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Research Paper

Effects of Advertising, Online Risk, Perceived Usefulness, and Reliability on Online Shopping Behavior

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ABSTRACT

In recent times, online shopping has emerged as a complex activity globally. However, trust has always been a critical issue in online shopping. Although online shopping has become progressively common, research into the factors affecting consumer behavior has attracted less attention, particularly in Nigeria. Therefore, this research examines the effects of advertising, online risk, perceived usefulness, and reliability on online shopping behavior among subscribers of online stores in the Nigerian context. This research adopted a quantitative approach in which a structured questionnaire was used to collect data. The respondents consist of 375 subscribers of online stores who had prior online shopping experiences from an online store based in Nigeria. The study used Smart-PLS for data analysis. The findings revealed that advertising and perceived usefulness have a significant positive effect on online shopping behavior. On the other hand, online risk has a negative effect on online shopping behavior. Additionally, there is a positive relationship between reliability and online shopping behavior. This research could be a valuable guideline for online firms to make informed decisions on how to increase online sales. Additionally, this research could advance online shoppers' knowledge, particularly Nigerians, regarding online shopping.

Keywords: Advertising, online risk, online shopping, reliability, shopping behavior

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1. INTRODUCTION

Advances in technology are critical in raising the penetration and performance of online shopping stores (L. Zhou, Dai, & Zhang, 2007). Internet applications offer online retailers the ability to transcend size and customer penetration restrictions and compete more efficiently with big, conventional retail businesses (Schilling & Shankar, 2019) if strategically used (Chesbrough, 2011). The internet strengthens the potential of online retail firms to engage as a strategic weapon with other businesses globally, provides the ability and chance for additional diverse individuals to start a business, and offers an easy way to make business transactions without being controlled to certain hours of operation (Gielens & Steenkamp, 2019; Melović, Jocić, Dabić, Vulić, & Dudic, 2020). Online shop is attractive to businesses because it upsurges profits. Advertising well done on the internet will bring the promotional message of such a new business to prospective buyers in any country in the world (Gupta & Singh, 2020). In addition to trading products and services, online shops often establish a partnership between customers and businesses (Alkhamery, Zainol, & Al-Nashmi, 2021; Broekhuizen, Bakker, & Postma, 2018; Chan & Astari, 2017).

Moreover, online businesses use the internet for advertising their goods, thereby promoting online shopping behavior. Online retailers advertise and offer their goods on beautifully crafted websites that allow shoppers to make windows shopping, search products, compare costs, order, drop products in the cart, pay and deliver products at their doorsteps. (Draper, 2019). Online shopping represents a rapidly growing phenomenon, but trust has always been a critical issue in the online shopping environment (Siyal, Siyal, Wu, Pal, & Memon, 2021; Tang et al., 2021). In this regard, Habib and Hamadneh (2021) mentioned that “as the number of online frauds and concerns toward privacy and safety have increased, online platforms must explore ways to gain customer confidence and trust” (p. 13). According to T. Zhou (2022), consumers may have an unfortunate experience in the online shopping environment due to perceived uncertainty.

According to Matsui and Moriwaki (2022), there is still inadequate knowledge about customers' shopping behavior. In Nigeria, online shopping has become progressively common (Usman, Kumar, & Ibrahim, 2019), particularly among middle-income earners, elites, technocrats, and students (Adamkolo, Hassan, & Pate, 2018; Ibrahim, Hassan, & Yusuf, 2019). Despite the growth of online shopping in the country, research into the factors affecting consumer behavior has attracted less attention (Veiga & Diogo, 2022). In light of this, the current study examines the effects of advertising, online risk, perceived usefulness, and reliability on online shopping behavior among subscribers of online stores in the Nigerian context. The first section of this paper discusses the perceived relationship among the factors affecting online shopping behavior. Whereas, the second section explains the methodological approach adopted in this research, followed by results and conclusion in the subsequent sections.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Advertising and online shopping behavior

Online shopping is a single, homogenous activity, selling goods and services through the internet (Shafiee and Bazargan (2018) Ladhari, Gonthier, and Lajante (2019). According to Choi, Chung, and Young (2019), online shopping promotes online retailers before the transactional buying and logistics process. Online shopping is an electronic transaction system used by consumers in the background of business-to-consumer or business-to-business (Jaiswal, Niraj, Park, & Agarwal, 2018). This illustrates that online shopping involves websites for retailers in which shopping is carried out in a simulated world without physical interaction between sellers and customers.

Rahi, Yasin, and Alnaser (2017) posited that online businesses must plan and encourage user-friendly websites to attract and maintain users. Besides, they must ensure that customers value their cash, particularly for average and large online shops. The principal purpose of online shopping is to offer consumers a forum to share products and services with retailers. Lin, Featherman, Brooks, and Hajli (2019) defined online shopping behavior as exploring, looking for, surfing for, or viewing a product to have details or correct information with the intention to buy on the web. According to Izogo and Jayawardhena (2018), online shopping is the customers' patronization of online businesses or department stores from the purchase level to the delivery stage. This means that all transactions between the online store and the client will be done in a virtual environment from the initial stage to the last series of transactions.

