



Live-Streaming Consumer Experience; the Future of E-commerce and Digital Marketing in Africa: Evidence from China

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Abstract.

The landscape and nature of trade are fast revolving, with more buying and selling taking place virtually without any physical infrastructures. Businesses in present times rely on the Internet to accomplish most of their business processes. However, the lack of human and social elements is a significant drawback hindering the growth of e-commerce. This study investigated the social characteristics of live-streaming that promote social presence, e-loyalty, and purchase willingness. The model examined data collected from e-commerce sites in China as a point of reference for Africa's emerging market. Our findings suggest that interactivity and social presence are significant in building e-loyalty to promote purchase willingness. Store location, gender, and product category are no hindrance to the success of live-streaming. This paper confirms the positive impact of social elements in shaping online purchase behaviors. Finally, the findings are fundamental to realizing the Africa Continental Free Trade Area (AfCFTA).

1. Introduction

1.1. Background

The world, in general, is benefiting from the prospects of e-commerce. However, Africa's idea of regional integration and trade is slow. With 15% of the world's population, infrastructure investments returns of 15 to 20%, and the fastest mobile phone penetration rate with 107 million new subscriptions at a 4% year-on-year increase in the first quarter of 2017, Africa is edging closer to 1 billion mobile subscriptions (see Mamabolo [46]). However, the sparse nature of people living in the continent brings a new form of challenge to the intercity, interstate, and intercontinental transactions widening

the trade gap between Africa and the rest of the world (see Ibam et al. [32]). The language barriers, the lack of and cost of electricity, and the Internet across the continent also possess additional obstruction to the growth of e-commerce in Africa (see Arikat and Hamner [5]). According to UNCTAD, Africa is lagging in several areas that foster the development of a vibrant e-commerce sector, including the ownership of credit cards and the availability of secure servers on the continent (see UNCTAD [65]).

Despite all these challenges, 10 African countries are listed in the UNCTAD B2C E-commerce Index 2018 with distinctive strengths in the areas of account ownership at a financial institution or with a mobile-money-service provider, individuals using the Internet, postal reliability index, and secure Internet servers (see UNCTAD [64]).

Even though there are studies directed at trade and e-commerce in Africa, they are focused mostly on articulating the challenges (see Maswera et al. [49]), adoption (see Barnard and Wesson [7]; Zaharias [76]), and the potential fortunes (see Bilkova and Kralova [9], Howe [29]). In the current study, however, we analyzed live-streaming (LS), an interactive dimension of e-commerce, from the Chinese market's prospects as a learning point for Africa. In this study, we extended the social presence theory and proposed that live-streaming platforms' real-time interactivity characteristics affect consumers' feeling of social presence and e-loyalty, leading to their willingness to purchase.

Africa harbors the world's fastest-growing economies, and the growth rate of Africa is forecasted at about 3.6% for the 2019-2020 fiscal year. However, Africa is heavily dependent on importing capital goods and food products, with only about 3% of the global trade share. What is more worrying is that the intra-African trade only accounted for 17% of the annual trade in all African countries while Europe, North America, and Asia are recording intra-continental trade above 69%, 51%, and 49% respectively (see AfCFTA [3]). Cost of doing business, product, and seller uncertainties, trust, and related issues are cited among many other reasons for the poor import-export between member states (see Viljoen [66]). Live-streaming as a means of trading will be the game-changer in realizing the AfCFTA agenda by connecting producers, wholesalers, retailers, and consumers seamlessly in real-time. Live-streaming has the potentials of adverting trust and seller-product-related uncertainties, co-creation, and regional trade integration (Addo et al. [1]).

Today, businesses and individuals can launch a live stream, engage in, or watch other businesses or ordinary people from continents far apart (see Pires and Simon [57]). The scale of online live-streaming users in China is estimated to reach 507 million in 2019 (see iiMedia Research Group [33]). In recent times, live-streaming has attracted attention from both local and global brands and retailers. Increasing numbers of brands, retailers, and e-commerce players are leveraging live-streaming platforms to market or sell their products. Streaming platforms thus become one of the most effective marketing tools and popular distribution channels. Live-streaming platforms have increasingly become a widely used marketing and distribution channel (see Needleman [53]). Several studies have started to investigate this new phenomenon (live-streaming) but generally in the area of gaming and other forms of social media and entertainment industries, particularly for the developed countries (see Hilvert-Bruce et al. [28], Zhao et al. [77]).

