E-quality services: A paradigm shift for consumer satisfaction and e-loyalty; Evidence from post-graduate students in Nigeria

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CHRONICLE	ABSTRACT
	The purpose of the study is to analyze the impact of e-quality services on consumer satisfaction and loyalty in Nigeria. A cross-sectional research design was adopted using a well-structured questionnaire to elicit information for 408 postgraduate students currently studying in Nigerian universities. The research instrument was validated, while data collected were analyzed using the Statistical Package for the Social Science (SPSS) and Structural Equation Modeling (SEM) for hypotheses testing. The result revealed a statistically significant positive relationship among consumer satisfaction, loyalty, e-service quality and their dimensions while the findings established trust and satisfaction as prominent mediators for online purchases. This research contributes to the study of online shopping and e-loyalty by developing a model on the construct within the e-commerce context and suggesting possible factors that may influence quality service decisions.

1. Introduction

The inherent growth in web technology has a profound effect on global commerce. Internet has established a new atmosphere for e-commerce and had supplied a chance to the link, busing over the internet across the globe (Alkailani & Kumar, 2011). Undeniably, internet has given openings to the service sector globally, by permitting enterprises to publicize and feasibly offer their goods for sale online. Scholars view the process of selling goods on the internet as online retailing: among them are online shopping, e-commerce, and e-shopping. The effect of internet trading on individuals and organizations has been profound, especially on buyers who are primed up at utilizing the internet as an additional channel to exchange products (goods and services). In the early years of electronic commerce, online purchase was an intelligent activity offering options of marketing and shopping for the consumers through management of relationships among marketers and consumers with the aid of semi-technology literate individuals. The online retail business is fast emerging with the primary aim of inducing maximum consumer base arising from consumer satisfaction as a competitive strategy. In Nigeria, a rising number of e-retailers are currently sprouting, operating physical outlets: among the famous e-retailers are Jumia, Konga, Kaymu, Dealdey, Slot, Jiji and a host of others. In recent times, online shopping has brought about numerous benefits to various consumers with regards to convenience and speed (Yu & Wu, 2007). Its activity is not something covert of products offering, as it becomes essential in examining buyers' actions towards products shopping and payments online, on the grounds that there is no physical communication between them. Despite the progress, noticeable bottlenecks such as lack of visual contacts or physical existence

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of products, sometimes impact payment methods due to threat of fraud and other security challenges, thus making many consumers not to buy online (Lim *et al.,* 2016).

Many studies reveal that the university students are on top of the list of internet users having high intent for online purchases (Shrawan & Mohit, 2018; Ayden & Demir, 2011; Edmunds *et al.,* 2010). In the developed countries, individual intention for, and behavior towards, online shopping is widely studied unlike a developing country like Nigeria, where focus was majorly shifted on factors influencing online shopping, neglecting the cause of slow pace in growth of e-commerce despite the magnanimous resources and high adoption rate of internet for marketing. This study is motivated by the reality of consumers' perception on the quality of services provided by online retailers in Nigeria as well as how satisfaction and trust influence e-loyalty decisions, as the case may arise. On this note, this study keenly focuses its attention on postgraduate students in Nigeria, taking cognizance of their involvement and inclination at making online purchases and considering its dimensions from the perspective of consumer satisfaction and e-loyalty.

2. Literature review

2.1 Theoretical Background and Conceptual Model

Concept of online shopping

Online shopping (E-commerce or retailing) permits buyers to purchase products (goods and services) legitimately from sellers via the internet, thus making all kinds of merchandise accessible in the virtual world. Online marketing makes a huge impact in various nations, thereby making shoppers to survey, select and purchase the products from sellers around the globe. It has become a veritable means of shopping because people can access these shops at any time without exiting their homes. Shoppers can browse a variety of products alongside their respective prices, specific notice of the features and best arrangement on delivery (Vaidya & Vaidya, 2017). E-retailing allows consumers to trip e-stores, select preferred products and authorize payment via cards or cash when picking up delivery at their doorsteps. Potential consumers gain access to alternate prices during comparison among e-retail outlets. Extant literature suggest that E-stores bid shoppers a variety of benefits applicable to global consumers Among the benefits obtainable by shoppers are diverse product choices, service information, convenience shopping, continuous daily shopping, time savings, competitive pricing and privacy (Katole, 2011; Shang, Chen & Shen, 2005; Monsuwe, Dellaert & Ruyter, 2004). Parasuraman, Zeithaml & Malhotra (2005) develop a service quality model for online shopping incorporating components like fulfillment, efficiency, responsiveness, privacy, compensation, perceived value, and loyalty intentions. Kotler (2017) suggests that consumer satisfaction depends on two factors including the perceived performance of the products and expectations of the buyers. The consumer will be dissatisfied if the perceived performance of the product or service falls short of buyer's expectations. The consumer will be satisfied if the performance matches the expectations. In addition, customers will become delighted if performance exceeds expectations.