According to Dahlen and Rosengren (2016), advertising is always associated with the brand, and a brand can be an authentic brand, an individual, or a cause. Advertising can influence consumers to buy or patronize services they have never tasted (Belk, 2017). The advertisement consists of all the actions involved in delivering a non-personal, verbal or visual, publicly endorsed message to an audience about the promotion by one or more media paid for by an identified supporter. Advertising influences lifestyle and buying behavior. Thus, they have to invest in advertising for businesses to be well known. Advertising as a promotional technique gives a thoughtful tool in making a product popular and conditions possible consumers to choose what to buy and what not to buy.

Researchers conducted empirical studies on the effect of advertising on online shopping behavior. For instance, a study was carried out by Senthil, Prabhu, and Bhuvaneshwari (2013) to examine the consumer's perception of advertising in online shopping and social media platforms. The findings show that consumers are skeptical about online shopping and social network sites advertising. The result also revealed that consumers have a high degree of advertising rejection. Liaukonyte, Teixeira, and Wilbur (2015) examine the influence of Television advertising on online shopping. The study results revealed that advertising content plays a significant role in influencing online shopping. This evidence was further affirmed by researchers such as Zhang, Trusov, Stephen, and Jamal (2017), Prashar, Sai Vijay, and Parsad (2017). Thus, we hypothesize that:

H₁: Advertising has a significant positive effect on online shopping behavior.

2.2 Online risk and online shopping behavior

Perceived risk measures unanticipated disaffection and disappointment with purchase decisions based on the target (Wai, Dastane, Johari, & Ismail, 2019). In the growth of online stores, the online risk is seen as a severe obstacle (Lăzăroiu, Neguriță, Grecu, Grecu, & Mitran, 2020). Online risk can be defined as consumers' perception of suffering from unfavorable and unpredictable outcomes (Y. Wang, Gu, Wang, & Wang, 2019). One of the features of online risk is the unusual payment method, where the buyer and the seller never meet physically. This situation implies that the online shopping experience has specific risk characteristics specifically associated with it. These risks include worries over the delivery and return, lack of physical contact (Zhu, Goraya, & Cai, 2018), being a victim of fraud (Saxena, Eghbali, Beheshtian, & Kattan, 2018), or exposure to a computer virus (Indiani & Fahik, 2020).

Online transactions are considered riskier than traditional transactions (Abyad, 2017; Nasidi, Ahmad, & Hassan, 2021), Although the perception of risk with the amount of internet experience decreases (Yoon, Li, & Feng, 2019). Internet experience also impacts online shopping behaviors, as substantial Internet users prefer to order more online than lighter users (Loketkrawee & Bhatiasevi, 2018). Consequently, while the perception of the risks related to online shopping may increase with the Internet experience, it does not seem to impede its acceptance. Kumar and Bajaj (2019) specified eight internet shopping-specific risk dimensions from four separate risk sources. These risks are: perceived risk, financial risk, time risk, social risk, performance risk, privacy risk, psychological risk and source risk

According to Alkailani and Abu-Shanab (2021), consumers often become hesitant to purchase products online due to perceived risks. In particular, some studies have examined the correlation between online risks and online shopping behavior. For example, Wai, Dastane, Johari, and Ismail (2019) examined the impact of convenience, financial, non-return policy, product, and delivery on online shopping behavior in Malaysia. The study revealed that convenience risk, return policy risk, and product risk significantly affects online shopping behavior. Similarly, Habib, and Hamadneh (2021) examined the impact of perceived risk on online purchase intention. According to the findings, perceived risk significantly affects consumer online purchase intention. Likewise, Siyal, Siyal, Wu, Pal, and Memon (2021) examined consumers' behavior toward online shopping in China. The findings demonstrated that perceived financial risk affects online shopping behavior. We, therefore, hypothesized that:

H₂: Online risk has a significant positive effect on online shopping behavior.

2.3 Perceived usefulness and online shopping behavior

Perceived usefulness refers to how consumers think online retail firms could enhance value and effectiveness when patronizing online shopping. The process of decision-making on online shopping communicates the importance and satisfaction they perceive while shopping (Al-Adwan, Kokash, Adwan, Alhorani, & Yaseen, 2020; McLean, Osei-Frimpong, Al-Nabhani, & Marriott, 2020). Perceived advantages of online shopping are potted as perceived usefulness (Badeggi & Muda, 2021; Ruangvanich & Piriyastrawong, 2019). Discovery's low price and low charge of surfing online can help perceived usefulness. Perceived usefulness depends on consumers' technological characteristics from online retail shops, especially personal services provided (Alkhamery et al., 2021; Cutshall, Changchit, Pham, & Pham, 2021).