Not only can users interact with the streamer in live streaming, but also with other viewers. This shared engagement brings about co-viewing and increases the social experience of users. Live streaming, therefore, presents a unique feeling of social presence (SP), referring to the perception of intimacy and immediacy as the growing awareness of the interaction of the other person in a mediated environment. These characteristics were lacking in traditional social media and e-commerce platforms until the emergence of live streaming, which narrowed the virtual distance between actors on these platforms. Therefore, it is essential to understand the features of live-streaming to enhance consumers' purchasing willingness.

Thus, a crucial question that calls for addressing is, "How does the feeling of social presence and e-loyalty from the of real-time interaction affect consumers' purchase willingness in the context of live streaming"? Purchase willingness in this study is operationalized as the measure of one's intention or decision to buy a product or service (see Pousttchi and Wiedemann [58]). This understanding is crucial because, in live-streaming consumer experience platforms, the revenue model is directed solely by the volume of purchases generated from the streaming and customer referrals. This referral attribute makes followers who keep coming and acting as evangelists spreading positive word-of-mouth (WOM) a vital component of the live-streaming industry. We seek to answer the question, how do social presence and real-time interaction characteristics of live-streaming platforms promote purchase to serve as a reference point for Africa?

1.2. Live-streaming

Live-streaming is a two-way synchronous connection between e-vendors (cewebrities) and viewers. E-vendors engage in varied activities from playing games, painting, dancing, teaching, eating, selling to medical and clinical experiments. The viewers can watch, listen, interact, and participate with e-vendors (Hilvert-Bruce et al., 2018). LS started as a niche, gaming-oriented domain, and for many years, diversified the online gaming industry. In recent time, LS has grown globally into a broader social media trend and have found its ways into mainstream e-commerce. Twitch, one of the LS pioneers, pulled about 1 million streams and more than 100 million viewers monthly. There are more than 200 LS platforms in China, focusing on all aspects of life, from e-sports to video games. China has the largest LS market, with about 45% of online users (324.8 million people) engaging in LS content at a 180% growth rate (Yu, Jung, Kim, and Jung, 2018). A 2017 Magid report revealed that more than 48% of internet users in the US patronizes LS daily in 2016 from 22% in 2014, indicating a more than 100% growth rate (see Magid [45]).

Live-streaming permits vendor- viewer and viewer-viewer synchronous communication. Viewers share their experiences with previous broadcasts and their expectations of future broadcasts. In the gaming industry, e-vendor-viewers can co-host, and in B2C and C2C platforms, consumers can showcase their product experiences. These participatory features allow viewers to develop trust not only in the e-vendor but in the product and the channel and become cocreators (see Oh and Choi [55]; Yu et al. [75]). Compared to traditional commerce and social media, LS allows users to interact and engage in a real-time context granting social interaction (participatory culture) at a limitless level.

A user's psychological and physical energy investment to fulfill particular perceived psychological needs is known as engagement (see Witkowski et al. [69]). Engagement leads to users' attention and involvement with the media and causes users to socialize, produce, consume, or disseminate vital information (eWOM) (Yu et al. [75]). Despite its swift upward trajectory, research into the LS phenomena is still in its embryonic stage, and existing literature explaining viewer engagement in LS did not observed and used actual figures in LS services but relied on offline user feedbacks (see Hamilton et al. [25]; Recktenwald [59]; Witkowski et al. (2016)).

2. Literature Review and Hypotheses

2.1. Social presence

Social Presence built from the Social Presence Theory is the extent of the salience of the other person in an interaction and the consequent salience of the interpersonal relationships known as the concept of "intimacy"; and the concept of "immediacy" (see Cui et al. [14]).