- ***Perceived product performance factors***

These factors are uncontrollable considerations for the consumers; the reason being that they are dimensions of services provided by the organization (online shopping provider) via the web, which is perceived as of high quality, and with time-limits. The e-service quality dimensions are suggested to include reliability, accessibility, accuracy, trust or confidence, personalization, price knowledge, and site aesthetics; thus, they are consumer factors aiding purchase intention after inspection (Kim, 2010). The concept of e-service quality covers all these processes. Therefore, its pertinent for an e-retailer to offer quality services to the consumer at a high level for it to survive in the business world and increase its competitiveness among its rival competitors.

- ***Buyers or Personal Factors***

These are controllable factors at the disposal of the consumers. Brown (2003) and Delafrooz, Paim & Khatibi (2011) indicate that they are personal abilities, which are significant in influencing purchase intentions. They comprise the socio-economic characteristics (profile) of the buyer consisting of gender, age, income, occupation, culture, self-efficacy and educational level while the personal related factors exist as a result of consumers' awareness of online shopping, which include computer usage ability, diverse e-payment system, interest and prior purchase experience (frequency of usage, benefits derived and satisfactory level).

2.2 Literature Review

Lester et al. (2005) report that university students incline toward online shopping since they are admirers of technology. In the study, approximately 95 percent of university students use the internet for shopping and prefer buying via credit cards with most shopping based on banking services, concert tickets and clothing. A study by Silku (2009) reveals that attitudes of students proved negative towards online shopping irrespective of departments, class, age, gender, monthly income, shopping frequency and internet usage situations. In the findings from a study on practices of online consumers and inclinations by Ayden and Demir (2011), it was evidenced that individuals who are between the ages of 26 and 35 years with bachelor's degree, earning a salary worth 1500 Turkish Lira or more will be bound to lean toward internet business. A survey carried out amongst government workers focusing on their conducts towards online shopping reveal that consumers who attain high educational level and high pay level effectively patronize shopping via Internet, while impeding variables to online buying are delayed delivery of products and beguiling cum deceiving commercials (Yayar & Sadaklıoglu, 2012). Syed, Mohd, Nor

& Wan (2020) report that consumer satisfaction is positively influenced by factors consisting of consumer service, quality information, timely response, quick delivery, transaction capabilities, merchandise attributes, security and expedient system of payment in Malaysia, while Liu *et al.* (2008), claim that privacy, payment techniques, speed and capability of transactions are cogent determinants. Using a non-parametric data, Rajesh (2018) establishes after sales services, tedious procedures, return policies, clear terms and conditions becomes a significant influence on consumer satisfaction. Meanwhile, the intention to make online purchases is surrounded by consumer-related factors such as privacy, security, trust, convenience, e-shopping enjoyment, company reputation and tactility. Be as it may, marketing related factors including the 4Ps (product, price, promotion excluding place), delivery methods, return policy, consumer service and technological are suggested to be significant to purchase intention (Kim, 2010). Jarvanpaa and Todd (1997), conduct one of the most primitive study on online shopping in relation to consumers' attitude. In the study, shopping experience, website service quality, product value and risk are the major determinants while factors such as information quality, user interface quality and security influence their purchasing behavior to derive satisfaction (Chung-Hoon & Young-Gul, 2003). Jadhav and Khanna, (2016) lay bare the components impacting web-based purchasing conduct of 25 college students, suggesting that product availability, low price, promotion, comparison, convenience, trust, time consciousness, ease of usage of the website, attitude and consumer service availability are the variables that impact online buying. In a study conducted by Basil et al. (2014) within Calabar metropolis in Nigeria, non-store retailing was examined alongside consumer satisfaction and it was discovered that consumer satisfaction is positively impacted by shoppers' perception while risk has a negative influence. Olasanmi, (2019) centers on the nexus between online shopping and consumer satisfaction in Nigeria, revealing that average respondents consistently engaged in online shopping for some notable reasons like convenience, better product information and affordable product varieties offered by their preferred online retailers. However, the author concludes that factors such as cost, convenience, awareness level, time, quality, and risks would enhance consumer satisfaction.

