

(REVIEW ARTICLE)



## Impact of AI chatbots on youth consumer behavior in e-commerce: Evidence from southwest, Nigeria

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### Abstract

This study examines the impact of AI Chatbots on youth consumer behavior in the dynamic sector of e-commerce, focusing specifically on Southwest Nigeria. The research investigates the prevalence, influence, and effectiveness of AI Chatbots in shaping purchasing decisions and overall consumer behavior among Nigerian youth. Specifically, the objectives are to determine the prevalence and usage patterns of AI Chatbots in Nigerian e-commerce platforms among youth consumers; assess the influence of AI Chatbots on the purchasing decisions and shopping experiences of Nigerian youth; and identify factors contributing to the effectiveness of AI Chatbots in shaping consumer behavior among Nigerian youth. Results showed that there was an equal distribution of males (50%) and females (50%) in the study area. It was also revealed that the majority of the respondents had completed their first degree and were employed. It was concluded that socio-demographic factors such as age and years of education significantly influence the decision to adopt AI chatbots for online purchases, furthermore, web-based factors like online literacy and data usage significantly affect the intensity of AI chatbot use, emphasizing the importance of digital skills and accessibility to data in driving adoption. The study recommended that educational institutions should incorporate digital literacy programs into their curriculum to empower youths. Efforts should be made to address perceived financial and product risks associated with online purchases to instil consumer confidence and promote widespread adoption of AI chatbots. User interface design should prioritize simplicity and convenience to facilitate easy adoption among youths

**Keywords:** AI Chatbots; Youth Consumer Behavior; E-commerce; Southwest Nigeria; Impact; Prevalence; Influence; Effectiveness

### 1. Introduction

E-commerce is growing along with the increasing demographics of youth in the world and Nigeria in particular. These online platforms are integrating the use of artificial technologies in the operations of online shopping or e-commerce. One of these AI technologies being adopted in e-commerce is the AI-powered chatbots that have constituted themselves as a significant force shaping consumer behavior. It is a view assessing the activities of the technologies that this study is attempting to explore the impact of AI Chatbots on the consumer behavior of youth in e-commerce in Nigeria.

Specific emphasis is being laid on the Southwest region of Nigeria due to several reasons. This region houses very economically and socially active urban centers such as Lagos and Ibadan (Raji, et.al 2020). The area represents a

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dynamic hub of economic activity and technological advancement. With a burgeoning youth population, a large concentration of industries, a high per capita income relative to another part of the country as well as increasing digital literacy and a growing inclination towards online shopping (Oke and Ramachandran, 2021). It is upon this burden of proof that understanding the influence of AI Chatbots on consumer behavior becomes imperative for both businesses and researchers alike.

As AI Chatbots become ubiquitous features in e-commerce platforms, they serve as virtual assistants, providing personalized recommendations, assisting in product inquiries, and facilitating seamless transactions. However, the extent to which these AI-driven interactions impact the decision-making processes and shopping experiences of young consumers remains a topic of scholarly inquiry (Raji et.al, 2024).

Understanding how AI Chatbots influence youth consumer behavior in Southwest Nigeria not only provides practical implications for e-commerce businesses seeking to enhance customer engagement strategies but also sheds light on the evolving dynamics of technology adoption and its impact on consumer preferences in developing economies (Oke *et al.*, 2023). Hence this study has the following specific objectives to determine the prevalence and usage patterns of AI Chatbots in Nigerian e-commerce platforms among youth consumers; to assess the influence of AI Chatbots on the purchasing decisions and shopping experiences of Nigerian youth; and to identify factors contributing to the effectiveness of AI Chatbots in shaping consumer behavior among Nigerian youth.

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## 2. Literature review

### 2.1 E-commerce

The process of purchasing, selling, transferring, or exchanging goods, services, and/or information via computer networks, primarily the Internet, is referred to as e-commerce (Turban *et al.*, 2004). According to Zwass (2003), e-commerce can also be described as the exchange of business data, upholding business connections, and carrying out business transactions over communication networks. E-commerce has a broader definition and involves more than just setting up websites and businesses. It involves approaching business from a completely different perspective and utilising a medium that questions the fundamental tenets of conventional business practices. To provide clients with satisfactory service, e-commerce relies heavily on the seamless integration of technology and company management strategies (Agbata, 2016).