Social presence is an essential element in both offline and online social contexts and has featured widely in studies in the area of technology or computer-mediated interactions to ascertain the presence of personal and socio-emotional attachments (see Short et al. [47]). Social presence several definitions over the years and even more rapidly changing with the birth of virtual reality and augmented reality. However, social presence has commonly been referred to as the degree to which two people interacting through a technologically mediated environment feel as if they are physically together. Face-to-face communication has a higher social presence than that of SMS, email, or voice calls. (see Biocca et al. [10]).

In many computer-mediated interactions, viewers feel being together while interacting with other people on a second screen or, in many cases, the host. As a result, users turn to get very involved in such a mediated environment as though the other person is physically present. Social presence is two dimensional - as a sense and as a means, also known as the absent availability and present availability, respectively. Absent availability requires physical colocation in space and time, while the latter refers to a person's perceptions and feelings of being with others (see Nowak and Biocca [54]). This study adopted the former (the sense of being together in a mediated perception of an environment).

2.2. Purchase willingness

Purchase willingness is an intensively researched area in the extant marketing literature. Purchase willingness is a component of consumer cognitive behavior on how a person intends to buy a specific product (see Ling et al. [40]). With evidence from the theory of planned behavior TPB developed from the theory of reasoned action (TRA), a consumer's behavior is best predicted from intentions/willingness that corresponds directly in terms of action, context, and target to that consumer's behavior (see Ajzen and Madden [4]). It further states the since consumers may make purchases due to

constraints instead of an actual preference, the measure of intention is more effective than behavioral measures. From this assumption, the current study adopted customers' purchase willingness as the measure of purchase behavior. Purchase willingness can be direct or indirect and mediated by several factors, including social presence, e-loyalty, as well as influenced by factors such as price, product type, and location.

2.3. Interactivity and purchase willingness

Websites are the virtual personalities of every business. As a social clue, interactivity is explained as the users' perception of connection, which is an essential issue for businesses (see Wang [67]). Customers expect that their online engagement will afford them the seamless experience of in-store interactivity. Today's consumer is not only interested in price, quality, and durability of products but increasingly engage, chat, show-off, discuss, advocate for and inquire about the product of interest (see Huang et al. [30]). Live-streaming platforms present to consumers the freedom to interact with the seller and the products and other consumers in a mediated platform to understand best their product of choice. This high level of interactivity is a precursor for purchase (see Liu et al. [41]). Whereas many companies rely on avatars to mimic the interaction as a human customer service representative, live-streaming relies on the direct human-human interaction in a computer (smartphone) mediated environment (see Liu and Shrum [42]).

When participants experience an online inspiring, involving, and fun co-creative experience, such as the Taobao live-streaming video interaction, they participate more intensely. A higher level of website interactivity is argued to have increased website visitors' flow experience and social presence, leading to positive outcomes of concern to marketers. Similarly, Etemad-Sajadi also argues that online real-time interactivity significantly increases patronage willingness (see Etemad-Sajadi [18]). Some other studies established a significant positive association between online shopping interactivity and purchase by eliminating product uncertainty and building a sense of presence and loyalty among sellers and buyers (see Liu et al. [41]). We, therefore, propose that;

H1: Interactivity will impact consumers' purchase willingness in LS.

2.4. Interactivity and social presence

Interactivity is the actual quality of a communication sequence and context between two or more parties. Interactivity may be realized by some and not by others. When it is realized and noticed by participants, it leads to a social presence (see Gunawardena and Zittle [24]). Social presence is a quality inherent in a communication medium (see Short et al. [47]). From an emotional point of view, social presence is characterized as the "warmth feeling" of the media, thus transmitting human warmth and sensitivity through non-verbal cues. These characteristics increase customer e-loyalty and purchase decisions (see Mntymki and Salo [47]). Social presence reinforces e-trust and e-loyalty through e-communications, photographs, and videos (see Hassanein and Head [26]). Visual cues are also known as a good measure of social presence because they focus on the consumer's actual, functional, and emotional needs (see Kahn [35]). The presence of real-time human interactivity in live-streaming, unlike product or service brands, builds a high level of

emotional bond and intimacy with consumers. This bond is an antecedent of presence. Besides interacting with the sellers, consumers interact with the platform and other potential consumers. Available literature argues that interactivity will directly impact social presence, leading to consumer attitudinal change (see Fortin and Dholakia [20]). We proposed that;

H2: Interactivity in live-streaming has a positive association with social presence.