Electronic Service Quality and Its Dimensions

E-service is becoming more crucial, and demanding high intensity of services to be offered in order to build trust and gain loyal consumers. Zeithaml *et al.* (2002) view electronic service quality as efficient and effective services provided by a vendor to have an expertise shopping experience in a web context. Shi *et al.* (2018) and Piercy (2014) describe e-service quality as a method, which comprises pre-purchase, purchase and post purchase activities involving evaluation, selection, purchase and fulfillment of products and services through a website. Most of the organizations evaluate the performance of service quality based on an important tool called SERVQUAL model, which was proposed by Parasuraman et al. (1988; 1988). Over time, different dimensional paradigms have been suggested for service quality perception, but could be reduced to five dimensions such as reliability, assurance, tangibility, responsiveness, and empathy (Adeyeye, Fapetu & Adefolu, 2018; Ngobeni, Nzimakwe, Adeyeye & Munapo, 2015; Parasuraman et al., 1991, 1988, 1985). For this reason, Zeithaml, Bitner & Gremler (2018) define service quality as a process of evaluating how consumers perceive dimensions such as reliability, assurance, responsiveness, empathy, and tangibles. Extant studies conceive electronic service quality from numerous views, while some is relative to website quality (Sun, Cárdenas, & Harrill, 2016; Yoo & Donthu, 2001), and others largely focus on consumers' global perceptions and experiences with online shopping (Nguyen, de Leeuw & Dullaert, 2018; Barnes & Vidgen, 2002; Zeithaml et al., 2002). Meanwhile, Li and Suomi (2009) reveal how service quality features impact consumer satisfaction by improving e-service quality purposely for consumer retention. However, the dimension of e-service quality entails the following:

- *Security*

Security is characterized by the site's capability in protecting buyers' personal data from unauthorized individuals while performing any online transaction (Guo *et al.,* 2012). Security is seen as a significant factor apparently genuinely by online consumers (Mustafa, 2011). The readiness of shoppers towards visiting e-stores with intention to make purchases is legitimately associated with consumers' trust to offer own data alongside with card payment details (Whysall, 2000). Security also refers to how privacy handles the application of new technologies to safeguard consumer information (Monsuwe *et al.,* 2004).

- *Reliability*

From e-commerce perspective, reliability speaks of the ability of an online shopping site to meet consumer requirements, convey products, and secure consumers' personal information (Semeijn et al., 2005; Kim & Lee, 2002; Parasuraman et al., 1988). In like manner, to be considered as dependable, an e-service provider is obliged to deliver service precisely with a guaranteed time frame (van Riel et al., 2004). Consumers anticipate that online retailers should provide every relevant and precise detail of the product, since on rare cases would consumers have the chance to feel the items before choosing to buy (Smith, 2006; Lim & Dubinsky, 2004). Numerous researchers (Lian & Lin, 2008; Liao & Cheung, 2001; Bhatnager et. al., 2000) question discrepancies and dissimilarities of product types delivered to consumers compared to actual orders that are placed. Web-based consumers evidently want to get the correct quality as well as the appropriate quantity of items ordered within the time frame agreed upon with e-retailers, along with anticipated accurate billing (Jun *et. al.,* 2004). Several authors consider that amount and authenticity of information are essential components avail guaranteeing quality of online shopping services (Jarvenpaa & Todd, 1997).

- *Convenience*

Convenience is one of the most effective components of online shopping willingness (Wang et al., 2005). Convenience entails reducing shopping time, a pleasing shopping technique and delivery period together with ease of browsing in choosing from

different variety relatively to speed and effortless access to information at the least possible outlay. Convenience as a service quality dimension encompasses the increase in the time efficiency and the possibility for consumers to shop anytime and from anywhere. That is, it necessitates consumers shopping online anytime of the day under stable and unfluctuating procurement services. Five dimensions of convenience construct are recognized by Seiders et al. (2007), namely: decision, access, benefit, transaction, and post-benefit convenience.

- *Responsiveness*

Responsiveness indicates commitment in assisting consumers, and swiftly improving the level of service being offered. Responsiveness, as a dimension of e-service quality, entails communicating with the consumers on accuracy and timeliness of service and the willingness to render help to consumers on any complaint within the shortest time frame. It further involves keenly and promptly proffering solution to demands or enquiries from consumers on services or products, as lack of this could significantly impinge on evaluating their quality. Liu *et. al.* (2008) report that timeliness regarding responsiveness is a vital determinant of consumer satisfaction during web-shopping, while Kaur & Wei (2013) suggest that once web consumers find e-retail outlets react speedily to their demands and enquiries, their tendency to derive satisfaction could be doubled.