In particular, studies have shown that perceived usefulness affects online shopping behavior. For instance, Gunawan, Ali, and Nugroho (2019) examined the effect of perceived usefulness on consumer attitudes in Indonesia. The results demonstrated that perceived usefulness has a significant positive effect on consumer attitudes but has a positive and insignificant effect on the purchase decision. Likewise, Jin, Osman, and Halim (2014) investigated whether perceived usefulness influences consumer online shopping behavior in the Malaysian context. According to the results, perceived usefulness influences consumers' online shopping behaviors in the study area. Thus, we hypothesize that:

H₃: Perceived usefulness has a significant positive effect on online shopping behavior.

2.4 Reliability and online shopping behavior

The Degree to which a customer believes and trusts an online company's services is referred to as reliability (Ahmad & Zhang, 2020), which includes delivering the correct products or services after making payment from the online store (Kaushik, Mohan, & Kumar, 2020). The specifics reliability has accuracy in billing, keeping accurate records, and delivering service at the designated period (M. Wang, Li, & Chau, 2020). Reliability is nearly associated with risk because it is a yardstick of consumers' perceptions of whether online firms can be counted on to deliver on their promises (Markowitz & Shulman, 2021).

Despite its easiness and accessibility, the primary issue associated with online shopping is the reliance deficit, where consumers question the reliability of online vendors and their shopping methods (Tang et al., 2021). Specifically, research has shown that perceived reliability influences online shopping behavior. In this regard, Tang et al. (2021) investigated the perceived effect of website trust on online shopping intentions and behavior from the planned behavior theoretical perspective. The results suggested that website trust plays a substantial role in forming the online shopping behavior of consumers. Similarly, Habib and Hamadneh (2021) found that consumer trust significantly affects online shopping intention. Therefore, we hypothesize that:

H₄: Reliability has a significant positive effect on online shopping behavior.

2.5 Research framework

The framework of this research represents the factors affecting online shopping behavior as obtainable in the preceding section. The proposed model represented in Figure 1 was developed after a critical review of the existing literature on the perceived effect of advertising, online risk, usefulness, and reliability on online shopping behavior.

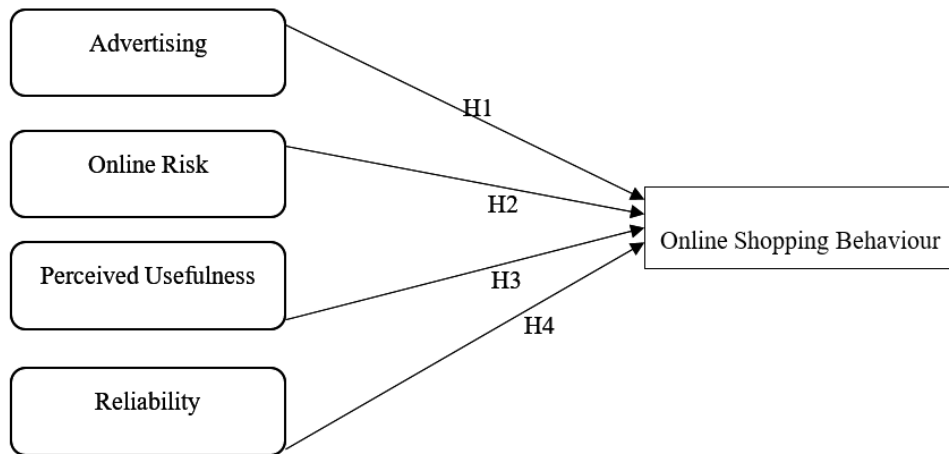


Figure 1: Research model

3. METHODOLOGY

This study adopts a quantitative approach. PLS-SEM was used to examine the perceived effects of advertising, online risk, usefulness, and reliability on online shopping behavior in the Nigerian context. Also, IBM SPSS Statistics Version 24.0 and Smart PLS Version 3.2.7 were used. PLS is considered an excellent fit for this research as it is causal (Hammouda & Salem, 2020). Also, the variance-based PLS-SEM method can handle all types of estimation models, reflective and formative models) used for this analysis. Formative is used to figure out the individual weight of each variable, while reflective is used to find the weight and correlation among items and variables.

3.1 Instrument

A structured questionnaire was utilized to collect data from consumers of online shopping stores in Nigeria. The questionnaire items were measured using a ten-point Likert scale, ranging from strongly disagree to agree strongly. The items were adopted from instruments used in previous studies (Devaraj, Fan, & Kohli, 2002; Sen, King, & Shaw, 2006; Smith, Johnston, & Howard, 2011; Torkzadeh & Dhillon, 2002) and modified to suit the purpose of this study.

The respondents of this research consist of subscribers of online shops with prior shopping experiences. A sample of 37 respondents was determined using an online sample size calculator. Also, the sample was selected using a simple random sampling technique. To avoid feedback bias and reduce sample error (Jiang, Wang, & Weiss, 2016), the sample size was increased to 450. Altogether, 370 questionnaires were returned and used for the analysis.