Some scholars argued that new technology had a significant impact on how well organisations performed (Saheed et. al, 2022). One of the main drivers of Nigeria's economic growth is e-commerce. E-merchandising, or the electronic sale of products and services, and e-finance, or online financial services and transactions, are the two areas into which e-commerce can be divided. However, there are four main steps in a typical e-commerce transaction: the consumer searches the many e-commerce sites accessible, places an order, pays online for the goods and services, and then waits for the things to be delivered. However, at some time during or along the key stages of the e-commerce transactions, some additional stages, such as complaints, returns of goods, etc., may arise (Niranjanamurthy and Chahar, 2013).

On the growth of e-commerce in the Nigerian community, many steps have been taken for its promotion, but there is still a lot to be done to make it operate well in the country. Some of the major steps taken by the government include legislative efforts to ensure that communication companies operate easily by providing the necessary interconnectivity required for e-commerce to fully take root and Win projects among others (Punchng.com, 2016, Oke and Ramachandran, 2021).

### 2.2 Youth and e-commerce

Recently, Nigeria has started experiencing the emergence of robust and articulated EC sites such as Konga, Jumia, Jiji, Yudala, Amazon etc. that have helped in creating a platform for the advancement of Information Technology (IT) in the country and thereby creating employment opportunities and adding a huge boost to the economy of the country (Ojedokun., 2019; Raji et.al, 2024). Some of the traditional store owners are upgrading to online shopping platforms thereby affording millions of Internet users in Nigeria the opportunity to perform online shopping and access business services (Oke and Ramachandran, 2021). However, judging by the overestimated 200 million Nigerians predominantly dominated by young people (youths), the adoption rate of EC is expected to increase in proportionate order with the population explosion.

A report revealed that Nigeria's EC sector was estimated in 2018 to be worth US\$13 billion (Divakaran *et al.*, 2018). However, due to the fall of oil prices in the global market, the economy of the country has been contracting thereby

impeding greatly the EC business. It is not an understatement that EC has become very popular in Nigeria especially among the youth, making Nigeria a leading hub of EC domain in Africa (Abada and Ngwu., 2019). The EC sector in Nigeria relies heavily on the consumer's consumption for survival and higher income. Products like electronics, fashion, and groceries are some of the most popular EC-based products consumed in Nigeria and are mostly the demands of young people in the country. The EC payment system has also been upgraded in Nigeria, whereby before now, cash on delivery was used as the most popular payment system among Nigerian EC users, but now, many stores do not trade with such a payment system again. Rather, they have opted for other options like the webcard and Paypal mostly used for international online purchases.

The Nigerian government has been paying good attention to the EC business in recent years through the enactment of the Cybercrime Law 2015 which aims at prohibiting and preventing Internet fraud in the country (Oni *et al.*, 2019). The Economic and Financial Crimes Commission (EFCC), as an agency of the government, is charged with the task of curbing financial crimes and Internet fraud. EFCC has had its fair share of leading the war against Internet fraudsters popularly known in the country as "Yahoo Boys". It is based on this background, therefore, that EC providers in Nigeria should endeavour to consider all the aforementioned issues to be able to create an EC environment that would increase trust and security and further build customer loyalty and intention.

### **2.3 Prevalence of AI Chatbots in E-commerce**

Nigeria's e-commerce industry is expected to grow at a quick rate and reach US\$7,627 million in revenue by the end of 2023, ranking it 39th in the world. A compound annual growth rate (2023–2027) of 11.3% is anticipated to propel the market to a volume of US\$11,707 million by 2027, according to a study.

Nigeria's e-commerce economy has grown due to increased internet access and mobile phone ownership. However, despite the coronavirus pandemic's boost, eCommerce in Nigeria faces several challenges, including inadequate logistics infrastructure, limited payment options, high shipping costs, and low consumer trust. Nigeria has seen a growth in the number of online traders that lure users to visit their websites and persuade them to search for goods, window shop, compare prices, and then buy the items (Ayo *et al.*, 2007; Gabriel *et al.*, 2016; Omotayo & Omotope, 2018). According to previous studies, Nigeria generates over 1 billion naira in internet sales each month, with over 500 orders every day. Currently, client loyalty is dependent on the marketer's consistency in giving quality, value, and satisfaction (Olasanmi, 2019).

