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**ANTECEDENTS OF STUDENT LOYALTY IN NIGERIA: MODERATING EFFECT OF INFORMATION AND COMMUNICATION TECHNOLOGY**

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By

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**ABSTRACT**

*The moderating effect of information and communication technology on the relationship between student satisfaction and student loyalty within a Higher Education Institutions (HEIs) setting in the Nigerian context. The objective was to examine which construct have significant and positive relationship in terms of its validity, reliability and explained variance. Data were collected from students from federal universities in Nigeria between June and September, 2015, from a total of 535 questionnaires and only 446 were usable, a response rate of 83%. This study used the partial least squares (PLS) and structural equation modeling (SEM) tool to examine factors influencing student loyalty in HEIs. Statistical results confirm that service quality and university image influences on student loyalty positively, while student satisfaction mediates the impact of service quality and university image on student loyalty. Similarly, the result also revealed that information and communication technology significantly moderate the relationship between student satisfaction and Student loyalty in HEIs. The study design adopts a cross-sectional research design which does not allow causal inferences to be made from the population of the study. On the other hand, a longitudinal method might be appropriate, where it will allow researchers to analyze, the long-term influence of students' loyalty in HEIs in Nigeria. HEIs can make considerable efforts in reducing the occurrence of student disloyalty by improving service quality delivery to accomplish the goals of higher quality education as one of the core objectives of HEIs in Nigeria.*

**Keywords** Service quality, University image, Student satisfaction, ICT and Student loyalty

**INTRODUCTION**

Higher Education Institutions (HEIs) faculty does not always have access to adequate personal PC or laptop, while students have even greater access problems. Furthermore, faculty is not supported in making the best use of whatever Information and communication technology (ICT) is available. Sometimes this is because a university lacks appropriate institutional policies; sometimes this is because staffs

with the technology Innovation skills needed to enable effective and maximum use of new technologies are frequently poached from the higher education industry. The issues in HEIs in Nigeria are not fully exploring the adoption and utilization of technology innovation in their institutions, to satisfy students' interest and meet with the perception of the student's expectation and since the expectation are not met; student's loyalty will not increase accordingly. Those challenges lead to lack of

student's loyalty in attracting, maintaining, enhancing and retaining students from other African countries as it's used to be in the early 1980s, whereby higher education used to attract and student's loyalty in Nigeria relate to student satisfaction and student loyalty (Okebukola, 2012).

Based on the background of the study and the theoretical gaps and practical issues in the HEIs sector, the main goals of the study were to examine the factors that influence student's loyalty in the Nigerian HEIs.

## LITERATURE REVIEW AND CONCEPTUAL BASIS OF THE CONSTRUCTS

### *Service quality*

The concept of quality which is an established phenomenon in the management literature was first proposed by (Juran, 1975; & Deming, 1982); hence, service quality is a relatively new concept which was introduced by (Grönroos, 1984; Zeithaml, Berry, & Parasuraman, 1988). In the past two decades researchers have spoken extensively about service quality, and have become an established concept due to the dynamic requirements of business globally. Service quality in the HEIs is considered by various researchers because of its significance and outcomes. Quality in HEIs is a complex and multifaceted concept and a single correct definition of quality is lacking (Harvey & Green, 1993). As a result, consensus concerning "the best way to define and measure service quality" does not exist yet (Clewes, 2003). As researchers recognized the significance of measuring service quality in HEIs, they are still unable to define in common words. Therefore, it is hypothesized that: *H1: Service quality is positively related with Students satisfaction in the Nigerian HEIs.*

### *University Image*

University image as an educational institution of the highest order, being a corporate of student and teachers providing facilities for teaching and researchers as well as offering program to both

undergraduate and postgraduate students which has a good image in the mind of the students, with high perception among employers. A student is defined as a customer who investigates or studies, and while the academic staff is described as being related to branches of learning or the learned professions (Collins, Yates, & Grange, 1981). The significant role of the university: "Advanced training, specialized knowledge and scientific discovery are now essential to solving many urgent problems facing our civilization" which give the HEIs a very good perception and image to the general public as high. The problems of disease and health, of the environment, of economic progress, of human survival are core value and an active sponsor of community events in the society. HEIs are better equipped than any other institution to produce the knowledge needed to arrive at effective solutions and to prepare highly educated people to carry them out (Houtman, 1990). Universities provide a mix of private and public goods. Thus, it is significant to understand how the university is creating value and used a widely popular system to describe the activities of a university (Paulsen & Feldman, 1995). This system explains the nature of faculty work by adopting four functional categories; research, teaching, service and academic citizenship. The significance of knowledge creation is very inspiring. It engenders economic and social change and also plays a very decisive role in preserving the cultural and social continuity of the democratic system (Romer, 1990). The open society needs individuals who can make sense of their environment and are able to generate responsible choices (Milligan, Moretti, & Oreopoulos, 2004). Therein lays the essence of public good provided by HEIs.