3.2 Validity and reliability

The validity and reliability of each construct are evaluated, and the Cronbach's Alpha results for the overall measurement and convergent validity are presented in Table 1. According to the results, the model's AVE value for all second-order structures is much greater than 0.5, the cut-off AVE value suggested by Joe F Hair Jr, Howard, and Nitzl (2020). Furthermore, the composite reliability values for both structures were higher than the recommended value of 0.700, as indicated by Sarstedt, Hair Jr, Cheah, Becker, and Ringle (2019). The composite values ranged from 0.885 to 0.937. Lastly, Cronbach's alpha values ranged from 0.809 to 0.918, all of which satisfied the cut-off of 0.700 (Joe F Hair Jr et al., 2020).

Table 1: Composite Reliability (C.R.), Average Variance Extracted (AVE) and Cronbach's Alpha

	CR	AVE	CA
Advertising	0.908	0.588	0.908
Online Risk	0.919	0.619	0.918
Perceived usefulness	0.947	0.692	0.936
Reliability	0.942	0.672	0.934
Online Shopping behaviour	0.885	0.660	0.809

3.3 Data analysis

This study employs the Harman, Ovayolu, and Uçan Ovayolu (2019) one-factor test to determine any common method bias among variables. The researchers used Hair, Hollingsworth, Randolph, and Chong (2017) instructions and procedures to conduct the one-factor test. For this purpose, all measurement scale objects were subjected to a principal component analysis with varimax rotation to detect some single factor signs from factor analysis. Table 2 presents more details.

Table 2: Common Method Bias in Dataset – Harman's One Factor Solution

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	12.433	37.675	37.675	12.433	37.675	37.675
2	6.260	18.970	56.645	6.260	18.970	56.645
3	2.422	7.340	63.986	2.422	7.340	63.986
4	1.475	4.469	68.455	1.475	4.469	68.455

Extraction Method: Principal Component Analysis

4. RESULTS

The respondents' demographic data, including gender, age, educational level, and year of experience, were subjected to descriptive analysis. Table 3 summarises the demographic information supplied by respondents. From the total of 370 respondents, it was found that the majority of the respondent was male (n=230, 60%) while the remaining (n=140, 40%) were female. This shows that males are more active online. The age distribution of the respondents displays that most respondents, 130 (35.1%), were between 26-35. The 80, representing 21.6 percent of the respondents, were between the ages of 45 years and above. Based on the result presented in table 1, it was found that more than half of the respondents were aged between 18 to 35. This indicates that youth are more active in online shopping activities. For educational level, 14.1 percent are secondary school students with a 52 response rate. However, degree and postgraduate students recorded 128 and 184 response rates. Postgraduate and bachelor students have more access to the internet than high school. This shows that respondents with a high educational level had benefitted from more exposure to online shopping due to their education. Almost half (46.5%) of the respondents have 0-2 years of online shopping experience, while 27.6% have 3-5 years of experience, and 13.0% have more than ten years of experience. This indicates that the penetration rate for online shopping in Nigeria is meager. The following table presents the respondents' demographic information.

Table 3: Demographic information of the respondents

Profile	Frequency (N=370)	Percentage %
Gender		
Male	230	60.0
Female	140	40.0
Total	370	100
Age		
18-25	70	18.9
26-35	130	35.1
36-45	90	24.3
46-Above	80	21.6
Total	370	100

Education Level		
Secondary	52	14.1
Degree	128	34.6
Post graduate	184	49.7
Others	6	1.6
Total	370	100
Years of Online Shopping Experience		
0-2	172	46.5
3-5	102	27.6
6-10	48	13.0
10_Above	48	13.0
Total	370	100

4.1 Measurement model analysis

The conceptual model for the study used both formative and reflective estimation models. The formative measurement model was used for online shopping behavior, while the reflective measurement model is used for advertising, online risk, perceived usefulness, and reliability. Formative and reflective analysis models have distinct statistical prediction criteria (Hair et al., 2017). Informative calculation models, internal precision is a problem (Cheah, Memon, Chuah, & Ting, 2018) since formative measurement scale artifacts are more likely to represent a single source and aren't intrinsically highly correlated. On the other hand, reflective measurement model artifacts must be correlated and represent critical outer loading values (Hair et al., 2017). For this study, both reflective and formative measurement models were checked separately. Hair et al. (2017) guidelines were used to assess construct reliability and validity for both reflective and formative measurement models and assess convergent validity and discriminant validity for formative measurement models (i.e., Online Shopping Behaviour).