H3: Interactivity live-streaming has a positive association with consumer e-loyalty.

2.5. Social presence and customer loyalty

“Seeing is believing”. In general, people turn to believe in what they see than hear. This is very important in online marketing. Trust and loyalty are developed through positive interactions with other people. In a face-to-face or mediated means, the interaction with a trusted party is a precondition of loyalty (see Gefen and Straub [22]). This implies that any form of human interaction increases the social presence and underwrites loyalty and trust. In online commerce, a consumer may be vulnerable and needs to rely on the seller. Since trust is built from a social environment and interaction, social presence is a prerequisite for trust, and trust is a prerequisite for loyalty. Seller-buyer interactions produce more social information meant to revealed vital information to buyers to form their naive beliefs based on what they developed loyalty for (see Lu et al. [44]). Social presence is based on common expectations, cognitions, and emotions of many consumers. Consumers’ attachment to sellers can produce greater consumer loyalty and trust, which is very likely to be missing in traditional e-commerce platforms. It builds celebrities brand presence in terms of image, awareness, and loyalty (see Loroz and Braig [43]).

We hypothesize that;

H4: Social presence live-streaming has a positive association with customer e-loyalty.

2.6. Social presence and purchase willingness

Consumers are mostly influenced by the level of their social immenseness with others when making purchase decisions (see Godes et al. [23]). Platforms that dominate marketplace-based e-commerce like Amazon and Taobao have successfully added social applications with content to help people to connect with whom and where they usually buy (see Marsden [48]).

The literature is clear on the role of social presence, celebrities (online-celebrities), and purchasing. It argued that consumers could obtain symbolic meanings and use items endorsed by these celebrities in constructing satisfied self-concepts (see Hwang and Zhang [31]). Through the interaction with e-vendors, fans might feel as if those vendors are socially present in their life. The “presence” of these vendors in customers’ lives influence their buying decisions and attitude (see Marsden [48]). Interactivity is an antecedent of social presence. In a highly interactive environment, parties get involved, immersed, and the other party’s realization in a mediated environment triggers behavioral

change. It is stated that interactivity, as a characteristic of communication, affects the arousal that leads to attitudinal change and positive purchase behavior (see Fortin and Dholakia [20]). Thus, the following hypotheses;

H5: Social presence has a positive association with consumers' purchase willingness.

H6: Social presence has a partial mediation between the association of interactivity and purchase willingness.

2.7. Followers, e-loyalty, and purchase willingness

An essential component of commerce, similar to social media, is followership. The number of followers, which indicates the network size and an indication for popularity, is a crucial indicator for the social impact the product or an institution has (see De Veirman et al. [16]). Consequently, a higher number of followers is a good judge of broader coverage of a commercial, market, loyal customers, and the extent to which a social message can go. Regarding the commercial potentials of followers, technologies have been developed to identify and track relevant influencers for brands and connect with them. Thus, followers are brand loyalists.

Several studies are available on the importance and the role of followers (see Badashian and Stroulia [6]; De Veirman et al. [16]). Most successful firms are likely to use this and other social media characteristics to have superior consumer engagement (see Barnes [8]). The loyalty, elicitation of appropriate responses behavioral reactions from followers are shaping product design and service quality. Followers' use of likes suggests that a satisfactory interaction has occurred and their demands are met. It is a definite matrix for eWOM, purchase, referrers, and repeated purchase (see Leek et al. [38], Sashi [61]). We, therefore, proposed that;

H7: Customer e-loyalty is positively associated with purchase willingness.

The mediating effects of loyalty and trust in e-commerce, especially between social presence and purchase behavior, are reported in many previous studies. Trust, loyalty, and stickiness' were the central focuses mediating social presence and purchase willingness (see Gao et al. [21]). Loyalty remains a key determinant of relationship development in every social environment (see Winnie et al. [68]). Loyalty is a significant factor in harnessing business success and long-term profits, especially in the virtual domain. Interactivity and social presence activation in e-commerce are necessary but not sufficient. However, with the needed loyalty and the ability to retain loyal customers, profit increases within the range of 25% to 95% (Addo, et al [2]). We predict that;

H8: Customer e-loyalty partially mediates the association between interactivity and purchase willingness.