Therefore, it is hypothesized that: *H2: University Image is positively associated with Students satisfaction in the HEIs*

### ***Student satisfaction***

Student satisfaction has been defined as the consumer value judgment regarding pleasure derived from utilization of level fulfillment (Oliver & Linda, 1981). Satisfaction is an emotional reaction to service or product experience (Spreng & Olshavsky, 1993). The concept of satisfaction has also been extended recently to the context of HEIs. The still limited amount of research suggest that student satisfaction is a complex concept, consisting of several dimensions (Marzo-Navarro, Pedraja-Iglesias, & Pilar Rivera-Torres, 2005; Richardson, 2005). Several literature by referring to definition of satisfaction (Elliott & Shin, 2002). Thus, student satisfaction is described as "the favorability of a student subjective evaluation of the various outcomes and experiences associated with education. "Student satisfaction is being shaped continually by repeated experiences in campus life". The relationship between student satisfaction and service quality is still ambiguous in marketing literature (Anderson, Fornell, & Lehmann, 1994). Many previous studies have been conducted to determine whether student satisfaction is influenced by service quality or vice versa.

Therefore, it is hypothesized that: *H5; Students satisfaction mediate the relationship between University image and student's loyalty in the HEIs.*

### ***Information and Communication Technology (ICT)***

The concept of ICT sector is a combination of service and manufacturing industries that capture transmit and display data and information electronically. This definition covers both goods, such as office machinery and communication equipment and the electronic components they contain; and services, such as online teaching and learning technique, internet, intranet, telecommunications and computer services. Hence, to the best of my knowledge none of the previous

studies have made explore; the moderating effect of ICT on the relationship between student satisfaction and student loyalty in the context of HEIs in Nigeria.

Therefore, it is hypothesized that: *H6; Does ICT moderate the relationship between student's satisfaction and student's loyalty in the HEIs.*

## **RESEARCH METHODOLOGY**

### ***Research design***

The study adopted cross sectional research design, whereby data were collected by the means of a structured questionnaire. The PLS SEM approach was used in the analysis of the data collected for this study. Specifically, two major PLS SEM software applications including Smart PLS (Ringle, Sarstedt, & Zimmermann, 2011).

## **RESULTS AND DISCUSSION**

The findings from table 1 below have shown that the demographic profile of the respondents in the male respondents are greater than the females i.e. 73.5% and 26.5% respectively, with majority age bracket of 15-25 category which represent 49.6%, with majority of the respondents are single which represent 65.7%, while 40.6% are having SSCE/NECO qualifications, and majority of the respondents are on full time students and without scholarship.

### ***Result of the Measurement Model***

The convergent validity which is the degree to which multiple items measuring the same concept are in agreement, accordingly, as suggested by (Hair, Black, Babin, Anderson, & Tatham, 2010). We used the factor loadings, composite reliability and variance extracted to assess convergence validity. The loadings for all items exceeded the recommended value of 0.5 (Hair et al., 2010).

**Table 3:** Convergence and Reliability Analysis

Constructs	Items	Factor Loading	AVE	Composite Reliability
Information and communication Technology	ICT01	0.890	0.670	0.910
	ICT02	0.857		
	ICT03	0.772		
	ICT04	0.802		
	ICT05	0.756		
Service quality	SQ01	0.742	0.630	0.895
	SQ02	0.832		
	SQ03	0.852		
	SQ04	0.796		
	SQ06	0.741		
Student Loyalty	SLO1	0.665	0.536	0.873
	SLO2	0.766		
	SLO3	0.824		
	SLO4	0.728		
	SLO5	0.753		
	SLO6	0.645		
Student Satisfaction	SS01	0.854	0.799	0.952
	SS02	0.877		
	SS03	0.898		
	SS04	0.940		
	SS05	0.899		
University Image	UI01	0.679	0.626	0.893
	UI02	0.738		
	UI03	0.873		
	UI04	0.818		
	UI05	0.833		

