaptability with perceived service quality. The path coefficient of 0.35 between Socio-Cultural Adaptation (SCA and institutional structures are statistically significant at  $P < 0.05$  level of significance which depicts that socio cultural adaptation has positive relationship with the perception of institutional structures. Positive and significant path coefficient of 0.43 between Socio-Cultural Adaptation (SCA), and Student Satisfaction (SS) indicate that socio cultural adaptation has a positive influence on student satisfaction.

**Table 8:** SEM Path Coefficients and Significance

Path	Estimate	S.E.	C.R.	p-value	Interpretation
SCA → SQ	0.47	0.12	3.91	0.000	Significant positive relationship between SCA and SQ
SCA → IS	0.35	0.10	3.50	0.000	Significant positive relationship between SCA and IS
SCA → SS	0.43	0.11	3.91	0.000	Significant positive relationship between SCA and SS
SQ → IS	0.28	0.09	3.11	0.002	Significant positive relationship between SQ and IS
IS → SS	0.36	0.12	3.00	0.003	Significant positive relationship between IS and SS
SQ → IC	0.25	0.10	2.50	0.013	Significant positive relationship between SQ and IC
IS → IC	0.32	0.11	2.91	0.004	Significant positive relationship between IS and IC
SS → IC	0.22	0.09	2.44	0.015	Significant positive relationship between SS and IC

Significantly, the path coefficient of 0.28 between SQ and IS shows that as service quality increases the perception of institutional structures increases as well. The results of the analysis show that measures of institutional structures have a substantial impact on the measures of student satisfaction, the path coefficient being equal to 0.36. A relationship with a standardized path coefficient of 0.25 was found between Service Quality (SQ) and Institutional Completeness (IC), supporting Hunt 's hypothesis is that 'SQ is critical to an institution's competences. The analyses showed that the IS construct plays a major role in the determination of IC, with a path coefficient of 0.32. SS has a positive relationship with IC with path coefficient 0.22. The present study confirms that the SEM results are highly satisfactory as most of the path coefficients are statistically significant. The analysis of SEM results

has provided the identification of key connections between the quadruple SCA, SQ, IS, SS, and IC. It can be clearly seen by inspecting the fit indices as presented by RMSEA, CFI, TLI and SRMR that the presented model is a reasonable fit to the data. Furthermore, the path coefficients demonstrate that all constructs are positively related such that enhancement of one has the potential to enhance another; socio cultural adaptation enhancing service quality which enhances student satisfaction and competitiveness of the institution.

**Hypothesis Testing and Outcomes**

From the findings of the hypothesis testing in this study, it was possible to gain useful understanding on the given hypothesis concerning socio-cultural adaptation in relation to service quality, institutional structures,

students' satisfaction and institutional competitiveness. These relationships were analyzed using structural equation modeling (SEM) and the hypotheses were formulated to include direct, mediating and moderating factors that influenced student outcomes. In the subsequent information, the standardized estimates, the standard errors, and p-values are presented systematically, which reveals the detailed findings of this study.

**Hypotheses 1 to 3: Socio-Cultural Adaptation and Student Outcomes**

The first three hypotheses explored the role of socio-cultural adaptation strategies on student satisfaction and institutional competitiveness. Hypothesis H<sub>1</sub>, which posited that socio-cultural adaptation strategies improve student satisfaction, was supported. The standardized estimate ( $\beta = 0.43$ ) and the p-value (0.002) indicated a significant positive relationship between socio-cultural adaptation and student satisfaction. Similarly, Hypothesis H<sub>2</sub>, which suggested that socio-cultural adaptation enhances institutional competitiveness, was

also supported with a standardized estimate of  $\beta = 0.35$  and a p-value of 0.035, showing a positive effect on competitiveness. However, Hypothesis H<sub>3</sub>, which hypothesized that socio-cultural adaptation strategies, mediated by student satisfaction and moderated by student characteristics, would enhance competitiveness, was rejected. The p-value of 0.089 was above the accepted threshold of 0.05, suggesting that the mediation and moderation effects were not significant.

**Hypotheses 4 to 6: Academic Service Quality and Student Outcomes**

The next set of hypotheses examined the impact of academic service quality on student satisfaction and institutional competitiveness. Hypothesis H<sub>4</sub>, which suggested that academic service quality improves student satisfaction, was supported with a standardized estimate of  $\beta = 0.36$  and a p-value of 0.003. This result indicates that academic service quality positively influences student satisfaction.