Consumer's Trust

Trust emanates from prior dealings and experiences, which grows as relationship mellows. Trust is treated as confidence built by consumers, making them get assured of service rendered by the vendor. It entails the breadth and depth of consumers' service options entailing communication channels, accuracy of e-mail response from deals initiated between consumers and e-retailer till when an order is received. Wu et al. (2018), refer trust as belief, attitude concerning buyer's intent or y conduct; that is, it is foremost for every consumer when making purchase decision. Chang et al. (2013), suggest absence of trust as the main consideration hindering web-based buying; meanwhile, Egger (2006) argues that adequate trust is required when an order is being placed online alongside with inputting potential consumer details preempting the execution of financial transactions. Going by advancement in technology globally, trust is germane in any business operation demanding consumers inputting their personal and financial details to finalize a buying process. Holding and selling products from a brand enhances trust proportion, which invariably affects buying decision of the consumer (Lim & Dubinsky, 2004). In maintaining trust and reducing dread perceived by online consumers during transactions, online organizations need to assure their consumers of not using their personal information contrary to the intended purpose of collection. Numerous studies indicate trust as imperative and of positive significance for consumer satisfaction within the context of e-commerce (Pappas et al., 2014; Pappas, 2014; Chen, 2012; Fang, 2011; Kim et al., 2009; Mukherjee & Nath, 2007; Lee & Lin, 2005).

Consumer Satisfaction

Consumer satisfaction is seen as the resulted outcome when expectation and experience are being compared, that is, product's perceived value as against expectation. Satisfaction is a consumer's self-actualization response with certain amount of enjoyment and pleasant outcome; in a different word, satisfaction constitutes the affecting outcome from cognitive component parts of appraisal (Oliver, 1981). Cronin and Taylor (1992), study the nexus between service quality and consumer satisfaction in some service industries, whereby suggesting e-service quality being a factor predicting consumers' satisfaction. In a study by Guo, Ling & Liu (2012), eight factors are identified as determinants of consumer satisfaction including payment methods, e-quality of the service, web design, security, information quality, product quality, product range and service provision.

E-Loyalty

Recently, e-loyalty has become crucial focus in literatures due to its prospective gains to electronic business world. E-loyalty is defined as consumer's commitment and favorable disposition towards online companies (Safa, 2014). Loyalty turnout is the end result of consumer satisfaction, having trust as a means. Caruana (2002) reveals that service quality, satisfaction and loyalty are sequence of mutually dependent factors, having underlying causal relationships. In deciding on products or services, consumers greatly value their instant feelings instead of the product(s). Subsequently, if enterprises provide better and quality service, consumers tend to be satisfied, which positively affects their future purchase intentions. That is, satisfied consumers will repurchase and equally give recommendations to others (Khristianto, Kertahadi & Suyadi, 2012; Ahn, Ryu & Han, 2005). E-satisfaction is validated as a determining factor for e-service quality and e-loyalty (Trivedi & Yadav, 2018; Chu et al., 2012); and this is affirmed by Kim *et al.* (2009), who concluded that trust and satisfaction positively and substantially influence loyalty. In the light of the reviewed extant literatures and in accordance with the underneath conceptual model (Fig. 1), the following hypotheses are formulated:

HO$_1$:   e-service quality and its sub-dimensions have positive effect on consumer satisfaction.

HO$_2$:   e-service quality and its dimensions have positive influence on consumer e-loyalty.

HO$_3$:   trust mediates the relationship between e-service quality and e-loyalty.