Based on the evidence provided and supported by previous studies, we proposed a partial serial mediation association of social presence and e-loyalty that,

H9: The association between interactivity and purchase willingness is serially mediated by social presence and e-loyalty.

2.8. Control variables

We incorporated some control variables known to affect purchase willingness in the model and are presented below. Price is a well-known, influential factor in individuals' willingness to purchase. Price remains one of the complex impetus and unquestionable market cues that can attract or repel consumers (see Cho and Sagynov [12]). Existing studies argued that perceived cost is sternly associated with consumers' attitudes toward purchase. Studies noted that price, directly and indirectly, influences the purchase willingness of consumers even when other indicators such as trust and quality of products are favorable (see Cho and Sagynov [12], Lu et al. [44]). Therefore, we deemed it necessary to control the price of the products.

The product category is known to have an impact on purchase willingness. There are some product categories, such as clothing (apparel) and baby products, that receive increased online sales, while other categories, such as handheld and small appliances, experience low online sales (see Kim and Forsythe [38]). It may be essential to control the effect of product categories. Experiential evidence thrives on supporting gender differences in decision-making processes. While some studies found women to be more inclined to business-oriented fields, others report that "objective" and "logical" are more male-valued traits (see Powell and Ansic [59]). Females were ascribed with having more communal attitudes than males by stressing the need for a personal relationship, oneness with others, and the development of harmonious relations (see Dief and Font [17]). Relational skills such as selling are argued to be more appropriate with women's personality qualities than men, pointing to the emphasis on women's socialization, empathy, and sensitivity towards others (see Ndubisi [52]). Some other studies explicitly stated the need to control gender in marketing, sales, and customer-related studies (see Ndubisi [52]). Therefore, we deemed it necessary to control gender in this study.

The location of the store location is a well-studied stimulus in marketing besides price and packaging. The physical store location triggers impulse buying in offline shopping (see Yeung and Yee [74]). The argument, however, is unclear in online shopping. The shop location in online stores is directly linked with logistics service quality (LSQ). With LSQ, store locations in online shopping may be less significant (see Saura et al. [62]). We controlled the effects of location in this paper and summarized our hypotheses in Figure 1.

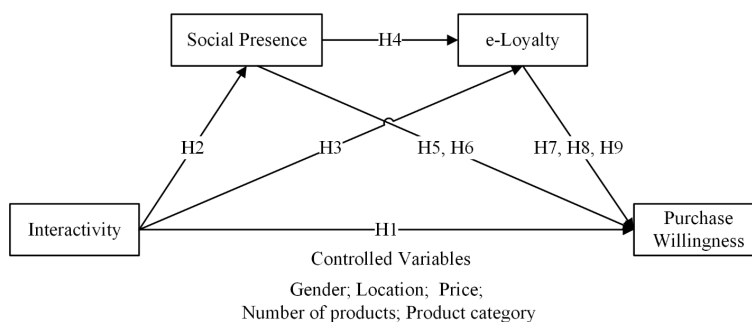


Figure 1: The Study Framework.

3. Methods

3.1. Data description

We gathered a total of 907 actual live data from Taobao (543) and JingDong (364) mobile live-streaming pages to test and validate (robust check) our findings, respectively. Data were collected between the hours of 20:00 to 22:00 local time (+8GMT), noted as the most active streaming timeframe (primetime). Taobao, a popular Chinese e-commerce platform, is one of the few adopters of live-streaming for product experience. It is on record that more than 150 thousand live-broadcasters stream-live on Taobao (see iiMedia Research Group [33]). Half of the viewers are also said to be post-90s borns. Taobao Live platform has empowered business owners, self-employed entrepreneurs, and, most importantly, farmers to virtually promote their specialties in a face-to-face manner with interested buyers (see Chou [13]; Xin [73]).