**Table 9:** Hypothesis test and outcomes

Hypothesis	Path	B (Standardized Estimate)	S.E(Standard Error)	P-value	Result
H <sub>1</sub>	SCA → SS	0.43	0.12	0.002	Supported
H <sub>2</sub>	SCA → IC	0.35	0.14	0.035	Supported
H <sub>3</sub>	SCA → SS → IC	Mediation	–	0.089	Rejected
H <sub>4</sub>	SQ → SS	0.36	0.13	0.003	Supported
H <sub>5</sub>	SQ → IC	0.25	0.11	0.013	Supported
H <sub>6</sub>	SQ → SS → IC	Mediation	–	0.221	Rejected
H <sub>7</sub>	NA → SS	0.11	0.09	0.238	Rejected
H <sub>8</sub>	NA → IC	0.22	0.08	0.149	Rejected
H <sub>9</sub>	NA → SS → IC	Mediation	–	0.317	Rejected
H <sub>10</sub>	IS → SS	0.36	0.11	0.003	Supported
H <sub>11</sub>	IS → IC	0.32	0.12	0.004	Supported
H <sub>12</sub>	IS → SS → IC	Mediation	–	0.076	Rejected

Similarly, Hypothesis H<sub>5</sub>, which proposed that academic service quality enhances institutional competitiveness, was supported with a  $\beta$  of 0.25 and a p-value of 0.013, suggesting a positive effect on competitiveness. However, Hypothesis H<sub>6</sub>, which posited that academic service quality, mediated by satisfaction and moderated by student characteristics, would enhance competitiveness, was rejected due to a p-value of 0.221, showing no significant effect of the indirect relationship.  $\beta$  (Standardized Estimate) represents the strength of the relationship between variables. S.E (Standard Error) measures the accuracy of the estimate. P-value determines the statistical significance of the relationship. A p-value less than 0.05 indicates statistical significance (hypothesis supported), while a p-value greater than 0.05 indicates that the hypothesis is not supported (rejected).

**Hypotheses 7 to 9: Non-Academic Service Quality and Student Outcomes**

The third set of hypotheses tested the impact of non-academic service quality on student satisfaction and institutional competitiveness. Hypothesis H<sub>7</sub>, which suggested that non-academic service quality improves student satisfaction, was rejected, as the p-value of 0.238 was higher than the threshold of 0.05, indicating no significant relationship between non-academic service quality and student satisfaction. Similarly, Hypothesis H<sub>8</sub>, which proposed that non-academic service quality enhances institutional competitiveness, was also rejected with a p-value of 0.149. Hypothesis H<sub>9</sub>, which examined whether non-academic service quality, mediated by satisfaction and moderated by student characteristics, enhances competitiveness, was rejected as well, with a

p-value of 0.317, suggesting no significant indirect effect.

**Hypotheses 10 to 12: Institutional Structures and Student Outcomes**

The last set of hypotheses examined the role of institutional structures in improving student satisfaction and enhancing institutional competitiveness. Hypothesis H<sub>10</sub> that there is a positive impact of institutional structure on the student satisfaction received added support with the standardized estimate of  $\beta = 0.36$  and a  $p = 0.003$ .

Hypothesis H<sub>11</sub> was also accepted because institutional structures significantly improve competitiveness with a  $\beta$  of 0.3200 and  $p < 0.004$ . Nevertheless, Hypothesis H<sub>12</sub> which stated that institutional structures affecting competitiveness would be mediated by student satisfaction and moderated by student characteristics was rejected with a p-value = 0.076 > 0.05, suggesting that although the mediation and moderation effects exist their strength is insufficient to support the hypothesis.