HO$_4$:   consumer satisfaction mediates the relationship between e-service quality and e-loyalty.
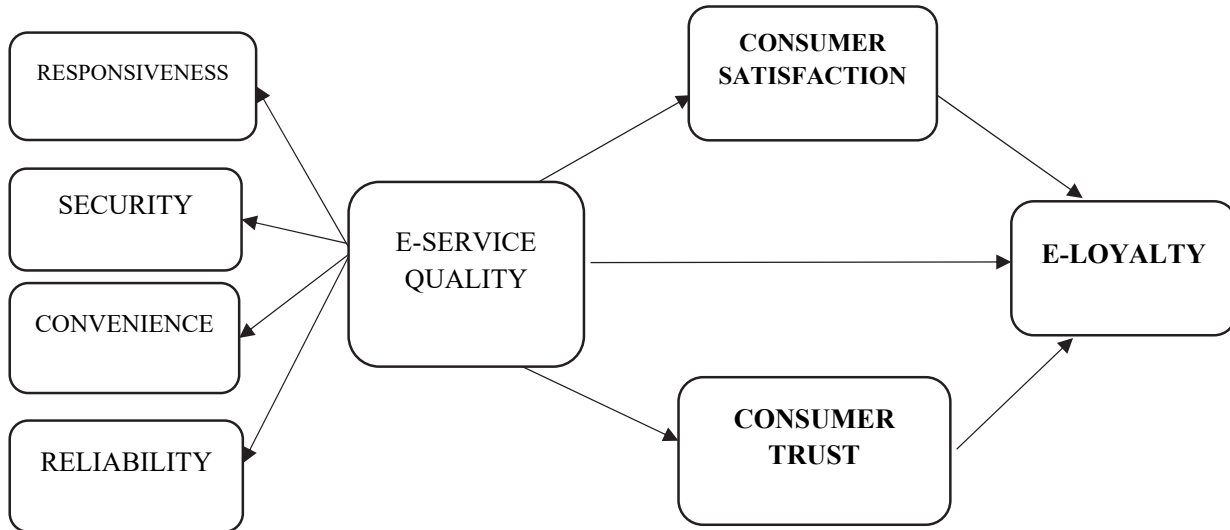
Fig. 1. Conceptual Framework

3. Methodology

3.1 Research Design

This study is a cross-sectional research design, employing a survey aiming at gathering information from a given sample and investigating the interactions of relevant variables in the study. In the study, the targeted population are the postgraduate students among universities within Ekiti state, which is known to be one of the least in population but is known to accommodate miniature populace of higher institutions in the southwestern part of Nigeria.

3.2 Sampling Technique and Size

Purposive and convenience sampling techniques are exploited for this research based on students who are available and willing to provide necessary information. The three universities in the state are selected (federal and state government owned) alongside with one private university. Five hundred postgraduate students are selected from the universities within the state cutting across all postgraduate levels (Postgraduate Diploma, Masters, M.Phil. and Ph.D. programs).

3.3 Data Collection and Instrument Measurement

The structured questionnaire is constructed to elicit information from respondents regarding their respective socio-economic characteristics, awareness of online purchases including its benefits and e-service quality dimensions towards consumer satisfaction. The questionnaire comprises of both close-ended and open-ended questions that elicit concise riposte from the respondents. The survey questions are drawn up by adopting similar studies identified with high reliability and good validity outcomes; among the survey scale used include e-service quality dimension (Holloway & Beatty, 2008; Blut, 2016; Parasuraman *et al.,* 2005; Srinivasan *et al.,* 2002), customer trust (Kao & Lin 2016; Kim *et al.,* 2009; Yoon, 2002), e-loyalty (Zeithaml *et al.,* 1996; Gremler, 1995) and customer satisfaction (Adeyeye et al., 2018; Harris & Goode, 2004; Harris et al., 2016). Hence, all the scales used are on a 7-point Likert scale.

Respondents were assured of high degree of anonymity and confidentiality regarding the information provided. 500 questionnaires were randomly distributed to the postgraduate students while 426 fully completed responses were retrieved within a span of two (2) months. However, 18 outliers and non-engaged respondents were deleted, leaving 408 valid responses as the final sample size, which is 82 per cent response rate.

4. Analysis and Results

Descriptive analysis involving frequency and percentage is used to explain the sample population frame and respondents' socio-economic profile including such variables as gender, age structure, level of education and marital status. The hypotheses are tested and analyzed using the partial least square structural equation modeling (PLS-SEM) technique. A two-step approach is recognized while accomplishing the analysis: evaluation of the psychometric properties of the measurement model and examination of the hypothesized structural model.

4.1 Descriptive Profile of Respondents

The socio-economic characteristics of respondents including gender, age, marital status and program enrolled for were presented in Table 1.

Table 1

Descriptive profile of respondents

Demographic Variables	Categories	Frequency (n=408)	Percentage
Gender	Male	249	61
	Female	159	39
Age	Below 30 years	148	36.3
	30 - 39 years	228	55.9
	40 - 49 years	31	76.2
	50 years & Above	1	0.2
Program	Postgraduate Diploma (PGD)	45	11
	Masters	244	59.8
	M.Phil.	70	17.2
	Doctorate	49	12
Marital Status	Single	179	43.8
	Married	210	51.5
	Divorced	19	4.7

Source: *Computations from Survey Data, 2020*

The gender distribution shows that male respondents accounted for 61% of total responses obtained, while 39% are female. On the average, majority of the respondents are still in their active age and if linked with the marital status, an above average proportion (51.5%) are married compared to 43.8% accounting for being single while the remaining 4.7% are divorced. Finally, responses in lieu of postgraduate programs ranging from more than half of the respondents (59.8%) being on their master's degree, closely followed by those on M.Phil. program (17.2%) and the least were those on their doctorate (12%).