Notes: CR, composite reliability; AVE, average variance extracted

### Model Fit Evaluation

Goodness-of-fit (GoF) is computed as the geometric mean of average communality of the outer

measurement model and average R-Squared of latent variable. GoF is calculated using the formula:

$$\text{GoF} = \sqrt{R^2 \times \text{Average Communality (AVE)}}$$

Table 4: Goodness-of-fit

Constructs	Communality	R-Squared
Information and communication technology	0.670	
Student loyalty	0.536	
Service quality	0.630	0.342
Student satisfaction	0.799	
University image	0.626	
<b>Geometric mean</b>	<b>0.652</b>	<b>0.342</b>

$GoF = \sqrt{0.342 \times 0.652}$

**GoF=0.472**

GoF values are classified 0.10 as small, 0.25 as medium, and 0.36 as large

Following Wetzels et al., (2009) guidelines, the GoF shown in table 4 above has a value of 0.47 and be classified as large, thereby revealing a strong fitness of the hypothesized model to the data used in this study.

Measurement Model

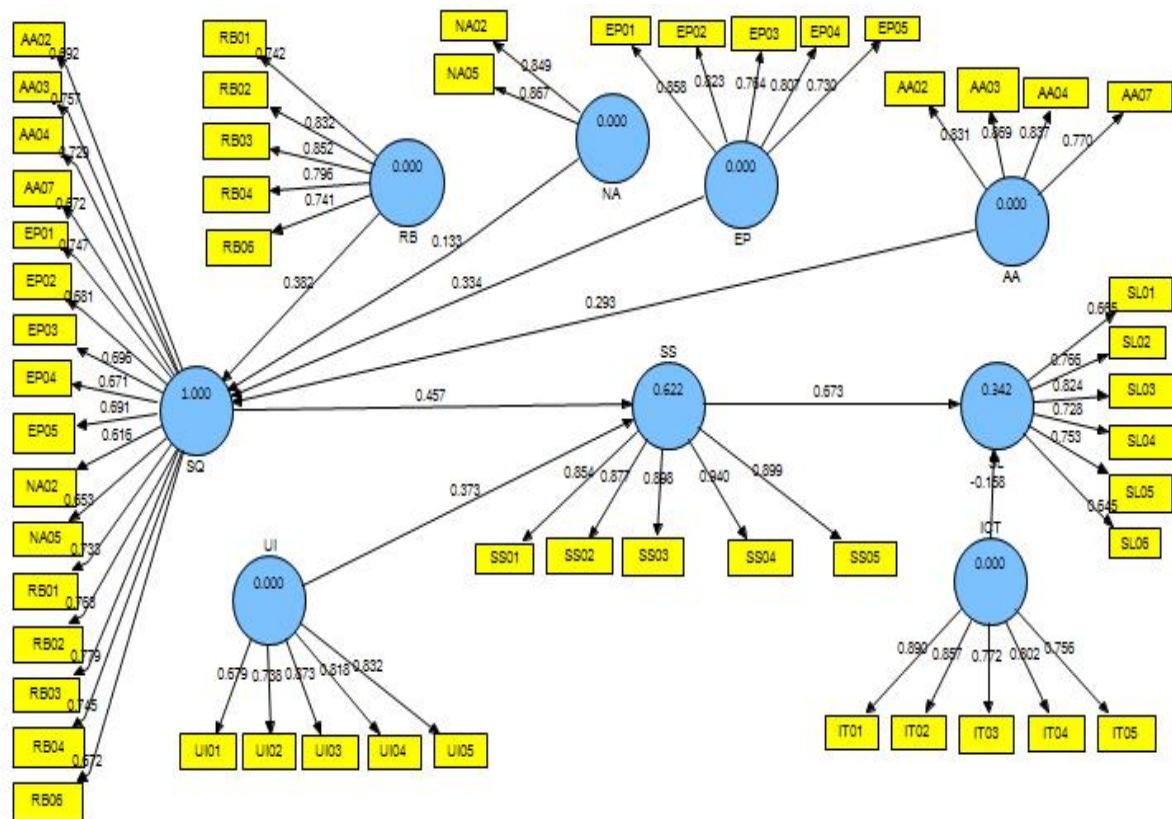


Figure: 4. 1 Measurement Model

**Discriminant validity of constructs**

Discriminant validity is the extent to which the measures is not a reflection of some other variables and is indicated by low correlations between the measure of interest and the measures of other constructs (Cheung & Lee, 2010). It can be examined by comparing the squared correlations between the constructs and the

AVE for a construct (Fornell & Larcker, 1981). As shown in Table 5 below, the squared correlations for each of the constructs is less than the AVE by the indicators measuring the constructs indicating adequate discriminant validity. Therefore, the measurement model demonstrated adequate convergent validity and discriminant validity.