Nigeria was reported as Africa's fastest-growing nation in the context of telecommunication. Compared to 2006, internet users in 2009 grew from 3.1 per cent of the total population to 16.1 per cent. Nigeria has one of the biggest internet economies in Africa. With the continent's largest population and one of the youngest worldwide, Nigeria presents a vast digital audience. Nigeria has one of the best network coverages, as well as good infrastructure for mobile connectivity in Africa. Internet penetration is around 55 per cent and is projected to increase steadily. Estimates from different sources put the number of smartphone users in Nigeria at roughly 25 and 40 million. Mobile devices are much more frequently used to access the internet than desktop devices. In 2020, over 84 per cent of internet access was recorded on mobile devices, whereas this share was even higher when it came to online marketplace visits.

The adoption of EC in each country varies based on the infrastructure and readiness of the users. In developing countries like Nigeria, the obstacles against the adoption of EC technology differ from those in developed countries because Information and Communications Technology (ICT) grows tremendously in developed countries as compared to those of developing countries that are still battling with the affordability of Internet connectivity. Nigeria being the leading country is followed by Kenya and South Africa respectively. Even though several obstacles deter Nigerians from purchasing online, allowing them to favour the traditional method, Even if at a modest pace, the virtual space is taking over.

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## **3. Research methodology**

### **3.1 Method of Data Collection**

This research employed a correlational research design. The respondents for this study include two hundred, and six hundred (206) students who were selected through a process of stratified random sampling from Universities from Lagos and Oyo States.

### 3.2 Area of Study

The study was conducted in the South-West of Nigeria, with a focus on Lagos and Oyo states due to the number of businesses, and the abundance of young people that are eager for production.

### 3.3 Source of data and method of data collection:

The study made use of primary data sourced with the use of a well-structured questionnaire. They were administered both manually, using paper and pen, and via the use of Google Forms for ease and maximum reach. The questionnaire consists of two segments, Section A – Socio-economic characteristics, and Section B – consumer behaviour and AI chatbot use.

### 3.4 Sample technique and size

A simple random technique was used to collect data used for the study. A total of 320 respondents were sampled and their responses were analysed with the use of MS Excel and IBM SPSS 25.

### 3.5 Data analytical technique

Descriptive statistics such as percentages, mean and frequencies were employed to determine the socio-economic characteristics of the sampled respondents. Inferential statistics was also used.

## 4. Results and discussions

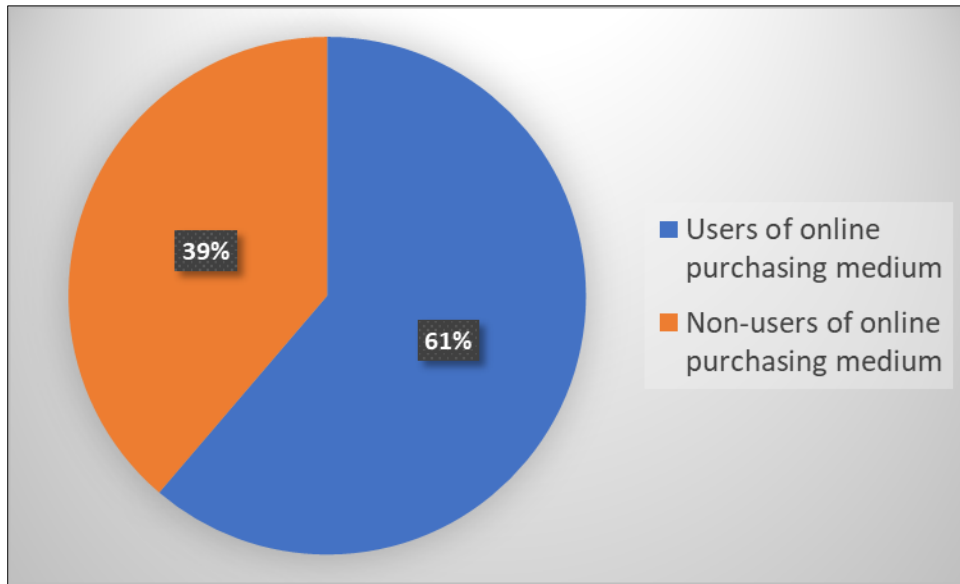
Table 1 revealed the socioeconomic characteristics of respondents. It was revealed that there was an equal distribution of respondents in the study area. The majority of respondents were within the age range of 21-35, with the mean age being 29.5. it was also revealed that the majority (36.25%). The mean income of the respondents was ₦69,750.42, with a standard deviation of ₦15,245.50. It was also revealed that the majority (48.93%) of the respondents had completed their first-degree education. The mean frequency of online shopping is 2.41 times, with a standard deviation of 1.16. This indicates that, on average, respondents engage in online shopping a few times a month. This is consistent with the reports of Nwankwo *et al.*, (2019).