4.2 Measurement Model

The results on the measurement model were presented in Table 2. In assessing the measurement model as hypothesized, all observed items linked to a latent construct as contained in the research instrument are subjected to psychometric test, which entails both the convergent and discriminant validity. In examining the convergent validity of items to their constructs, the Outer loadings, Average Variance Extracted (AVE), Composite Reliability, Cronbach's alpha and rho_A values were observed and assessed (Hair et al., 2017). All the items recorded outer loadings (λ) above 0.5, as suggested by Lin & Wang (2012), while for composite reliability and its sister metrics (Cronbach's alpha and rho_A), all constructs return values greater than the 0.7 threshold, as recommended by Dijkstra & Henseler (2015), which affirm that the item-construct structure in the measurement model has convergent validity. Furthermore, all the AVE values are above 0.5 the threshold with the exception of the ESQ with AVE of 0.307, which still falls within the acceptance region since its Cronbach's alpha (CA= 0.725) and Composite reliability (CR = 0.799) is higher than 0.6 (Fornell & Larcker, 1981). Hence, the convergent validity of the construct remains acceptable as presented in previous studies (Olaleye et al., 2021; Fornell & Larcker, 1981).

Table 2

Measurement Model

Constructs, Dimensions and Indicators	Loadings (λ)	Mean	Std. Deviation	Skewness	Kurtosis
E-SERVICE QUALITY (ESQ)					
Convenience					
Conv1	0.896***	6.012	1.378	-2.080	4.130
Conv2	0.930***	6.132	1.357	-2.252	4.850
Conv3	0.911***	6.037	1.491	-1.984	3.075
Reliability					
Relia1	0.916***	2.652	1.822	1.190	0.001
Relia3	0.875***	2.838	2.018	1.052	-0.402
Responsiveness					
Res1	0.928***	4.605	2.047	-0.639	-1.016
Res2	0.948***	4.424	2.140	-0.391	-1.400
Security					
Sec1	0.933***	5.206	1.401	-0.119	-1.228
Sec2	0.937***	5.150	1.435	-0.159	-1.379
Sec3	0.920***	5.093	1.447	-0.061	-1.385
TRUST					
TTR1	0.963***	2.505	1.142	0.151	-1.244
TTR3	0.929***	2.471	1.262	0.573	-0.713
SATISFACTION					
Satis1	0.963***	3.904	2.128	0.249	-1.459
Satis2	0.961***	3.882	2.157	0.275	-1.451
E-LOYALTY					
Loy1	0.961***	4.147	2.316	-0.127	-1.718
Loy5	0.961***	4.147	2.316	-0.127	-1.718

Following Fornell-Larcker criterion (1981), as a stance for discriminant validity of the constructs, the inter-construct correlation values are compared with the square root of the AVE for each construct. Table 3 depicts the square root of the AVE of

the constructs in bold format, as presented in a diagonal, which is higher than the inter-construct correlation for each construct in the measurement model, with the exception of the second-order construct (e-service quality). For this construct, it is observed that the square root of AVE is 0.554 while the inter-construct correlation between ESQ and SEC is higher (0.731). Using Fornell-Larcker criterion (1981), discriminant validity of all constructs in the model is confirmed, with the exception of the second order construct (ESQ). However, Henseler *et al.* (2015) among a host of other methodologists, in recent times criticize the veracity of Fornell- Larcker criterion to reliably identify and detect the presence or absence of discriminant validity in very common empirical situations. Moving beyond criticism, they not only propose a new alternative methodology for the detection of discriminant validity called the Heterotrait-Monotrait (HTMT) ratio of correlations, they also conduct a Monte-Carlo simulation to demonstrate the superiority of the HTMT method over the Fornell-Larcker approach. In this study, the HTMT method is used, most especially seeing the ESQ construct falling short of meeting the Fornell-Larcker criterion.