**Table 5:** Discriminant validity of constructs

Constructs	1	2	3	4	5
Information and communication technology	<b>0.82</b>				
Student Loyalty	0.27	<b>0.73</b>			
Service quality	0.55	0.55	<b>0.71</b>		
Student Satisfaction	0.64	0.57	0.66	<b>0.89</b>	
University Image	0.50	0.51	0.70	0.74	<b>0.79</b>

Notes: The diagonal are the AVE while the off-diagonals are the squared correlations

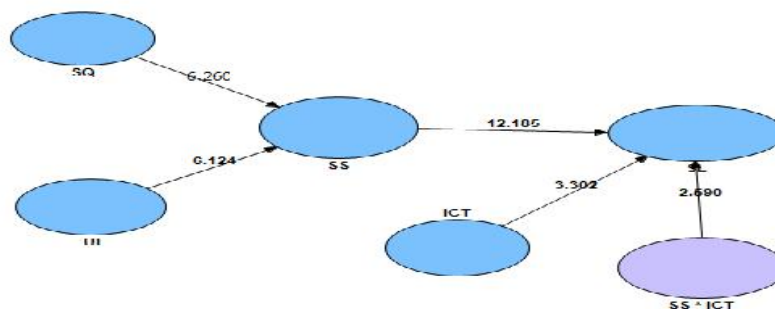
**An assessment of the Structural Model**

From the table 6 and figure 4.3 below, we evaluated the structural model to test the hypotheses among variable.

**Table 6:** Summary of Findings on the moderating Effect of ICT and Mediating effects of Student satisfaction

Hypotheses	Relationship	Path coefficient	Standard Error	t-value	Result	Decision
H1	SQ -> SS	0.437	0.071	6.133***	0.000	Supported
H2	SS -> SL	0.673	0.044	15.291***	0.000	Supported
H3	UI -> SS	0.390	0.065	6.015***	0.000	Supported
H4	SS * ICT -> SL	0.124	0.049	2.590**	0.005	Supported
H5	SQ>SS>SL	0.294	0.071	4.143***	0.000	Supported
H6	UI>SS>SL	0.263	0.065	4.039***	0.000	Supported