To validate our findings and for generalization, we further collected data from a similar consumer experience live-streaming platform known as JingDong (JD) with the same time frame (primetime) following all the rules applied to the initial data gathered from Taobao live-streaming platform. JD is the third largest B2C Internet Company worldwide and the leading B2C online retailer in China. JD's live-streaming sales had crossed \$23.6 billion between November 1st, 2019, and the double 11 (single's day) sales (see Ji-Yue [34], Kayikci [36]).

3.2. Measurements

We defined our product categories based on the pre-defined categorization of Taobao live-streaming platforms. Clothing (apparel) and cosmetics were mostly based on their higher streaming rate with 19.89% and 16.12%, respectively. There are fewer streamers for products related to plants and animals, with only 7.52%. Interactivity was measured by the number of chats, social presence by likes and visits, purchase willingness by actual purchase intentions, loyalty by the number of followers, whiles gender, product category, and all other variables measured by their actual counts. The location definition was based on the 2019 urban, rural, and regional development data from the China Statistical yearbook (see National Bureau of Statistics of China [51]).

An average Variance Inflation Factor < 5 ($VIF = 2.110$) was found among the variables. We stated the continuous variables in terms of logarithmic functions to avoid data misrepresentations, common with continuous and community behavior datasets (see Brndl and Thomas [11], Feng et al. [19]), and also to smooth-edge high values (see Feng et al. [19]). All the path estimations are based on 10000 bootstraps of samples at a 95% confidence interval (see Hayes [27]). We also presented the bivariate correlation analysis in Table 1.

Table 1: Bivariate correlation analysis.

Variables	1	2	3	4
Purchase Willingness	1			
interactivity	.378 [#]	1		
e-loyalty	.129 [*]	.403 [#]	1	
Social presence	.269 ^{**}	.299 ^{**}	.521 [#]	1
SD	21.053	5.298	232.54	149.97
Mean	65.35	54.54	17430.95	41329.64

Significance level ^{*} $p < .05$, ^{**} $p < .01$, [#] $p < .001$.

4. Results

4.1. Primary results

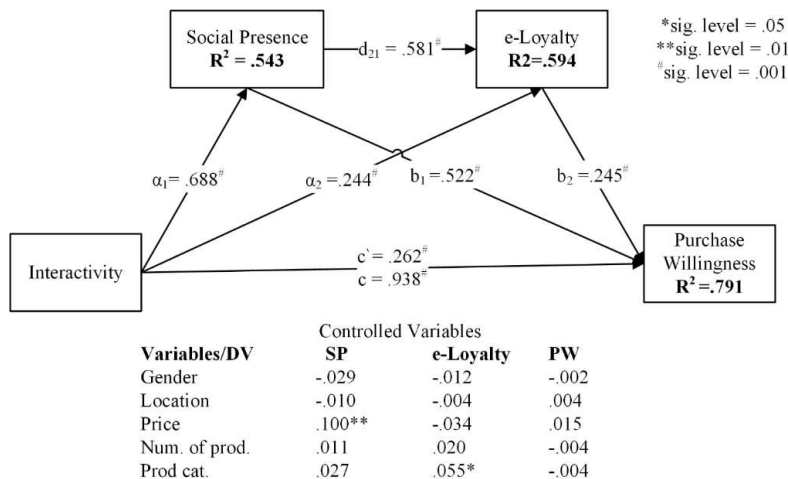


Figure 2: Serial mediation on Purchase Willingness.

A unit change in interactivity results in a .688 effect size and explaining about 54% variance in social presence at $p = .001$. The outcome provides evidence supporting our second hypothesis (H2) that proposed interactivity between the streamer and the customers will impact the feeling of social presence in live-streaming customer experience e-commerce. Collectively, interactivity ($\alpha_2 = .244$; $p = .001$), and social presence ($d_{21} = .581$; $p = .001$) explained about 59% of variance in customers e-loyalty in live-streaming customer experience. Therefore, we have the basis for claiming that the quality of interaction and the level of social presence of consumers will impact loyalty, in this case, e-loyalty, to support our third (H3) and fourth (H4) hypotheses, respectively. Social presence, ($b_1 = .522$; $p = .001$) e-loyalty ($b_2 = .245$; $p = .001$); and interactivity ($c' = .262$; $p = .001$) all had significant positive effects on the change in purchase willingness. These provide backing for our proposition in H5, H5, and H1, accordingly. Based on the current model, a total effect of .938 ($p = .001$) of the contributing independent

Table 2: Indirect paths.

