

Users' perception of selected e-commerce sites in Nigeria

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Abstract

Unprecedented growth in technology usage has led to the proliferation of e-commerce sites and their adoption globally. However, there are factors hindering the adoption and full exploitation of e-commerce sites in Nigeria. In view of this, this study examined users' perception of selected e-commerce sites in Nigeria, using students of the University of Ilorin as a case study. The population of the study comprised mainly of 5500 students from four faculties selected from the University of Ilorin using a simple random sampling technique. A structured questionnaire was used as the main instrument for data collection using descriptive statistics to analyze field data. A Purposive sampling technique was adopted in the selection of students for this study. The sample size comprised of 300 students selected purposively from the four Faculties. Findings revealed that the majority of users patronized e-commerce sites such as Jumia, Konga, OLX, and Jiji. However, users of e-commerce sites raised issues of privacy concerns, low-security awareness, and lack of user education. In conclusion, recommendations were made towards improving the adoption and use of e-commerce sites in Nigeria.

Keywords: e-business, e-commerce, ICTs, perception, sites.

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Introduction

In today's knowledge economy, many business organizations, individuals, and corporate bodies are adopting e-commerce in buying and selling products and services. E-commerce has wide acceptability across diverse categories of people due to its convenience and flexibility. Besides, it allows users to transact from their comfort zones either at home, office, market, or any other place of convenience.

E-commerce has been defined in diverse and similar ways by scholars in the literature. For instance, Fuscaldò (2021) defined e-commerce as the use of the Internet and the Web to transact business. In another way, e-commerce can be described as the process of buying, selling, transferring, or exchanging products, services, and/or information via computer networks, including the Internet (Turban et al., 2018). Over few years, e-commerce has successfully replaced the traditional market where face-to-face interaction is the order of the day between buyers and sellers (Vasic et al., 2019). Some users prefer e-commerce due to the several advantages it has over the traditional market.

E-commerce has benefitted users in several ways such as enabling individuals to shop online, transfer funds, and sell goods from anywhere using ICT devices such as laptops, mobile devices among others (Cudjoe, 2014). Also, many organizations have opted for e-commerce sites as a medium to reach a large number of users due to several advantages it has over the physical store. However, despite these benefits, a developing country like Nigeria seems to be lagging in the area of adoption of e-commerce by users of various categories such as workers, young, adult, aged, and students among others. This could be due to some challenges as identified in the literature such as cost of transaction, accessibility, privacy and confidentiality issues, security issues, network reliability, credit card threat, and authenticity among others (Adeyeye, 2008; Ajayi 2008; Adeshina & Ayo, 2010).

The operating environment that aids the use of e-commerce in Nigeria is prone to several challenges. For instance, there is a growing concern of identity theft that is hinged on the misuse of consumers' personal identifiable information (PII) such as full name, account numbers, credit card number, bank details, social security numbers, e-mail addresses, among others during electronic transactions (Tajpour et al., 2013). It had been pinpointed that the movement of data from a browser to a server and back is vulnerable to attacks by external threats (Brooghani, 2010). Although, e-commerce is gradually gaining popularity among many Nigerians (Ahmed & Richard, 2015), there are pending issues of privacy concern, security vulnerabilities, and individual choices that might

hinder the full exploitation of e-commerce sites in Nigeria. Therefore, the question is, how do users perceive the adoption of e-commerce sites in Nigeria? This calls for an urgent inquiry into users' perception of selected e-commerce sites in Nigeria.

The significance of this study cannot be overemphasized. First, it would add to the body of literature on the usage of e-commerce among students in the higher institutions of learning in Nigeria; Secondly, it would help to address security and privacy issues of e-commerce sites; build trust and confidence in users, and improve patronage of e-commerce sites by users. Thirdly, this study would help to promote user education on e-commerce sites, that is, users would be enlightened on how to transact successfully and securely on e-commerce sites with minimal risk, at the same time protecting themselves from the activities of hackers or fraudsters while utilizing e-commerce services. Lastly, this study would help identify policy options that are tailored towards improving users' experience on e-commerce sites and its services.

In view of the above, this study investigated the perception of users of selected e-commerce sites in Nigeria using students of the University of Ilorin, as a case study.