Notes: \*\*\*P< 0.01; \*\*P<0.05

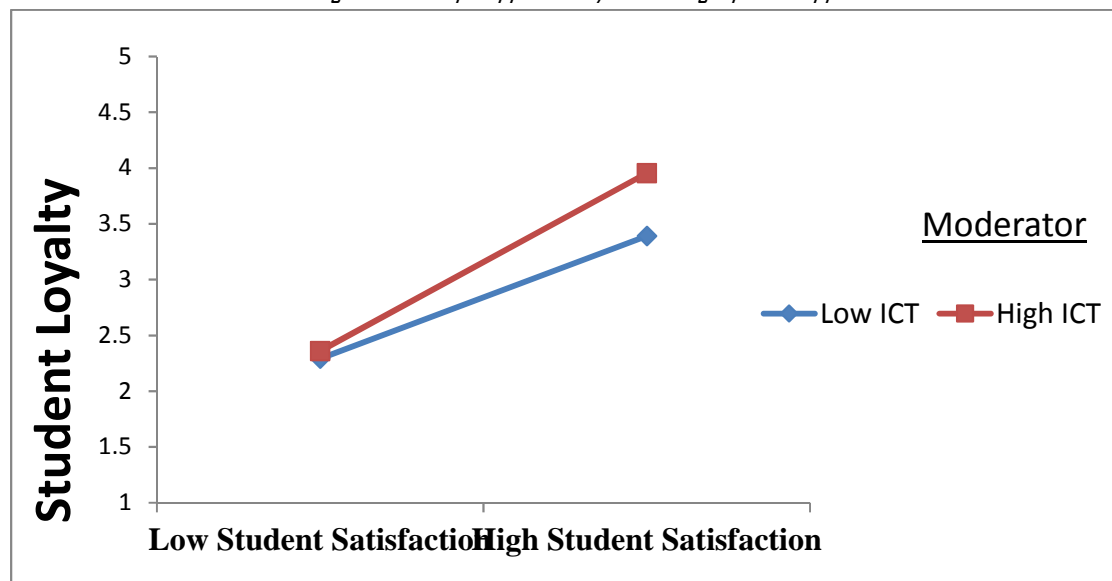


**Figure 4.2:** Structural Model

Hypothesis (H4) postulated that ICT would moderate the relationship between student satisfaction

and student loyalty of HEIs. This was fully supported ( $\beta = 0.124, t = 2.590, p < 0.005$ ) was significant.

*Moderating relationship supported by the Line graph to support the above result*



**Figure 4.3** figure shown the moderating relationship between Student Satisfaction and Student Loyalty. From the above figure, ICT strengthens the positive relationship between student satisfaction and student loyalty in HEIs.

**Table 7:** Below summarizes all the results of the hypotheses Tested

H	Statement	Decision
H1	SQ -> SS Service quality is significantly related to student satisfaction	Supported
H2	SS -> SL Student satisfaction is significantly related to student loyalty	Supported
H3	UI -> SS University image is significantly related to student satisfaction	Supported
H4	SS * ICT -> SL Information and communication technology significantly moderate the relationship between student satisfaction and student loyalty	Supported
H5	SQ>SS>SL student satisfaction significantly mediate the relationship between Service quality and student loyalty	Supported
H6	UI>SS>SL University image significantly mediate the relationship between Service quality and student loyalty	Supported

*Source: The Researcher*

**DISCUSSION**

Service quality was hypothesized to be positively related to student satisfaction. This study from table six above found that the hypothesis was supported. Hypothesis 1 predicted that service quality (SQ) has a

significant relationship with student satisfaction (SS). Results demonstrated on Table 7 and Figure 4.2, revealed a significant positive relationship between service quality and student satisfaction ( $\beta = 0.437, t = 6.133, p < 0.000$ ) supporting hypothesis 1. It can also be

argued in the context of the study that, higher quality service can lead to satisfaction of the student to the service of HEIs. This study is in line with the findings of Bitner, (1990) posit out that a good service quality is the key factor to create customer satisfaction.

Student satisfaction was hypothesized to be positively and significantly related to student loyalty. This study in table 6 above, found that the hypothesis was supported. Hypothesis 2 predicted that student satisfaction has a significant relationship with student loyalty (SL). Result (Table 7 and Figure 4.2) indicated that student satisfaction indeed has significant influence on student loyalty ( $\beta = 0.673$ ,  $t = 15.291$ ,  $p < 0.000$ ) supporting hypothesis 2. Satisfaction was found to be positively and directly related to student loyalty. It can be argued that logically, a satisfied student to a particular institution will lead to a higher level of loyalty to that institution. This corroborates with findings from (Shah, 2009). In this study, student satisfaction was found to be a strong positive and significant influence on students' loyalty. This result suggests that maintain student satisfaction in HEIs would lead to towards student loyalty to attract and retained loyalty even after graduating from the institutions. In addition, the results support prior findings within the HEIs. For example, Helgesen & Nettet, (2007b), satisfaction has been found to positively influence loyalty, resulting in positive recommendation and continuation of the student-university relationship.

However, university image was hypothesized to be positively and significantly related to student satisfaction in HEIs. In examining the influence of university image (UI) on student satisfaction, results show that university image has a significant relationship with student satisfaction ( $\beta = -0.390$ ,  $t = 6.015$ ,  $p < 0.005$ ) yielding support for hypothesis 3. This study found that the hypothesis is supported, because it can be argued that in the context of the study, if the university has a good image and reputation over certain period of

time, the university image will lead to. The findings of the study support the recommendation made earlier by researchers such as (Andreassen & Lindestad, 1998).