Table 3
Inter-construct Correlations, Convergent and Discriminant Validity

Constructs	CA	Rho	CR	AVE	CON	E-LOY	ESQ	RELI	RESP	SATI	SEC	TRU
CON	0.899	0.901	0.937	0.833	[a]**0.912**	[b]*0.150*	*0.835*	*0.166*	*0.128*	*0.13*	*0.168*	*0.046*
E-LOY	0.916	0.916	0.96	0.923	0.136	**0.961**	*0.234*	*0.085*	*0.069*	*0.503*	*0.16*	*0.097*
ESQ	0.725	0.768	0.799	0.307	0.716	0.183	**0.554**	*0.641*	*0.568*	*0.232*	*0.8*	*0.198*
RELI	0.756	0.774	0.89	0.802	0.136	0.072	0.392	**0.896**	*0.047*	*0.098*	*0.133*	*0.105*
RESP	0.864	0.88	0.936	0.88	0.116	0	0.3	0.039	**0.938**	*0.062*	*0.064*	*0.046*
SATI	0.919	0.919	0.961	0.925	0.118	0.462	0.194	0.084	0.057	**0.962**	*0.172*	*0.038*
SEC	0.922	0.923	0.95	0.865	0.154	0.148	0.731	0.116	0.058	0.159	**0.93**	*0.202*
TRU	0.885	0.952	0.945	0.895	0.039	0.087	-0.121	-0.09	-0.041	0.036	-0.188	**0.946**

Notes: **CA**=Cronbach's Alpha, **CR**=Composite Reliability, **rho**= rho_A reliability indices, **AVE**= Average Variance Extracted, [a]= Diagonal values in bold are the square root of AVE, [b]= *Italicized* values above the square root of AVE are Heterotrait-Monotrait (HTMT) ratios.

The results of the HTMT test are shown in italics right above the square roots of AVE in diagonal in Table 3. As observed in the table, the HTMT values for all the constructs in our measurement model are below the thresholds of 0.85, as recommended by Kline (2015, hence the confirmation of discriminant validity issue is amidst items in our model.

Lastly, collinearity between and among the predictors are tested by calculating the Variance Inflation Factor (VIF) for each independent variable as presented in the Table 4. The results depict absence of collinearity or multicollinearity issue since all values of the VIF meet the threshold value of less than 3.0 (Hair *et al.,* 2017).

Table 4
Collinearity and Multicollinearity (VIF)

Constructs	CONV	E-LOY	RELI	RESP	SATI	SECU	TRU
E-Service Quality	1.000	1.057	1.000	1.000	1.000	1.000	1.000
Satisfaction		1.043					
Trust		1.019					

4.3   Structural Model and Result

The hypothesized relationship between the constructs is illustrated using the structural model in Fig. 2.
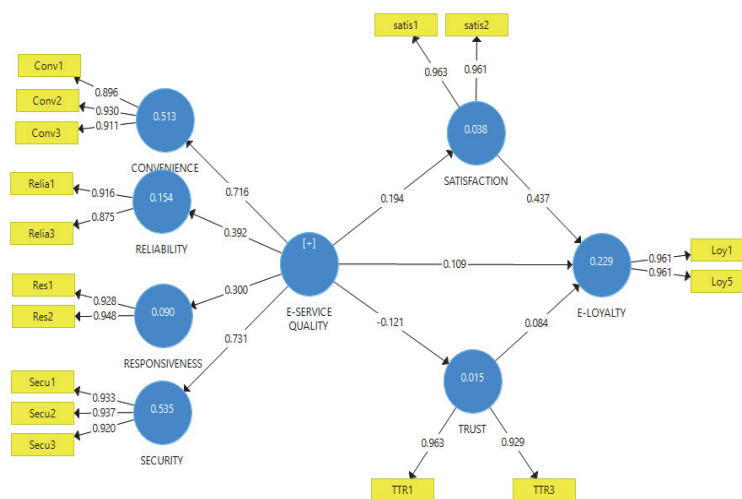

Fig. 2. Structural Model

Table 5 depicts the estimated R-squared (R^2), path coefficients and *t*-values, using a bootstrapping of 5000 re-sampling procedure. Firstly, the direct effects of the predictor variable on the outcome variables are examined, with the result showing that e-service quality and its sub-dimension (ESQ) have a positive effect on customer satisfaction ($\beta = 0.194$, $p < 0.05$); and e-loyalty ($\beta = 0.109$, $p < 0.05$), which collectively explains 3.8% and 22.9% of the observed variance in consumer satisfaction and e-loyalty respectively. Furthermore, the specific mediating (indirect) effect of trust (TTR) on e-service quality (ESQ) and e-loyalty (ELOY), likewise the effect of consumer's satisfaction on e-service quality (ESQ) and e-loyalty (ELOY). It has deduced that trust (TTR) significantly mediates the ESQ-ELOY path ($\beta = 0.085$, t = 4.012, $p < 0.05$), as well as customer satisfaction mediating the path of ESQ-ELOY ($\beta = -0.010$, t = 6.557, $p < 0.05$). Thus, we find support for all hypothesized paths (direct and indirect) contained in our study model.