Research objectives

This study is guided by the following research objectives listed below:

1. To determine the frequency of usage of e-commerce sites among students of the University of Ilorin, Kwara State, Nigeria.
2. To identify users' privacy concerns in the use of selected e-commerce sites in Nigeria.
3. To identify users' security awareness in the use of selected e-commerce sites among students of the University of Ilorin, Nigeria.
4. To determine the perception of students in the University of Ilorin towards the use of selected e-commerce sites in Nigeria.
5. To identify the challenges hindering the adoption of selected e-commerce sites in Nigeria, among students of the University of Ilorin, Kwara State, Nigeria.

Review of literature

Factors influencing the perception of e-commerce adoption

Several studies have been carried out in the literature on factors hindering the full exploitation of e-commerce services by users. Some of these studies are discussed below:

Mohammed (2014) explored the factors that affected the online shopping intention among young consumers. Results revealed that perceived usefulness, perceived risk and trust influenced customers' online shopping intention.

In the same vein, Maish, Punia, Rao and Dehradun (2014) also conducted an empirical study on factors influencing consumers' trust in e-Commerce. Results revealed that consumers would trust web vendor if their personal information was not abused. Another factor that could influence consumers' trust is lack of interruptions to their messages while performing the online transaction. This study found that dependability on online vendor is a critical factor in explaining consumers' trust to adopt e-commerce.

Sharman and Luiyan (2015) explored the factors affecting consumers' decision to shop online, and how the decision can be affected by product type. The results revealed that the availability of product information along with ease of use influenced consumer's decision to buy online.

Researchers have identified several other factors responsible for users' perception of the adoption of e-commerce as revealed in the literature. These are perceived usefulness, perceived ease of use, perceived trust, user satisfaction among others as explained briefly below (Adeyeye, 2008; Ajayi, 2008; Ayo, 2006; Adeshina & Ayo, 2010).

i) Perceived Usefulness: Perceived usefulness is associated with using e-commerce services based on the benefits derived from its usage (Wei et al., 2009). These benefits can promote users' willingness to adopt e-commerce. Therefore, perceived usefulness is a precursor to adopting e-commerce especially for first timers.

ii) Perceived Ease of Use: Perceived ease of use is a situation whereby the user believes that utilizing e-commerce services will be easy and would not impose any stress on them. A good e-commerce site must ensure that users perform transaction without consuming much time and effort. Therefore, e-commerce sites should be designed for simplicity and interactivity so that users will be able to search for items needed with the least effort.

iii) Perceived Trust: Trust is the bedrock of any relationship, therefore to ensure continuity of any online business transaction there must be trust between sellers and buyers. The degree of trust may affect users' behavior, attitude, and disposition towards the use of e-commerce services.

iv) User Satisfaction: User satisfaction can be achieved whenever there is availability, accessibility, trust, and perceived usefulness of an e-commerce site. Users' satisfaction is a determining factor to know if there will be a discontinuance in the usage of any e-commerce services (Rogers, 2003).

v) Poor Technological Infrastructures: E-commerce is driven by relevant infrastructures; however, when the required infrastructures are not in place or not functioning properly, e-commerce transactions cannot be completed in good time. This kind of situation discourages users who may be willing to transact at other times.

vi) Fear of Secured Online Environments: Users are no longer comfortable with the online environment due to its exposure to fraudsters. Fraudsters are improving on their illicit techniques and methods on a day-to-day basis to divert users' funds by capitalizing on their ignorance. Due to the high level of insecurity, users may sometimes be doubtful about the authenticity of some e-commerce sites.

vii) Ease of User Interface: The user interface plays an important role in the success of e-commerce based on the degree of dullness, attractiveness or ease of use. Therefore, easy-to-use interfaces of e-commerce sites can determine their level of adoption since customers can be attracted or dissuaded through the level of user-friendliness or interfaces on the e-commerce site. For instance, buyers reported dissatisfaction with e-commerce sites due to the absence of interface standard components (Purwati, 2011). It is therefore better, for e-commerce sites to be simple, attractive, and interactive so that users will be able to search for items effortlessly.

On the whole, users' perception of e-commerce, is hinged on these factors as revealed in the literature such as perceived usefulness, perceived risk, and perceived trust among others.