Information and communication technology significantly moderate the relationship between student satisfaction and student loyalty. It could be recalled, this study hypothesized hypothesis that ICT moderates the relationship between student satisfaction and student loyalty. This relationship is particularly stronger for individual student's high in ICT than for individual student's low in ICT. As expected, the results shown on (Figure 4.2 & Table 7) indicated the interaction terms representing student satisfaction multiplied by ICT ( $\beta = 0.124$ ,  $t = 2.590$ ,  $p < 0.005$ ) was significant. Hence, the result fully supports hypothesis H4. Although ICT is strongly and positively associated with student satisfaction and student loyalty ICT is significant and has a strong relationship. ICT innovative services add value to customers, improving their experience and satisfaction. In turn, this added value gives the university a greater competitive advantage and a wider market share.

The study revealed that, student satisfaction significantly mediates the relationship between Service quality and student loyalty. An indirect relationship of service quality to student loyalty through the intermediate influence of student satisfaction. In table 6 above, show the result of the mediating effect of student satisfaction (SS) on the relationship between service quality (SQ) and student loyalty (SL) is displayed in figure 4.2 and table 7. The result indicate significant indirect relationship between service quality and student loyalty in HEIs ( $\beta=0.294$ ,  $t=4.143$ ,  $p<0.000$ ).

Consistent with researchers' expectation, it was found that there is a positive relationship between Service quality, student satisfaction and student loyalty, these results imply that high service quality will lead to higher satisfaction, and this in turn will produce greater willingness to recommend the institutions. The findings



of this paper confirmed that university image and student satisfaction have positive impact on student loyalty among the HEIs in Nigeria. Student satisfaction significantly mediate the relationship between university image and student loyalty and therefore the result of this study is in line with various researchers such as Hence, hypothesis (H5) which predicted the mediation effect of student satisfaction on the relationship between service quality and student loyalty was fully supported. As for hypothesis (H6) which proposes the mediation effect of student satisfaction on the link between university image (UI) and student loyalty, the results (Figure 4.2, Table 7) demonstrate significant indirect relationship between university image and student loyalty ( $\beta = 0.263$ ,  $t = 4.039$ ,  $p < 0.000$ ). Thus, hypothesis (H6) was supported.

## CONCLUSIONS AND IMPLICATIONS

The objectives of this study were twofold. The main objective of the study was to test the mediating relationship of student satisfaction. The second objective was to test the moderating effect of ICT on the relationship between student satisfaction and student loyalty in HEIs, in the African continent with particular evidence from the Nigerian context. In order to determine which construct, have significant relationship in terms of reliability, validity and explained variance. The data were conducted from both undergraduate and postgraduate students sample from federal universities in Nigeria, and the findings revealed that, the hypotheses service quality and university image is positively correlated to student loyalty was significant and supported. The result revealed that, student's satisfaction mediated the relationship between service quality and student's loyalty in the HEIs. Although ICT is strongly and positively associated with student satisfaction and student loyalty ICT was significant and has a strong relationship. In short, the findings

demonstrated a significant and positive relationship between all the constructs.

## LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

This paper has its limitations in that the diversity among HEIs in Nigeria. The study design adopts a cross-sectional research design which does not allow causal inferences to be made from the population of the study. Therefore, a longitudinal research design needs to be considering in the future measuring of the theoretical constructs at different points in time.

## REFERENCES

- Anderson, E. W., Fornell, G., & Lehmann, D. R. (1994). Customer Satisfaction, Market Share, and Profitability: Findings from Sweden. *Journal of Marketing*, 58(3), 53–66. <http://doi.org/10.2307/1252310>
- Andreassen, T. W., & Lindestad, B. (1998). Customer loyalty and complex services\nThe impact of corporate image on quality, customer satisfaction and loyalty for customers with varying degrees of service expertise. *International Journal of Service Industry Management*, 9(1), 7–23.
- Bitner, M. J. (1990). Evaluating Service Encounters: The Effects of Physical Surroundings and Employee Responses. *Journal of Marketing*, 54(April), 69–82. <http://doi.org/10.2307/1251871>
- Cheung, C. M. K., & Lee, M. K. D. (2010). A theoretical model of intentional social action in online social networks. *Decision Support Systems*, 49(1), 24–30.
- Clewes, D. (2003). A Student-centred Conceptual Model of Service Quality in Higher Education. *Quality in Higher Education*. <http://doi.org/10.1080/13538320308163>
- Collins, C. H., Yates, M. D., & Grange, J. M. (1981). A study