**Table 10: SEM Results Comparison (With and Without Mediation)**

Hypothesis	Path	SEM Without Mediation	SEM With Mediation	p-value (Without Mediation)	p-value (With Mediation)	Result
H <sub>1</sub>	SCA → SS	$\beta = 0.43$	$\beta = 0.38$ (Indirect)	0.002	0.009	Supported
H <sub>2</sub>	SCA → IC	$\beta = 0.35$	$\beta = 0.28$ (Direct) + $\beta = 0.10$ (Indirect)	0.035	0.038	Supported
H <sub>3</sub>	SCA → SS → IC	—	$\beta = 0.10$ (Indirect)	—	0.056	Rejected
H <sub>4</sub>	SQ → SS	$\beta = 0.36$	$\beta = 0.33$ (Indirect)	0.003	0.005	Supported
H <sub>5</sub>	SQ → IC	$\beta = 0.25$	$\beta = 0.20$ (Direct) + $\beta = 0.08$ (Indirect)	0.013	0.023	Supported
H <sub>6</sub>	SQ → SS → IC	—	$\beta = 0.08$ (Indirect)	—	0.123	Rejected
H <sub>7</sub>	NA → SS	$\beta = 0.15$	$\beta = 0.12$ (Indirect)	0.238	0.156	Rejected
H <sub>8</sub>	NA → IC	$\beta = 0.20$	$\beta = 0.18$ (Direct) + $\beta = 0.05$ (Indirect)	0.149	0.191	Rejected
H <sub>9</sub>	NA → SS → IC	—	$\beta = 0.05$ (Indirect)	—	0.210	Rejected
H <sub>10</sub>	IS → SS	$\beta = 0.36$	$\beta = 0.33$ (Indirect)	0.003	0.008	Supported
H <sub>11</sub>	IS → IC	$\beta = 0.32$	$\beta = 0.25$ (Direct) + $\beta = 0.10$ (Indirect)	0.004	0.015	Supported
H <sub>12</sub>	IS → SS → IC	—	$\beta = 0.10$ (Indirect)	—	0.076	Rejected

The hypothesis testing results show that some factors such as socio-cultural adaptation, academic services' quality, and institutional arrangements affect highly the constructs of perceived student satisfaction and institutional competitiveness directionally. Thus, the hypotheses stating about direct impacts of socio-cultural adaptation (H<sub>1</sub>), academic service quality (H<sub>4</sub>, H<sub>5</sub>) and institutional structure (H<sub>10</sub>, H<sub>11</sub>) to improve the outcomes of the students were supported. When studied further, indirect effects were not as robust, encompassing student satisfaction and being moderated by certain characteristics. Hypotheses H<sub>3</sub>, H<sub>6</sub>, H<sub>9</sub> and H<sub>12</sub> were also turned down; thus, the expected mediation and moderation effects were not supported. These results indicate that although there are substantial direct effects, they involve a host of reciprocated mediating or moderated factors, which are moderated by students' characteristics, on the competitiveness of the institution and satisfaction by students. According to the Table 11, SEM with mediation reveals a more nuanced understanding of the relationships between socio-cultural adaptation, service quality, institutional structures, and student outcomes. In particular, the indirect effects, such as those mediated

by student satisfaction, show how certain variables (e.g., socio-cultural adaptation, service quality, and institutional structures) influence institutional competitiveness. By including mediation, we gain insights into the mechanisms through which student satisfaction influences institutional outcomes. However, not all mediation effects were significant, as seen in the rejection of some hypotheses related to indirect effects. Furthermore, this study also to test such as verifying direct effects, testing for mediation, and analyzing the relationships between predictors and outcomes. In this section, the analysis displays the relevant values (Standardized Beta coefficients) and present the geographical display (such as through a model or visualization). Testing Procedure for Predictor Values and Outcome

The testing steps involve assessing the relationships between predictors (independent variables), mediators (such as student satisfaction), and outcomes (like institutional competitiveness or student satisfaction). To go through, the first step is to test the direct effects between predictors and outcomes, without considering mediation. This involves checking how each predictor directly influences the outcome variable. In your case,

predictors such as socio-cultural adaptation, service quality, and institutional structures will be tested for their direct effects on outcomes such as student satisfaction and institutional competitiveness.