State of e-commerce adoption in Nigeria

No doubt, e-commerce is gradually gaining ground in Nigeria, and its popularity has increased tremendously due to the improved level of internet penetration. However, when compared to developed countries like United Kingdom and United States among others, we may want to conclude that e-commerce in Nigeria is still at its teething stage. Although, the level of patronage has improved overtime, there are numerous challenges confronting e-commerce in Nigeria. Researchers have identified several challenges that cut across e-commerce organizations in Nigeria, users and the business environment at large (Agbata, 2019; Rinchi, 2019; Agboke, 2018). These challenges are discussed briefly below:

i) Building Online Trust: This is one of the biggest challenges experienced by users of e-commerce. Due to several lapses in the course of transacting online businesses, users have experienced series of disappointment, thereby dissuading users and potential users from future transactions on e-commerce platforms.

ii) Product Delivery: This is also one of the biggest challenges of e-commerce providers in Nigeria. Delivery of goods or items purchased online by users are prone to several difficulties such as logistics, inability to locate customers' addresses, mixing up of items for another, inability to track orders if it takes a longer time to be delivered among others.

iii) Payment on Delivery: This has constituted a lot of problems for most e-commerce providers. Users of e-commerce sites may at times default by declining payment, cancelling orders while on transit, several overhead cost incurred by e-commerce providers in the course of delivering products purchased online.

iv) Poor Internet Connectivity: Users of e-commerce most at times experience internet connectivity problems at the point of transacting business online. As a result, they may not be able to complete their transactions online. This may discourage future use or patronage by users.

v) Low Quality of Products: Users of e-commerce sites may at times experience a mismatch between the goods that were delivered and those advertised online. This could be due to the low quality of goods delivered. These goods may at times not meet customers' expectations, which may also create a long-lasting impression on customers' minds, therefore leading to discontinuance in patronage.

vi) Retaining Customers: This is another prominent challenge of e-commerce due to a highly competitive environment for providers. Apart from this, customers experience untold difficulties in transacting online due to reasons such as network problems, delay in delivering purchased items, low quality of goods delivered among others. These factors may contribute to the low patronage of customers.

The above-identified challenges have led to many e-commerce organizations in Nigeria closing down or struggling to survive. The survival rate of most of these organizations is quite low due to the harsh business operating environment in a country like Nigeria. For instance, it was reported by Agbata (2019) that some e-commerce sites such as Efritin Gloo.ng, Careers24 closed down due to the inability to cope with the tough economic conditions experienced in their businesses.

Methodology

The methodology adopted for this study was a survey research design using the structured questionnaire to elicit responses from the respondents in the study area. This design was chosen because it allows a scientific selection of respondents based on a particular population.

Sample size and sampling technique

Simple random sampling was used in the selection of four out of fifteen faculties in the University of Ilorin. These faculties are Communication and Information Sciences (CIS), Faculty of Law, Faculty of Pharmacy, and Faculty of Management Sciences respectively. The population of study of the selected faculties totalled 5500. Simple random sampling was also used to select ten (10) out of twenty (20) e-commerce sites in Nigeria using the balloting method. The selected ten were the most commonly used e-commerce sites in Nigeria which are: Jumia, Konga, Olx, Jiji, Kaymu, Taafoo, Wakanow, Dealdey, Adibba, and Yudala. A purposive sampling technique was used in the selection of respondents for this study. Specifically, the researcher purposively selected students that patronize e-commerce sites regularly to avoid biases in responses. A total of 300 respondents were sampled for this study from the four faculties. Seventy-five students were purposively selected from each of the four faculties totalling three hundred students in all.

Instrumentation

A structured questionnaire was the main instrument for data collection. It was divided into six sections: Section A consisted of questions on the demographic data of the respondents; Section B contained a list of selected electronic commerce websites in Nigeria; Section C comprised questions relating to privacy violations experienced by users in the use of selected e-commerce sites; Section D majored on security concerns in the use of e-commerce sites in Nigeria; and Section E captured the problems encountered in the use of selected e-commerce sites; while Section F focused on users' perception on e-commerce sites in Nigeria. The questionnaire items were designed as a Likert scale type on a four-point scale ranging from Strongly Agree to Strongly Disagree.

Validity and reliability of research instruments

Face validity of the research instrument was established through experts in the field of study. The questionnaire items were proofread, corrected several times to ensure error-free items. Content reliability was also established to ensure the questionnaire items measured what it purported to measure. Cronbach Alpha reliability test was further tested on the self-designed scales. The reliability measures of these scales were well above .7 revealing a high-reliability coefficient.