4.2 Reflective measurement models analysis

Hair et al. (2017) procedures were used to analyze the structures of reflective appraisal models (Advertising, Online Risk, Perceived Usefulness, and Reliability). Both systems were tested for their reliability and validity to validate the reflective measuring models. The findings revealed that both constructs had a factor loading value of 0.7 to 0.9, which is considered adequate. Both constructs had composite reliability (C.R.) and Cronbach's alpha values higher than the 0.70

critical stage (Taber, 2018). Both structures' average variance extracted (AVE) values are higher than 0.50 critical values, as suggested by (Hair et al., 2017). The discriminant validity was tested using the Fornell-Larcker criterion. The discriminant validity of the structures used in the proposed estimation models highlights the square root of AVE, which is greater than the approximate correlation values (see Appendix A). These results generally follow all of the requirements for evaluating reflective measurement models' validity and reliability.

In addition, Henseler, Ringle, and Sarstedt (2015) proposed the Heteromonotrait (HTMT) ratio of correlations as a new method for analyzing the discriminant validity of structures in measurement models. On average, an HTMT value greater than 0.85 indicates a potential issue with discriminant validity (Hair et al., 2017). This sample's HTMT values were all just below the 0.85 thresholds, meaning that discriminant validity was not an issue (see Appendix B). Another reference for the discriminant validity of reflective measuring frameworks was the cross-loading values of reflective constructs' markers. In contrast to other structures in the structural model, reflective measuring model indices should have a high level of accuracy. A complete list of cross-loading values for all measurements used in the structures of reflective measurement models can be found in (see Appendix C). Cross-loading shows that all measures (measurement scale items) have a higher loading on their respective underlying latent construct in reflective measurement models than any other construct in the model. As a result, these findings meet the cross-loading evaluation criteria and provide ample evidence for the discriminant validity of reflective measurement models.

4.3 Formative measurement models analysis

Formative constructs are evaluated differently than reflective constructs (Hair et al., 2017). According to this logic, all formative measurement models are likely to represent an individual trigger for the underlying latent framework because formative measurements do not correlate highly between measurement scale objects. Furthermore, for formative measurement models, the method for measuring convergent validity varies. This study uses one formative model as earlier discussed (i.e. online shopping behavior). The magnitude of the path coefficient (correlation) between formative and reflective structures, C.S. formative and C.S. reflective, was measured to determine convergent validity. The correlation coefficient between Y formative and Y reflective should be 0.80 or higher when determining the convergent validity of formative structures (Hair et al., 2017). The path coefficient values between C.S. formative and C.S. reflective are higher

than the 0.80 thresholds, meaning that they follow the criteria (Farooq, Salam, Fayolle, Jaafar, & Ayupp, 2018).

Furthermore, the relative importance of indicators for their underlying latent construct was determined using formative indicator outer weights (relative value). The outer weights for all elements used to measure the formative online shopping behavior model are mentioned in the table (see Appendix D). The significance of these outer weight values was also assessed using the parameters of (Henseler et al., 2015). The findings reveal that all of the metrics in the formative measurement model have significant and positive outer weight values. It shows that all formative measurement model metrics adhered to the defined criteria for determining their significance and context. The suitability of formative structures is established based on the preceding discussion. An overall analysis of reflective and formative measurement models yields adequate results, allowing the structural model to be assessed.

4.4 Analysis of structural model

The R^2 value, the statistical significance of the Q^2 value, and the direction coefficient -values were used to measure the structural model's overall explanatory capacity of constructs. Figure 2 illustrates the structural model's output. Based on $R^2=0.324$, these findings mean that the proposed model has a 32.40 percent predictive ability for online shopping behavior. Furthermore, the effect of advertising on online shopping behavior ($= 0.148$; t -value = 2.94; $p = 0.003$) is considered significant and positive, indicating that H1 is supportive. On the other hand, H 2 ($=-0.194$; t -value= 3.66 ; $p =0.000$) reported a negative effect of Online Risk on Online Shopping Behaviour. H3 supported the proposed effect of Perceived Usefulness on Online Shopping Behaviour ($=0.382$; t -value = 7.054 ; $p =0.000$). Finally, a strong correlation between Reliability and Online Shopping Behaviour ($= 0.236$; t -value = 4.123; $p = 0.000$) supports H4. The findings are summarised in Table 4.

Table 4: Path Coefficients

	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Advertising -> Online Shopping Behaviour	0.148	0.05	2.94	0.003
Online Risk -> Online Shopping Behaviour	-0.194	0.053	3.66	0.000
Perceive Usefulness -> Online Shopping Behaviour	0.382	0.054	7.054	0.000
Reliability -> Online Shopping Behaviour	0.236	0.057	4.123	0.000

Our structural model's R^2 value is 0.324, showing that the proposed conceptual model is insufficiently explanatory. It is essential to exercise caution here, as depending solely on the R^2 value to aid a model is not a viable strategy (Hair et al., 2017). As a result, the structural model's predictive relevance was assessed using the Stone (1974) Q^2 test. If the Q^2 value is greater than zero, the latent exogenous constructs in the structural model have predictive significance for latent endogenous constructs (Hair et al., 2017). As seen in Fig. 2, our model's Q^2 value is 0.219, supporting the study's primary assumption that the endogenous framework (i.e., Online Shopping Behaviour) has a solid predictive significance.