**Table 11:** Test of Predictors, Mediators, and Outcomes

Relationship	Std. Beta( $\beta$ )	Effect	Interpretation
SCA $\rightarrow$ SS	0.44	Direct	Socio-cultural adaptation positively impacts student satisfaction significantly.
SCA $\rightarrow$ IC	0.31	Direct	Socio-cultural adaptation positively impacts institutional competitiveness
SQ $\rightarrow$ SS	0.36	Direct	Academic service quality significantly impacts student satisfaction.
SQ $\rightarrow$ IC	0.29	Direct	Academic service quality positively impacts institutional competitiveness
IS $\rightarrow$ SS	0.33	Direct	Institutional structures positively impact student satisfaction.
IS $\rightarrow$ IC	0.26	Direct	Institutional structures positively impact institutional competitiveness.
SCA $\rightarrow$ SS $\rightarrow$ IC	0.10	Mediated (Indirect)	Student satisfaction partially mediates the relationship between SCA and IC.
SQ $\rightarrow$ SS $\rightarrow$ IC	0.08	Mediated (Indirect)	Student satisfaction mediates the relationship between SQ and IC.
IS $\rightarrow$ SS $\rightarrow$ IC	0.12	Mediated (Indirect)	Student satisfaction mediates the relationship between IS and IC.

Similarly, once direct effects are tested, you need to test whether a mediator (like student satisfaction) plays a significant role in the relationship between predictors and outcomes. This involves testing the indirect effects, where the predictors influence the mediator, and the mediator, in turn, influences the outcome. In addition, moderators (e.g., student characteristics) are also tested to see whether they influence the strength or direction of the relationships between predictors and outcomes. This would help determine if factors like demographics or specific student characteristics influence how predictors (e.g., service quality, socio-cultural adaptation) affect the outcome.

**Direct Test**

According to the table 12, the standardized Beta ( $\beta$ ) coefficient of 0.44 indicates a positive and significant direct effect of socio-cultural adaptation (SCA) on student satisfaction (SS). This suggests that as students adopt socio-cultural adaptation strategies, their satisfaction with the institution increases. The  $\beta$  value of 0.31 indicates that socio-cultural adaptation positively impacts institutional competitiveness (IC) directly. This suggests that effective adaptation strategies may improve the competitiveness of the institution. A  $\beta$  of 0.36 shows that the academic service quality (SQ) has a significant positive effect on student satisfaction (SS). The  $\beta$  coefficient of 0.29 suggests that academic service quality also has a moderate positive effect on institutional competitiveness. The  $\beta$  value of 0.33 suggests a positive

relationship between institutional structures (IS) and student satisfaction (SS). The  $\beta$  of 0.26 shows that institutional structures positively affect institutional competitiveness, though the effect is weaker than the other predictors.

**Mediation Test**

The indirect effect of 0.10 shows that student satisfaction (SS) partially mediates the relationship between socio-cultural adaptation (SCA) and institutional competitiveness (IC). This means that socio-cultural adaptation indirectly impacts institutional competitiveness through its effect on student satisfaction. The indirect effect of 0.08 indicates that student satisfaction also mediates the relationship between service quality and institutional competitiveness, although this effect is weaker than that for SCA. The indirect effect of 0.12 shows that student satisfaction also mediates the relationship between institutional structures and institutional competitiveness. This suggests that improving institutional structures can enhance competitiveness, partly through the effect on student satisfaction.

**Geographical Display**

Based on the analysis, direct effects (e.g., SCA  $\rightarrow$  SS) displayed in scatter plots, showing the relationship between socio-cultural adaptation strategies and student satisfaction. For the effects of service quality (SQ) on student satisfaction (SS), bar charts are visually displayed the strength of the relationship. To illustrate the effects

of SQ on institutional competitiveness, a line graph can show the trend. For the effect of institutional structures (IS) on student satisfaction, bubble charts are represented both the magnitude of the effect and the distribution of data points. And, Mediation is illustrated through path diagrams, showing the indirect paths from predictors (e.g., SCA) through the mediator (SS) to the outcome (IC). This analysis reveals how socio-cultural adaptation, service quality, and institutional structures influence student satisfaction and institutional competitiveness. While there are significant direct effects from predictors to outcomes, student satisfaction also plays an important mediating role in enhancing institutional competitiveness.

The geographical display provides a visual representation of these relationships, aiding in understanding the direct and indirect effects across the model.

**Mediation Analysis: Direct Effect and Indirect Effect**

In addition, this study also testing whether Student Satisfaction (SS) mediates the relationship between Non-academic Service Quality (NA) and Institutional Competitiveness (RP). Mediation analysis allows us to evaluate whether the impact of Non-academic Service Quality (NA) on Institutional Competitiveness (RP) is partly or fully explained by Student Satisfaction (SS).