**Table 1** Socio-economic characteristics of Respondents

Variable	Frequency	Percentage
<b>Gender</b>		
Female	160	50.0
Male	160	50.0
Total	320	100.0
<b>Age</b>		
≤20	60	18.75
21 – 25	72	22.5
26 – 30	52	16.25
31 – 35	68	21.25
36 – 40	34	10.62
41 – 45	22	6.88
46 – 50	12	3.75
Total	320	100
Mean	29.5	
SD	10.63	
<b>Primary occupation</b>		

Student	89	27.81
Employed	116	36.25
Self-employed	68	21.25
Unemployed	47	14.69
Total	320	100
<b>Annual average income</b>		
≤20000.00	40	12.5
20001.00 - 40000.00	82	25.5
40001.00 - 60000.00	97	30.3
60001.00 - 80000.00	30	9.5
80001.00 - 100000.00	25	7.7
≥100001.00	46	14.5
Total	320	100
Mean	69,750.42	
Std. Dev.	15,245.50	
<b>Educational level</b>		
Vocational	5	1.71
Primary	6	1.97
Secondary	18	5.63
Undergraduate	64	19.97
University (1st degree completed)	157	48.93
Postgraduate	70	21.79
Total	320	100
<b>Freq of online shopping</b>		
≤2	53	27.04
3 - 5	54	27.55
6 - 8	32	16.33
9 - 11	38	19.39
12 - 14	12	6.12
≥15	7	3.57
Total	196	100
Mean	2.41	
Std. Dev.	1.16	

The figure below shows the online purchasing mechanism typology. The result showed that the majority (61%) of the respondents were users of online purchasing mediums.



**Figure 1** Online purchasing medium typology

Table 2 shows the responses of respondents based on the prevalence and usage patterns of AI chatbots. The result showed that the majority (94.37%) of the respondents have encountered AI chatbots. This indicated that there is a high level of familiarity with AI chatbots among youths in the study area. AI chatbots were occasionally used by youths. They make use of online platforms regularly but not daily. The majority (52.19%) of the youth in the study area had frequent interaction with AI chatbots while shopping online. Online Jumia (30.3%) and Konga (25.5%) were the most popular online shopping platforms in the study area. Nkwo *et al.*, 2018 made a similar report

**4.1 Prevalence and Usage Patterns of AI Chatbots**

**Table 2** Prevalence and Usage Patterns of AI Chatbots

Variable	Frequency	Percentage
<b>Ever encountered an AI Chatbot</b>		
Yes	302	94.37
No	18	5.63
Total	320	100
<b>The frequency of online platform use</b>		
Daily	49	15.3125
Weekly	61	19.0625
Monthly	67	20.9375
Occasionally	85	26.5625
Rarely	58	18.125
Total	320	100
<b>The frequency of online platform use</b>		
Daily	21	10.71428571
Weekly	46	23.46938776
Monthly	38	19.3877551
Occasionally	61	31.12244898