Procedure for data collection

Field data was collected by the distribution of copies of the questionnaire to students in the selected faculties. A total of 300 copies of the

questionnaire were distributed to students, however, 297 were returned valid and analyzed for the study.

Method of data analysis

Descriptive statistics such as frequency, mean, and percentages were used in analyzing the collected field data.

Presentation of data and interpretation of results

The collected field data was analysed with aid of the Statistical Package for Social Sciences (SPSS) version 17.0. The results and their interpretations are presented in the below tables.

Table 1 shows the demographic attributes of respondents in the study area. In terms of gender, 140 (47.3%) of the respondents were males; while 156 (52.7%) of the respondents were females. This indicates that a greater proportion of the respondents were female. Under the age category, 36 (12.2%) of the respondents were 18 years and below, 148 (50.2%) were between 19-22 years, 98 (33.2%) were between 23-26 years, 12 (4.1%) were between 27-30 years, while 1 (0.3%) were 30 years and above. A greater proportion of the respondents were between the ages of 19-22 years. In terms of faculty of the respondents, 74 (24.9%) of respondent were from the Faculty of Communication Science, 74 (24.9%) from the Faculty of Law, 74 (24.9%) from the Faculty of Management Sciences, and 75 (25.2%) from the Faculty of Pharmacy. The majority of students were from Management Science.

Table 1. Demographic information of respondents

Demographic attributes	Frequency	Percentage
Gender		
Male	140	47.3
Female	156	52.7
Age		
18yrs and Below	36	12.2
19-22 yrs	148	50.2
23-26 yrs	98	33.2
27-30 yrs	12	4.1
Above 30 yrs	1	0.3
Faculty		
CIS	74	24.9
LAW	74	24.9
Pharmacy	74	24.9
Management Science	75	25.2

Table 2 shows the e-commerce sites commonly patronized in Nigeria in varying proportions. 180 (60.6%) of the respondents patronized Jumia, 145 (48.8%) Konga, 102 (34.3%) OLX, 103 (34.7%) Jiji, 37 (12.5%) Kaymu, 25 (8.4%) Taafoo, 39 (13.1%) Wakanow, 42 (14.1%) Dealdey, 44 (14.8%) Adibba and 49 (16.5%) Yudala. The four mostly patronized e-commerce sites by students were Jumia, OLX, Konga and Jiji, respectively. Their popularity can be adduced to the high level of advertisements of these e-commerce sites.

Table 2. E-commerce sites commonly patronized by students

E-commerce sites	Frequency	Percent
Jumia	180	60.6
Konga	145	48.8
OLX	102	34.3
Jiji	103	34.7
Kaymu	37	12.5
Taafoo	25	8.4
Wakanow	39	13.1
Dealdey	42	14.1
Adibba	44	14.8
Yudala	49	16.5

Table 3 shows users' privacy concerns on the use of selected e-commerce sites. 205 (69%) respondents agreed that they received the news via email about products and services from e-commerce sites without their consent. Also, 190 (64%) agreed that they received the news via Short Message Service (SMS) about products & services without subscribing to it. On the contrary, 210 (70.7%) of the respondents disagreed that e-commerce sites violated their personal identifiable information (PII). 208 (70%) disagreed with the fact that they have ever provided false information because of privacy concerns. In addition, 149 (50.1%) respondents disagreed that they noticed that e-commerce sites use web cookies for tracking their details while 148 (49.9%) agreed that they have noticed it.

On the whole, this result depicts divergent opinions by users on privacy concerns on the use of e-commerce sites. The majority (69%) agreed that they received information on products and services from e-commerce sites via emails and SMS; while the majority (70.7%) disagreed that their PII was often violated by e-commerce sites. In essence, privacy violations experienced by users were mostly based on receiving information about products and services without subscribing to them. However, the PII of users was not abused but rather upheld in the use of the selected e-commerce sites.