- of bovine strains of mycobacterium tuberculosis isolated from humans in South-East England, 1977-1979. *Tubercle*, 62(2), 113-116. [http://doi.org/10.1016/0041-3879\(81\)90018-0](http://doi.org/10.1016/0041-3879(81)90018-0)
- Deming, W. E. (1982). *Quality, productivity and competitive Position.. Quality and Reliability Engineering International* (Vol. 2). <http://doi.org/10.1002/qre.4680020421>
- Elliott, K. M., & Shin, D. (2002). Student Satisfaction: An alternative approach to assessing this important concept. *Journal of Higher Education Policy and Management*. <http://doi.org/10.1080/1360080022000013518>
- Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research (JMR)*, Feb 1981, 18(1), 39-50. 12p. 1 Diagram. <http://doi.org/10.2307/3151312>
- Grönroos, C. (1984). A Service Quality Model and its Marketing Implications. *European Journal of Marketing*, 18(4), 36-44. <http://doi.org/doi.org/10.1108/EUM00000000004784>
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2010). *Multivariate Data Analysis*. Prentice Hall, 816.
- Harvey, L., & Green, D. (1993). Defining Quality. *Assessment & Evaluation in Higher Education*, 18(1), 9-34. <http://doi.org/10.1080/0260293930180102>
- Helgesen, Ø., & Nettet, E. (2007). What accounts for students' loyalty? Some field study evidence. *International Journal of Educational Management*, 21(2), 126-143. <http://doi.org/10.1108/09513540710729926>
- Houtman, G. (1990). How a foreigner invented "Buddendom" in Burmese: from tha-tha-na to bok-da' ba tha. *Journal of the Anthropological Society of Oxford*, 21(2), 113-128.
- Juran, J. (1975). The Non-Pareto Principle ; Mea Culpa. *Quality Progress*, 8(5), 1-3.
- Marzo-Navarro, M., Pedraja-Iglesias, M., & Pilar Rivera-Torres, M. (2005). Measuring customer satisfaction in summer courses. *Quality Assurance in Education*, 13(1), 53-65. <http://doi.org/10.1108/096884880510578650>
- Milligan, K., Moretti, E., & Oreopoulos, P. (2004). Does education improve citizenship? Evidence from the United States and the United Kingdom. *Journal of Public Economics*, 88(9-10), 1667-1695. <http://doi.org/10.1016/j.jpubeco.2003.10.005>
- Okebukola, F. (2012). The views of Nigerian teachers in public and private primary schools on the teaching of early literacy in English. <http://doi.org/10.1111/j.1741-4369.2011.00605.x>
- Oliver, R. L., & Linda, G. (1981). Effect of satisfaction and its antecedents on consumer preference and intention. *Advances in Consumer Research*, 8, 88-93.
- Paulsen, M. B., & Feldman, K. A. (1995). Toward a Reconceptualization of Scholarship: A Human Action System with Functional Imperatives. *The Journal of Higher Education*, 66(6), 615-640.
- Richardson, J. T. E. (2005). Instruments for obtaining student feedback: a review of the literature. *Assessment & Evaluation in Higher Education*.
- Ringle, C. M., Sarstedt, M., & Zimmermann, L. (2011). Customer Satisfaction with Commercial Airlines : The Role of Perceived Safety and Purpose of Travel. 19(4), 459-472. <http://doi.org/10.2753/MTP1069-6679190407>
- Romer, P. M. (1990). Endogenous Technological Change. *Journal of Political Economy*, 98(S5), S71. <http://doi.org/10.1086/261725>
- Shah, A. (2009). The Impact of Quality on Satisfaction,

- Revenue, and Cost as Perceived by Providers of Higher Education. *Journal of Marketing for Higher Education*.  
<http://doi.org/10.1080/08841240903451324>
- Spreng, R. A., & Olshavsky, R. W. (1993). A Desires Congruency Model of Consumer Satisfaction. *Journal of the Academy of Marketing Science*.
- Wetzels, M., Odekerken-Schroder, G., & van Oppen, C. (2009). Using PLS path modeling for assessing hierarchial construct models: guidelines and empirical illustration. *MIS Q*, 33(1), 177-195.  
<http://doi.org/Article>
- Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1988). Communication and Control Processes in the Delivery of Service Quality. *The Journal of Marketing*, 52, 35-48. Retrieved from  
<http://www.jstor.org/stable/1251263>