Furthermore, the possibility of collinearity was investigated in any construct. According to the findings, collinearity was not an issue in our study. Consequently, the overall predictive relevance of our proposed structural model was achieved.

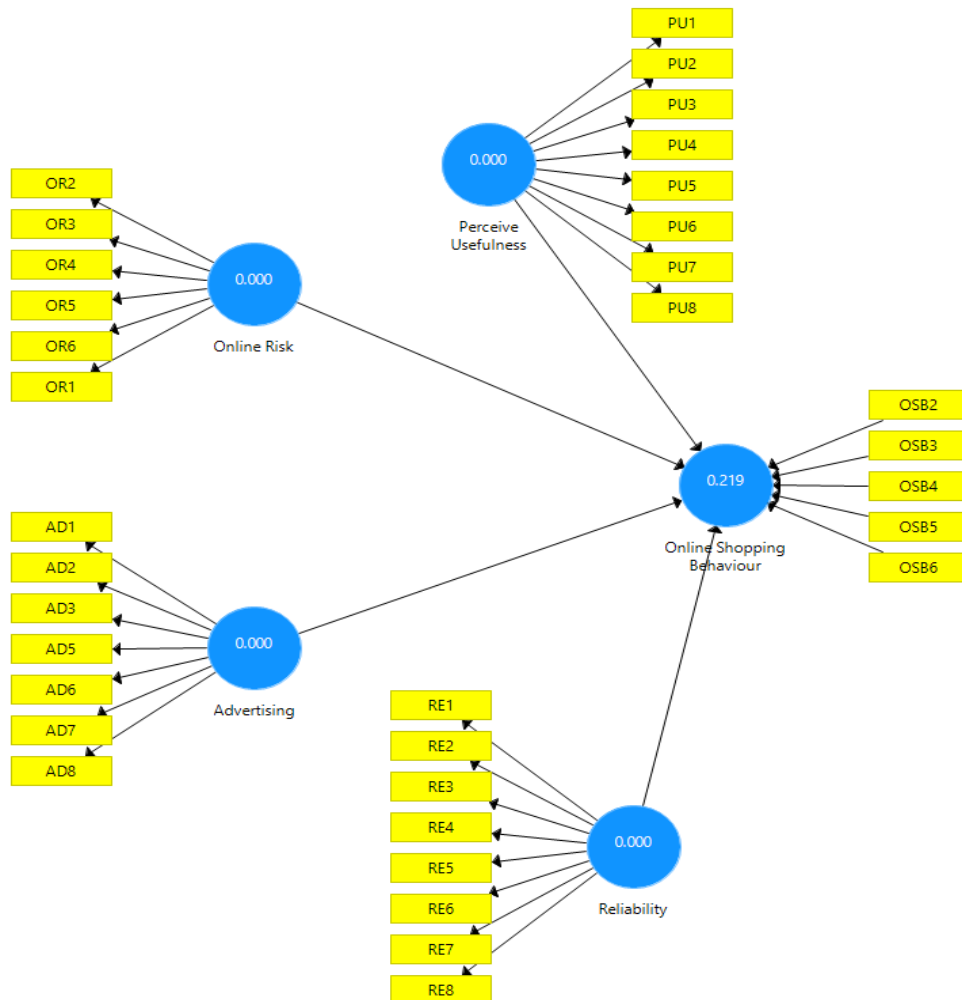


Figure 2: The Standardised Result

4.5 Importance-Performance Map Analysis (IPMA)

Importance-Performance Map Analysis is a valuable PLS-SEM statistical tool that graphically extends conventional path coefficient estimates more practically (Wong, 2019). Joseph F Hair Jr, Hult, Ringle, and Sarstedt (2016) argue that IPMA aims to identify predecessors with low efficiency but high priority for the target constructs. According to the cumulative effect size (i.e. importance) of the identical predecessor construct, a one-unit point increase in the predecessor construct's output will increase the construct's performance. Online shopping behavior is a target construct in our context, and it is expected by four predecessor constructs (advertising, online risk, perceived usefulness, and reliability). We used IPMA for this study. As shown in Figure 2, "reliability" has the highest significance score of 78.36 in the lower right corner of the value performance map; if reliability increases by one unit point, online shopping behavior will increase by 0.235. Furthermore, our findings revealed that online shopping behavior scored the lowest in terms of online risk and ads, with ratings of 69.634 and 70.926, respectively, showing that there is still room for improvement in these fields. Figure 3 contains a complete set of importance-performance values for the reader's convenience.