Table 3. Students' privacy concerns on the use of e-commerce sites in Nigeria

Privacy concern on the use of e-commerce sites in Nigeria	SA	A	D	SD
	Freq (%)	Freq (%)	Freq (%)	Freq (%)
At times, I receive news via e-mail about products and services from e-commerce sites without actually subscribing to it.	90(30.3)	115(38.7)	67(22.6)	25(8.4)
I do not shop online because of the violation of my personal identifiable information.	20(6.7)	67(22.6)	159(53.5)	51(17.2)
At times, I receive news via SMS about products and services from e-commerce sites without actually subscribing to it.	60(20.2)	130(43.8)	75(25.3)	32(10.8)
I provide false/incorrect information online because of my privacy concern.	24(8.1)	65(21.9)	143(48.1)	65(21.9)
I notice that e-commerce sites uses web cookies for tracking my personal details.	38(12.9)	110(37.00)	113(38.0)	36(12.1)

Table 4 shows security concerns of respondents in the study area. Majority of the respondents, 192 (64.6%) agreed that they rarely change their username and password. 150 (50.5%) disagreed that they give out their ATM card details including their PIN to friends. In addition, 156 (52.6%) respondents agreed that they use friends or family credit/debit cards to make transactions. Furthermore, 158 (53.2%) respondents agreed they rarely clear their device cookies or histories after making transactions online. 154 (51.8%) agreed that they use public networks such as Cyber-Cafe or wireless hotspot to make transactions online. 171 (57.6%) disagreed that they used their friend's devices to purchase an item on e-commerce sites. 154 (51.8%) respondents agreed they rarely read security policies on e-commerce sites before purchase. Lastly, 190 (64%) agreed that they always log out after finishing with their online transactions.

Table 4. Security awareness of users e-commerce sites

Security awareness in the use of e- commerce sites	SA	A	D	SD
	Freq (%)	Freq (%)	Freq (%)	Freq (%)
I rarely change my username and password	83 (27.9)	109 (36.7)	75 (25.3)	30 (10.1)
At times, I give out my ATM card details including my PIN to friends	44 (14.8)	103 (34.7)	86 (29.0)	64 (21.5)
At times, I use friends or family members' credit/debit card to make transactions	37 (12.5)	119 (40.1)	98 (33.0)	43(14.5)
I rarely clear my device cookies or histories after making transactions online	47 (15.8)	111 (37.4)	102 (34.3)	37 (12.5)
At times, I use public networks such as Cyber Cafe or wireless hotspot to make transactions online	52 (17.5)	102 (34.3)	89 (30.0)	54 (18.2)
At times, I used my friends' devices to purchase an item on e- commerce sites.	30 (10.1)	96 (32.3)	115 (38.7)	56 (18.9)
I rarely read security policies on e- commerce sites before purchase.	50 (16.8)	104 (35.0)	95 (32.0)	48 (16.2)
I always logout after finishing with my transaction online.	76 (25.6)	114 (38.4)	63(21.2)	44 (14.8)

On the whole, the security awareness in the use of e-commerce sites was minimal among students as shown in Table 4.

Table 5 reveals users' perception of e-commerce sites. The majority of the respondents; 153 (51.5%) respondents agreed that e-commerce sites are not secure. 201 (67.7%) disagreed that e-commerce sites are not user-friendly, 154 (51.8%) respondents agreed that e-commerce sites can easily be hacked.

201 (67.7%) agreed that e-commerce sites have security policies but are not often read by users. 153 (53.2%) agreed that no laws are regulating the use of customers' information on e-commerce sites and 155 (52.2%) respondents agreed that e-commerce sites in Nigeria are of international standard.

Table 5. Users' perception of selected e-commerce sites

Users perception	SA	A	D	SD
	Freq (%)	Freq (%)	Freq (%)	Freq (%)
E-commerce sites are not secured	24 (8.1)	129 (43.4)	107 (36.0)	37 (12.5)
E-commerce sites are not user friendly	19 (6.4)	77 (25.9)	164 (55.2)	37 (12.5)
E-commerce sites can easily be hacked	36 (12.1)	118 (39.7)	114 (38.4)	29 (9.8)
E-commerce sites have security policies but are not often read by users	75 (25.3)	126 (42.4)	75 (23.3)	21 (7.0)
E-commerce sites lack user education	38 (12.8)	99 (33.3)	131 (44.1)	29 (9.8)
No laws are regulating the use of customers' information on e-commerce sites	38 (12.8)	120 (40.4)	111 (37.4)	28 (9.4)
E-commerce sites in Nigeria are of international standard	26 (8.8)	129 (43.4)	97 (32.7)	45 (15.2)

On the whole, the majority of the respondents agreed on the following: e-commerce sites are insecure platforms; although, they are of international standard, e-commerce sites can easily be hacked, no laws are regulating the use of customer's information on e-commerce sites. On the contrary, the majority of the users disagreed that e-commerce sites are not user-friendly platforms. In other words, they found e-commerce sites to be user-friendly, which could be based on their attractiveness or the ease of navigating on those sites.