Path	Beta	SE	95% CI		Hypothesis	Support
			LL	UL		
Inter →SP →PW	.359	.027	.465	.570	H6	Yes
Inter →e-Loyalty →PW	.060	.016	.032	.094	H8	Yes
Inter →SP → e-Loyalty →PW	.098	.016	.070	.131	H9	Yes

variables explained about 79% of the change in purchase willingness in live-streaming e-commerce.

We went a step further to present the results of the indirect paths in Table 2. The mediated indirect effects of interactivity via social presence on purchase willingness are significant ($B = .359$; $LL = .465$; $UL = .570$), supporting our claim that social presence will impact the relationship between interactivity and purchase willingness (H6). E-loyalty also provided a significant mediation route for interactivity on purchase willingness, indicating the better the interaction leading to loyal customers, the high the willingness to purchase in live-streaming customer experience platforms ($B = .060$; $LL = .030$; $UL = .094$) (H8). As expected, the double-hop route for interactivity through social presence and e-loyalty to purchase willingness (H9) is equally significant ($B = .098$; $LL = .070$; $UL = .131$).

B = Standardized coefficients (Beta); SE = standard errors; CI , bias-corrected and accelerated 95% confidence interval; LL = lower limit; UL = upper limit; $N = 543$; $**sig.$ level = 0.01, $Pro.Cat.$ = Product Category; $No.Pro.$ = Number of Products; $Inter.$ = Interactivity; SP = Social Presence; PW = Purchase Willingness.

4.2. Confirmatory analysis

We understand the possible misrepresentation, misinterpretation, and generalization issues that characterize single-source data usage conducted a confirmatory test with data from JD, similar in structure and business model to data from Taobao. The results are presented in Figure 3.

Interactivity has a significant positive effect on social presence ($\alpha_1 = .643$; $p = .001$), explaining 58.7% variance in social presence to confirm the earlier results supporting H2. The combined effects of Interactivity ($\alpha_2 = .164$; $p = .01$) H3, and Social present ($d_{21} = .541$; $.001$) H4, significantly explained about 50% of the change in e-loyalty. E-loyalty is a significant positive contributor to the change seen in purchase willingness ($b_2 = .293$; $p = .001$). After controlling for gender, location, price, the number of products, and product category, the independent variables of interest combined to explain 69.8% variance in purchase willingness. A direct effect of $.235$ ($p = .001$) and a total effect of $.692$ ($p = .001$) occurred between interactivity and purchase willingness. Even though the price is needed in building social presents, it does not prove significant in the determination of e-loyalty and purchase willingness in both tests.

The confirmatory results in Table 3 showed similar indirect path results as in the initial test results. There is a significant evidence for a positive mediation influence of

social presence on the impact interactivity has on purchase willingness ($B = .272$; $SE = .038$; $LL = .199$; $UL = .346$) which also provided support for H6 as seen in the primary test results.

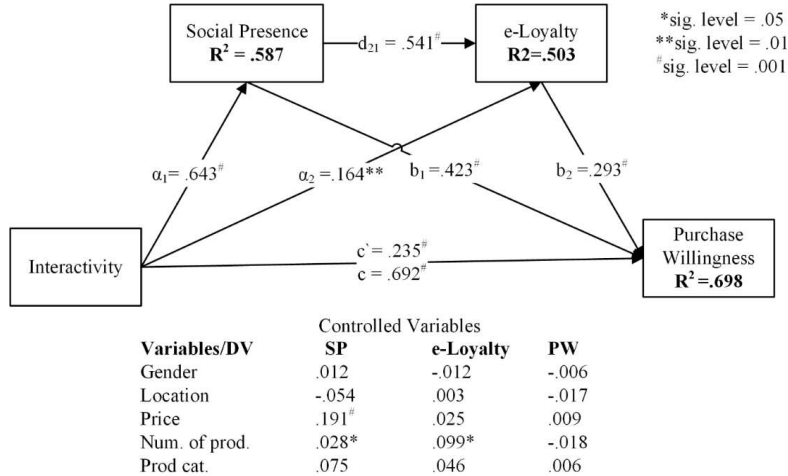


Figure 3: Confirmatory serial mediation on purchase willingness.