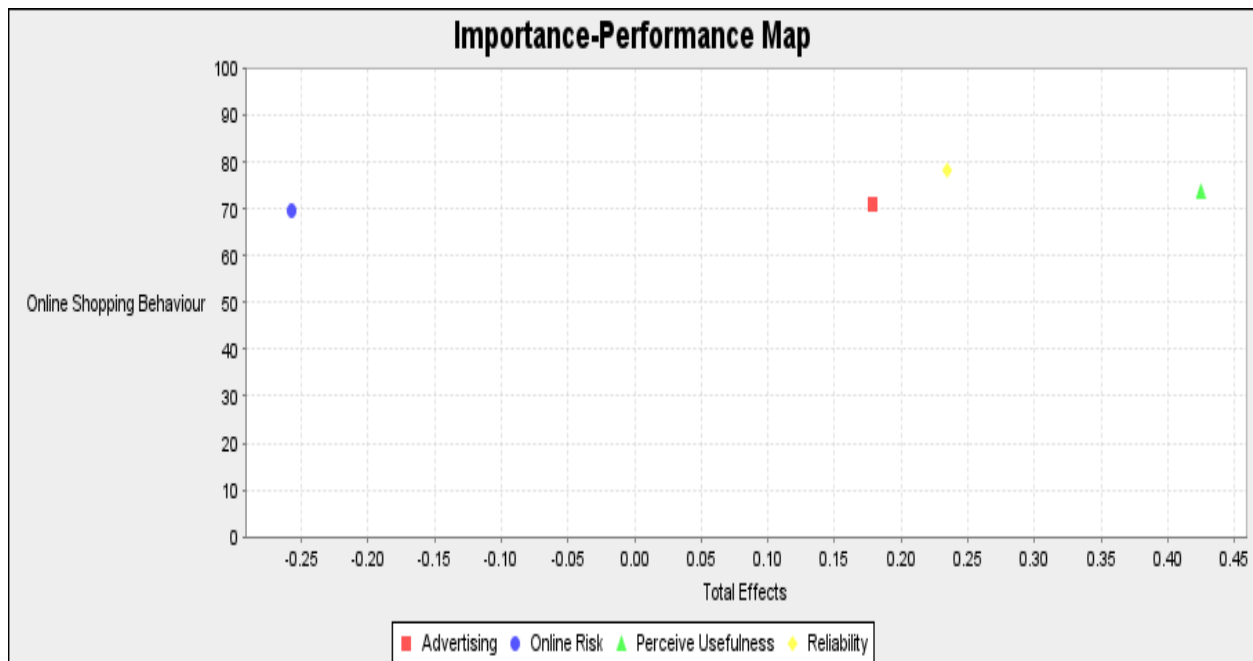


Figure 3: The Importance-Performance Map Analysis for Online Shopping Behaviour

4.6 The Goodness of Fit (GoF)

The R^2 value is commonly used to measure the model's explanatory capability because PLS-SEM does not have overall Goodness of Fit (GoF) indices (Awang, Afthanorhan, Mohamad, & Asri, 2015; Joe F Hair Jr et al., 2020). Tenenhaus, Vinzi, Chatelin, and Lauro (2005) established the Goodness of Fit (GoF) index for PLS-SEM, used to determine model fit. The geometric mean value of the average communality score (AVE values) and the average R^2 values (for endogenous constructs) was used to determine the Goodness of Fit (GoF), which is computed using the following equation: ($GoF = \sqrt{AVE \times R^2}$). The following cut-off values were given by Becker, Klein, and Wetzels (2012) for assessing the GoF study results: GoF medium = 0.25; GoF large = 0.36; GoF small = 0.1; GoF medium = 0.25; GoF large = 0.36. Using the recommendations of (Henseler et al., 2015), we measured the Goodness of Fit (GoF) index for the model in this study which is seen below.

$$GoF = \sqrt{AVE \times R^2} = \sqrt{0.324 \times 0.734} = \sqrt{0.2378} = 0.488$$

5. DISCUSSION

This research provides insight into the phenomena of consumer behavior in the online shopping environment by investigating the factors affecting online shopping behavior as online repurchase intention currently represents a prominent research issue. The major contribution of this research lies in proposing a model of factors influencing online shopping behavior in the Nigerian context by using PLS to validate the direct effect of advertising, online risk, perceived usefulness, and reliability on online shopping behavior. The empirical findings show that the conceptual model's hypotheses are completely supported. The proposed model has a 32.40 percent predictive ability for online shopping behavior.

Furthermore, the effect of advertising on online shopping behavior ($= 0.148$; t -value = 2.94; $p = 0.003$) is considered significant and positive, indicating that H1 is supportive. On the other hand, H2 ($= -0.194$; t -value = 3.66; $p = 0.000$) reported a negative effect of online risk on online shopping behavior. Also, H3 supported the proposed effect of perceived usefulness on online shopping behavior ($= 0.382$; t -value = 7.054; $p = 0.000$). Finally, a strong effect of reliability on online shopping behaviour was observed ($= 0.236$; t -value = 4.123; $p = 0.000$) supports H4. These

findings could advance our understanding of the extent to which advertising, online risk, perceived usefulness, and reliability affect online shopping behavior. This research has made the following theoretical and practical contributions.