Table 6 reveals the various challenges users encountered in the use of e-commerce sites. For instance, 173 (58.3%) respondents agreed that they encounter internet connectivity problems. On the contrary, 165 (55.6%) respondents disagreed they do not buy items online because they want to feel or touch the product before purchasing it, 198 (66.7%) respondents disagreed that they do not patronize e-commerce sites because of delay in receiving goods. Also, 202 (68%) respondents disagreed that they were charged twice for a single item bought on an e-commerce site, 163 (54.9%) respondents disagreed that they were unable to return an item purchased from an e-commerce site. 185 (62.3%) respondents disagreed that they were not refunded after returning a purchased item. 190 (64%) respondents disagreed that whenever they ordered for a particular product, e-commerce sites delivered a different product, 181 (60.9%) respondents disagreed that they cannot track their order from the e-commerce site before the delivery of the item purchased. Also, 199 (67%) respondents disagreed that they do not buy on e-commerce sites because they do not trust them and 171 (57.6%) respondents disagreed that e-commerce sites are prone to credit card fraud therefore they don't order items on any e-commerce site while 175 (59%) respondents disagreed that they don't patronize any e-commerce site because of the added fee for delivery charges.

Table 6. Challenges encountered in the use of selected e-commerce sites in Nigeria

Challenges	SA	A	D	SD
	Freq(%)	Freq(%)	Freq(%)	Freq(%)
Whenever I access e-commerce sites, I encounter internet connectivity problems.	40(13.5)	133(44.8)	95(32.0)	29(9.8)
I do not buy items online because I want to feel or touch the product before purchasing it.	43(14.5)	89(30.0)	138(46.5)	27(9.1)
I do not patronize e-commerce sites because of delays in receiving goods.	29(9.8)	70(23.6)	158(53.2)	40(13.5)
I was charged twice for a single item bought on an e-commerce site.	29(9.8)	66(22.2)	136(45.8)	66(22.2)

Challenges	SA	A	D	SD
	Freq(%)	Freq(%)	Freq(%)	Freq(%)
I was unable to return an item purchased from an e-commerce site.	42(14.1)	92(31.0)	109(36.7)	54(18.2)
I was not refunded after returning a purchased item.	31(10.4)	81(27.3)	129(43.4)	56(18.9)
When I ordered for a particular product, the e-commerce site delivered a different product.	26(8.8)	81(27.3)	135(45.5)	55(18.5)
I cannot track my order from the e-commerce site before the delivery of the item purchased.	30(10.1)	86(29.0)	128(43.1)	53(17.8)
I do not buy on e-commerce site because I do not trust them.	33(11.1)	65(21.9)	157(52.9)	42(14.1)
E-commerce sites are prone to credit card fraud therefore I don't order items on any e-commerce site.	42(14.1)	84(28.3)	125(42.1)	46(15.5)
I don't patronize any e-commerce site because of the added fee for delivery charges.	26(8.8)	96(32.3)	124(41.8)	51(17.2)

Based on the above results, the majority of the respondents disagreed with some challenges that might likely occur in the use of e-commerce sites.

Discussion of findings

The findings of this study are discussed in line with the objectives earlier stated and extant literature.

The first objective was to determine the frequency of usage of e-commerce sites among students of the University of Ilorin, Kwara state. Findings revealed that out of the selected e-commerce sites in Nigeria, Jumia, Konga, OLX, and Jiji was mostly patronized with Jumia having the highest number of patronizers. The popularity of these e-commerce sites among students might have accounted for the high level of patronage.

The second objective was to determine users' privacy concerns on selected e-commerce sites. Findings revealed that some users' privacy/ rights were upheld, while others were violated in the use of selected

e-commerce sites in Nigeria. For instance, users agreed to the fact that they received news about products and services from e-commerce sites without actually subscribing to it. It was also revealed that almost half of the respondents noticed that e-commerce sites use web cookies for tracking their details. However, this supports Folorunso, Awe, Sharma, Sushil and Zhang (2006) who identified privacy issues as one of the factors affecting the adoption of e-commerce in Nigeria. The findings of also in line with Chung and Paynter (2002) which affirmed that privacy concern is a serious issue in electronic commerce because the internet has allowed the collection of a vast amount of PII without consumer's consent.