Table 5
Results of the path analysis

Hypothesis	Model Fit Indices: SRMR= 0.206					
	β values	t statistics	p values	f^2	R^2	Decision
Direct Effects						
H1: e-service quality and its sub-dimensions have a positive effect on consumer satisfaction	0.194	3.736***	0.000	0.039	0.038	*Supported*
H2: e-service quality and its dimensions have a positive influence on consumer e-loyalty	0.109	3.875***	0.000	0.014	0.229	*Supported*
Indirect Effects						
H3: trust mediates the relationship between e-service quality and e-loyalty.	0.085	4.012***	0.000	-	-	*Supported*
H4: consumer satisfaction mediates the relationship between e-service quality and e-loyalty	-0.010	6.557***	0.000	-	-	*Supported*

***$p < 0.05$ (based on two-tailed test).

5. Discussion and Conclusion

The findings of this research are consistent with prior studies on e-service quality and e-loyalty (Trivedi & Yadav's 2018, Chu et al., 2012). The positive and significant path posed by e-service quality dimensions in relation to loyalty is of enormous importance on sustainability and continuous survival of enterprises, regardless of its physical and virtual settings in exchanging products (good and services); that is, to operate suitably in retaining existing consumers. The results reveal that all the four first-order constructs mentioned are good and positive predictors of e-service quality; but the low value shown on the path of responsiveness (R = 0.09) and reliability (R = 0.15) suggests that e-retailers are always willing to communicate with consumers with regard to their requisitions in an accurate and timely manner so as to avoid variation between quality of products ordered and delivered. By so doing, this will increase the trust level in consumers and directly influence satisfactory purchases. In addition, the significance of the first two hypotheses implies that every vendor needs to invest in offering quality products (service inclusive) to meet specified needs in order to attract more customers. In accordance with the findings, it shows that a high and positive significant path of security and convenience depicts a great influence of e-service quality, suggesting a more confidence in e-retailers by consumers relative to protection of their personal information and financial conduct. Hence, this accounts for data privacy assurance as a vital influence in creating consumer trust. Going by the expectation of quality service via electronic shopping and its worth towards loyalty, trust and satisfaction remain an antecedent for consumer or repurchase retention, most especially among university students (postgraduate inclusive). Hence, this research has no dissimilar result from previous studies conducted and could be emphatically establish that satisfaction stood as a driving force on loyalty (Rose *et al.,* 2012; Elbeltagi & Agag, 2016). This study upholds previous studies, signifying that online buyers are highly subtle to risks associated with the vendors, especially in relation to reliability concern (accuracy of product quality, quantity and pricing). Therefore, in promoting electronic commerce in Nigeria, decision and policy makers for various e-products should endeavor to maintain high quality service, which will aid building of trust in potential consumers, since it is evidently and consistently required as an antecedent to consumer satisfaction and e-loyalty (Pappas *et al.,* 2014; Chang *et al.,* 2009). In conclusion, extant discovery had been made on the fact that security, reliability, responsiveness and convenience concerns of online platforms are notable predictors driving quality service towards loyalty through well-guarded consideration of trust and satisfaction.

6. Limitations and Future Research

Even though the empirical model used in this research is systematically designed, demonstrating that the selected independent variables (security, convenience, reliability and responsiveness) have good explanatory power for e-quality service, the research paper still falls short of few limitations. Firstly, ESQ, as a dimension, entails diverse constructs, which could be reviewed in future period. Secondly, results presented in this study was conducted within the confine of a state, hence, it suffers from limitations underlining generalization and restricted geographical location. Thirdly, the study considers only the perspective of customers neglecting the vendor (e-supplier); further study could be drawn by comparing supplier perception and adoption of electronic commerce among undergraduate and postgraduate students. Finally, based on the prevalent influence of personality traits on purchase decision, contribution may be evolved by considering some personalities in related to quality service, consumer satisfaction and e-loyalty, alongside with introducing a moderating effects of buyer's personal-related factors such as prior-online purchase experience, commitment and purchase intention.

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