Rarely	30	15.30612245
Total	196	100
<b>Frequency of interaction with AI Chatbots while Shopping online</b>		
Very frequently	63	19.69
Frequently	104	32.5
Occasionally	66	20.63
Rarely	69	21.56
Never	18	5.62
Total	320	100
<b>Online shopping platforms with chatbots</b>		
<i>Jumia</i>	97	30.3
<i>Slot. ng</i>	30	9.5
<i>Assetpharmacy</i>	25	7.7
<i>Konga</i>	82	25.5
<i>Jiji</i>	40	12.5
<i>OLX</i>	46	14.5
Total	320	100

Table 3 shows the responses of respondents based on the influence of AI chatbots on purchasing decisions and shopping experiences. The result showed that the majority (35.94%) of the respondents agreed that AI chatbots have some influence on their consumer decisions. Also, 209 respondents (65.31%) reported that they had made a purchase based on a chatbot recommendation. This indicates a high level of trust or reliance on chatbot recommendations in the purchasing process among the respondents.

**Table 3** Influence on Purchasing Decisions and Shopping Experiences

Variable	Frequency	Percentage
Ways that AI Chatbots influence consumer decisions		
Yes significant	83	25.94
Yes Somewhat	115	35.94
No not really	65	20.31
I'm not sure	57	17.81
Total	320	100
Purchase based on chatbot recommendation		
Yes	209	65.3125
No	111	34.6875
Total	320	100

## 4.2 Regression

**Table 4** Regression

Variable	Coefficient	Standard error	t-Statistic	Prob.
AGE	0.005**	0.021	0.018	0.002
YEAREDU	0.002	0.865	0.002	0.014
EXPERIENCE	0.182**	0.027	0.021	0.131
OFFINCOME	0.613	0.036	0.014	0.714
PERCFINRISK	-0.046**	0.001	0.311	0.012
PERCPRDRISK	-0.255***	0.000	0.218	0.054
ONLINELIT	0.008**	0.032	0.112	0.004
YRINTERNET	0.013	0.002	0.133	0.030
MYINFOMIS	-0.112**	0.213	0.222	0.054
CHTBOTUSE	0.206**	0.002	0.017	0.045

Table 3 shows the summary statistics for various variables used in estimating the decisions to adopt and the intensity of adoption of AI chatbots for online purchases among respondents. The result revealed that the mean value of sex of respondents was 0.50 which suggested an equal representation of males and females in the study area. The average age of respondents was 29.5 years, with a standard deviation of 10.63. On average, respondents had 4.44 years of formal education. The mean income of respondents was ₦69,750.42 with a standard deviation of ₦15,245.50. Respondents had an average of 7.2 online purchasing experiences per month, with a standard deviation of 2.06. On average, 71% of respondents perceive financial risk in online purchases. The mean value of 0.69 indicates that a majority of respondents perceive product risk in online purchases. The result also revealed that the majority (81%) of the respondents perceived online shopping as convenient. It was also revealed that 33% of respondents have online literacy. The average number of years on the internet is 9.9, indicating a relatively experienced user base. On average, 92% of respondents own browsing devices. Also, respondents spend an average of ₦1,150 on data monthly. Most (41%) of the respondents perceive their information to be secure online.

## 5. Conclusion

This study concluded that there are significant factors influencing both the decision to adopt AI chatbots for online purchases and the intensity of their use among youths in Nigeria. Specifically, factors such as age, and years of formal education, significantly impact both adoption and usage intensity. Furthermore, web-based factors like online literacy and the amount of data used also play crucial roles in determining the intensity of AI chatbot use.

### *Recommendations*

The study recommended that educational institutions should incorporate digital literacy programs into their curriculum to empower youths with the necessary skills to navigate and utilize AI-powered technologies effectively. Concerned stakeholders should concentrate on addressing perceived financial and product risks associated with online purchases to instil consumer confidence and promote widespread adoption of AI chatbots. User interface design should prioritize simplicity and convenience to facilitate easy adoption among youths. Efforts should be made to make data packages more affordable for youths which could improve accessibility to AI chatbots, thereby promoting their intensive use for online purchases. Also, robust measures must be put in place to protect user privacy and data security is essential to build trust and encourage sustained engagement with AI chatbots.

## Compliance with ethical standards

### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.



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