The third objective was to determine users' level of security awareness in the use of selected e-commerce sites in Nigeria. The result further revealed that most e-commerce users are not very security conscious; therefore, their level of security awareness can be said to be relatively low. For instance, the majority of the e-commerce users (64.6%) mentioned that they rarely change their usernames and password. Also, 51.8% of respondents use public networks such as Cyber-Cafe or wireless hotspot to make transactions online; also most users rarely read security policies on e-commerce sites before purchase. These are pointers to the fact that security awareness on the use of e-commerce sites was relatively low amongst users of selected e-commerce sites in Nigeria.

The fourth objective was to find out users' perceptions towards the use of selected e-commerce sites in Nigeria. Findings revealed diverse opinions of users on the use of some selected e-commerce sites in Nigeria. For instance, respondents in the study locale perceived e-commerce sites as insecure, easily hacked; no laws regulating the use of customer's information on e-commerce sites. However, the majority of the students also perceived e-commerce sites as user-friendly platforms, and of international standard. This supports Huei (2004) who pinpointed that perceived usefulness, perceived ease of use, perceived risk, and cost are factors that can influence the adoption of e-commerce.

Lastly, the fifth objective was to find out the challenges users encounter in the use of selected e-commerce sites in Nigeria. Findings revealed various challenges students encountered in the use of selected e-commerce sites in Nigeria. The major challenges faced by users of e-commerce sites in the study locale are: Internet connectivity problem, inability to return an item purchased from e-commerce sites, additional delivery charges, and lack of feel or touch of products before purchases. These findings concur with past literature on the challenges of

e-commerce in the Nigerian environment (Agbata, 2019; Rinchi, 2019; Agboke, 2018).

Conclusion

This study has provided valuable insight into users' perception of e-commerce sites in Nigeria. It has clearly shown that users' perceptions of e-commerce sites in Nigeria are divergent, based on varying experiences in the use of e-commerce sites. Again, students identified challenges hinged on security vulnerabilities such as credit card fraud, and identity theft among others. Other challenges identified were internet connectivity problems, inability to return an item purchased from e-commerce sites, additional delivery charges, and lack of feel or touch of products before making purchases. Despite these challenges, the study has shown a relatively high preference for e-commerce adoption among students of the University of Ilorin, Kwara State, Nigeria.

Recommendation

Based on the findings of this study, the following recommendations were made towards improving the adoption and patronage of e-commerce sites in Nigeria.

- i) Users should not be allowed to perform transactions of any type without agreeing to the policy statement on various e-commerce sites. This would enable users to familiarize themselves with the privacy and security policies on Nigerian e-commerce sites.
- ii) Government should provide an independent regulatory body to coordinate the activities of e-commerce sites, as this would enhance users' confidence in the use of the sites.
- iii) E-commerce sites need to collaborate with Internet Service Providers to boost users' confidence in reliable and consistent internet connectivity.
- iv) E-commerce sites should ensure that stronger security measures are being implemented to earn users' trust. This would enable users to feel secure in transacting on e-commerce sites without fear or prejudice.
- v) E-commerce sites should engage in users' education programs to familiarize users with the security and usage policies of the various sites, and most importantly to prevent security vulnerabilities.
- vi) Government should establish a legal framework that could help to curb or mitigate fraud activities on e-commerce sites to safeguard and prevent misuse of users' personal identifiable information.

Limitation of the study

One of the limitations of this study is that users were majorly students, leaving out other categories of users of e-commerce sites. Another limitation is the sample size of this study which is relatively small compared to the number of users of e-commerce. In view of this, findings from this study cannot be generalized to the generality of users of e-commerce.

Ethical considerations

The authors have completely considered ethical issues, including informed consent, plagiarism, data fabrication, misconduct, and/or falsification, double publication and/or redundancy, submission, etc.

Conflicts of interests

The authors declare that there is no conflict of interests.

Data availability

The dataset generated and analyzed during the current study is available from the corresponding author on reasonable request.

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