5.1 Theoretical contribution

This research provides empirical evidence to demonstrate the effect of advertising, online risk, perceived usefulness, and reliability on online shopping behavior. In particular, the application of Smart PLS in the current investigation has offered support for the statistical analysis to prove the direct relationship among the studied variables as well as the hypothesis testing which leads to the development of a proposed model.

5.2 Practical contribution

The findings of this research could help online stores make informed decisions on reducing risk and maximizing sales by increasing confidence in consumers' minds. Managers and online retailers can persuade customers to shop by using various online platforms such as social networking sites. Also, this research could create awareness among online shoppers, particularly Nigerians, regarding the benefits of online shopping innovations. Also, this research contributes to the existing literature on factors affecting online shopping behavior, particularly in Nigeria, where related literature is either lacking or inadequate.

6. CONCLUSION

This study examined the factors that affect online shopping behaviors among consumers of online shops in Nigeria. A conceptual framework was used to assess the effects of variables using PLS analysis. The findings indicated a significant positive effect of advertising and perceived usefulness on online shopping behavior. The results also showed a negative effect of online risk on online shopping behavior. Additionally, there is a positive relationship between reliability and online shopping behavior. As online frauds increase, online stores must discover ways to increase consumer confidence. To gain consumer confidence, online retailers must understand consumer attitudes toward online shopping. The outcomes of this research provide a model that can be especially useful to online retailers in marketing their products and everyday decision-making, which may influence the purchase intention of consumers positively. However, the study is limited to a cross-sectional survey of the perceived effects of four factors on online shopping behavior. Thus, further research may consider a longitudinal survey to determine the

perceived effects over time. Additionally, future research might employ a qualitative approach to explore more factors affecting online shopping behaviors, particularly in the Nigerian context.

6.1 Limitations

This quantitative research is limited to a few factors affecting online shopping behavior in the Nigerian context, particularly advertising, online risk, reliability, and perceived usefulness.

6.2 Directions for Future Research

Future research may adopt a qualitative approach to explore more factors. This is because exploratory research can help discover several additional factors that can considerably influence the suggested dependent variable. Additionally, this study gathered data through a cross-sectional survey; whereas a longitudinal survey would be required for future studies. As such, data gathered from a longitudinal survey can be used to discover the main factor influencing online shopping behavior and contribute to understanding the variables affecting online shopping behavior over time.

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Appendices

Appendix A: Fornell-larcker criterion analysis discriminant validity

	Advertising	Online Risk	Perceived Usefulness	Reliability
Advertising	0.719			
Online Risk	0.63	0.729		
Perceive Usefulness	0.63	0.659	0.832	
Reliability	0.631	0.61	0.794	0.82

Appendix B: Heteromonotrait (HTMT) analysis discriminant validity

	Adverting	Online Risk	Perceived Usefulness	Reliability
Advertising				
Online Risk	0.787			
Perceive Usefulness	0.708	0.72		
Reliability	0.711	0.675	0.847	

Appendix C: Cross loadings among reflective measurement scale items

	Adverting	Online Risk	Perceived Usefulness	Reliability
AD1	0.801	0.634	0.467	0.48
AD2	0.757	0.584	0.439	0.409
AD3	0.718	0.535	0.39	0.402
AD5	0.727	0.467	0.383	0.357
AD6	0.696	0.529	0.498	0.468
AD7	0.727	0.55	0.531	0.497
AD8	0.586	0.373	0.448	0.546
OR1	0.554	0.799	0.622	0.531
OR2	0.649	0.887	0.542	0.527
OR3	0.667	0.891	0.595	0.566
OR4	0.51	0.772	0.467	0.429
OR5	0.323	0.336	0.181	0.212
OR6	0.43	0.507	0.283	0.262
PU1	0.553	0.556	0.788	0.803
PU2	0.538	0.572	0.739	0.732
PU3	0.535	0.519	0.834	0.594
PU4	0.496	0.535	0.864	0.576
PU5	0.522	0.549	0.865	0.616
PU6	0.484	0.551	0.84	0.635
PU7	0.482	0.538	0.849	0.614
PU8	0.576	0.557	0.867	0.686
RE1	0.511	0.468	0.613	0.812
RE2	0.462	0.406	0.613	0.759
RE3	0.472	0.52	0.653	0.81
RE4	0.517	0.463	0.637	0.81
RE5	0.569	0.499	0.66	0.81
RE6	0.515	0.484	0.68	0.81
RE7	0.545	0.559	0.664	0.81
RE8	0.541	0.585	0.683	0.81

Appendix D: Outer weights of items involved in formative constructs

	Outer Weights	T Statistics (O/STDEV)	P Values
OSB2 -> Online Shopping Behaviour	0.812	1.539	0.124
OSB3 -> Online Shopping Behaviour	0.845	2.015	0.044
OSB4 -> Online Shopping Behaviour	0.882	2.008	0.045
OSB5 -> Online Shopping Behaviour	0.870	7.543	0.000
OSB6 -> Online Shopping Behaviour	0.872	0.255	0.799

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