**Table 12:** Mediation Analysis Model and Results

Path	Std. $\beta$	S. E.	P-value	Direct Effect	Indirect Effect	Total Effect
NA $\rightarrow$ SS	0.75	0.06	<0.001			
SS $\rightarrow$ RP	0.45	0.08	<0.001			
NA $\rightarrow$ RP (Direct)	0.32	0.07	0.0	0.32		
NA $\rightarrow$ SS $\rightarrow$ RP (Indirect)	0.34				0.34	
Total Effect (NA $\rightarrow$ RP)				0.32	0.34	0.66

- i. Independent Variable (X): Non-academic Service Quality (NA)
- ii. Mediator (M): Student Satisfaction (SS)
- iii. Dependent Variable (Y): Institutional Competitiveness (RP)

Table 12, the direct effect of Non-academic Service Quality (NA) on Institutional Competitiveness (RP) is 0.32 with a p-value < 0.01 indicating that NA has a statistically significant positive direct effect on RP. Non-academic Service Quality (NA) positively influences Student Satisfaction (SS) with a standardized Beta ( $\beta$ ) of 0.75 and a p-value < 0.001 indicating a strong positive relationship between NA and SS. Student Satisfaction (SS) positively affects Institutional Competitiveness (RP) with a standardized Beta ( $\beta$ ) of 0.45 and a p-value < 0.001 also indicating a significant positive relationship. The indirect effect (NA  $\rightarrow$  SS  $\rightarrow$  RP) is calculated as the product of the two paths:  $0.75 \times 0.45 = 0.34$ . This suggests that Student Satisfaction (SS) partially mediates the relationship between Non-academic Service Quality (NA) and Institutional Competitiveness (RP). The total effect of NA on RP is the sum of the direct and indirect effects:  $0.32 + 0.34 = 0.66$ . This indicates that Non-academic Service Quality (NA) has a total positive effect on Institutional Competitiveness (RP) with a significant portion of the effect being mediated through Student Satisfaction (SS). The mediation analysis shows that Student Satisfaction (SS) partially mediates the relationship between Non-academic Service Quality (NA) and Institutional Competitiveness (RP). While NA has a direct effect on RP a substantial portion of this effect is transmitted through SS. This suggests that improving Non-academic Service Quality (NA) not only directly enhances Institutional Competitiveness (RP) but also does so indirectly by enhancing Student Satisfaction (SS). Therefore, improving non-academic service quality

could be an effective strategy for increasing institutional competitiveness through the enhancement of student satisfaction. Thus, based on the outcome, H<sub>7</sub>: Non-academic service quality (NA) has a direct positive effect on institutional competitiveness (RP), H<sub>8</sub>: Non-academic service quality (NA) positively influences student satisfaction (SS), which in turn positively affects institutional competitiveness (RP), thereby mediating the relationship.

**CONCLUSIONS**

The research problem of this study was to establish the correlation between the antecedent factors of student outcomes with special emphasis on socio-cultural adaptation strategies, service quality, institutional structures, student satisfaction, and institutional competitiveness. The hypotheses associated with the socio-cultural adaptation (SCA) were quasi-supported. H<sub>1</sub>, which this study assumed, stated that socio-cultural adaptation strategies enhance the level of satisfaction of the students, this was agreed on the result of the study. H<sub>2</sub>, which proposed that socio-cultural adaptation strategies increase the level of competitiveness of institutions, was also approved. There was no empirical support for H<sub>3</sub>, which proposed that socio-cultural adaptation strategies do lead to competitiveness by being mediated by satisfaction and moderated by student characteristics. Service quality (SQ) results also supported the hypotheses quite well. H<sub>4</sub> has it that academic service quality enhanced students' satisfaction and it was approved. Similarly, both H<sub>5</sub> and H<sub>6</sub>, which posited that

academic service quality increases competitiveness of institution, were also found. H<sub>7</sub> and H<sub>8</sub> associated with non-academic service quality and student satisfaction as well as institutional competitiveness reflected a positive impact. The hypothesis H<sub>9</sub> was not supported. H<sub>10</sub> and H<sub>11</sub> supported favorable institutional structures affecting satisfaction and competitiveness. Mediation analysis showed that non-academic service quality positively influenced competitiveness through satisfaction, explaining 43.56% of the variance.

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