Table 3: Confirmatory indirect paths.

Path	Beta	SE	95% CI		Hypothesis	Support
			LL	UL		
Inter → SP → PW	.272	.038	.199	.346	H6	Yes
Inter → e-Loyalty → PW	.048	.020	.011	.091	H8	Yes
Inter → SP → e-Loyalty → PW	.102	.019	.066	.142	H9	Yes

B = Standardized coefficients (Beta); SE = standard errors; CI, bias-corrected and accelerated 95% confidence interval; LL = lower limit; UL = upper limit; N = 364; **sig. level = 0.01, Pro.Cat. = Product Category; No.Pro. = Number of Products; Inter. = Interactivity; SP = Social Presence; PW = Purchase Willingness.

5. Discussion

5.1. Key findings

This study’s primary aim is to investigate the prospects of live-streaming customer experience from the perspective of purchase willingness in an existing market as a source of inspiration and learning point for emerging African e-commerce markets. E-commerce, as practiced in Africa, now still follows the traditional online passive interaction, which lacks human and social elements, an impediment to the growth of e-commerce compared to offline markets (see Cyr et al. [15]). As a developing continent, we believe the evidence of existing markets is needed in promoting effective e-commerce. Therefore, we drew inspiration from the Chinese market to propose areas that vendors need to focus on driving live-streaming consumer experiences in Africa.

First, our results confirmed the positive impact of interactivity on social presence, e-loyalty, and purchase willingness in socially enhanced e-commerce. The two-way real-time interaction in live-streaming does not only bring about synchronicity but supports claims by influencing the willingness to buy (see Etemad-Sajadi [18]; Liu and Shrum [42]). Although social presence has been suggested as a multidimensional construct, it was often handled from a survey questionnaire and buyers' psychological perspective (see Cui et al. [14]). In this study, we focused on actual online data to support what is known in the literature from a different angle. The feeling of social presence is a strong predictor of e-loyalty besides predicting the willingness to buy. The findings, thereby, advocate the vital role of the social atmosphere built only through quality real-time interactivity (see Cyr et al. [15]). We found that gender is less critical in live-streaming. It is a positive sign of getting African youths, both male and female, into live-streaming marketing regardless of location and the type of product they choose to sell.

5.2. Implication for research

E-loyalty is considered a central idea in e-commerce literature. Loyalty is a higher level of trust, as only customers who trust a seller or product will give their loyalty and allegiance (see Keen et al. [37]). Most studies in e-commerce focused on a single website and treated e-loyalty and trust as a bilateral relationship between a seller and a buyer without necessarily associating it to social presence. This study extends e-loyalty to the social presence context and provides a benchmark for aspects to look out for in live-streaming e-commerce.

In the wake of COVID-19 contact trading restriction and in line with the goals of the AfCFTA, the potentials of live-streaming for regional trade and integration are timely, and this study has provided the basis for exploring intra-continental trade integration. More importantly, the variables studied are peculiar to live streams (Addo et al. [1]). Even though they may not be exhaustive enough, and their combination explains purchase willingness is not adequately examining for the benefit of the AfCFTA, the current study sets the pace in this direction.

Since e-loyalty based on trust is crucial in e-commerce models, a significant effort has been dedicated to understanding its impact (see Lu et al. [44]). However, using actual online data to explain these critical antecedents is undersubscribed, especially in live-streaming consumer experience studies. More specifically, Lu et al. [44], in their study, pointed out the need to use actual online data to understand the reality of trust, loyalty, social presence, and purchase intentions and to engage data from more than one platform (see Lu et al. [44]). Thus, the need for a study that bridges this gap.

The impact of interactivity as a cue for social presence has received opposing views in the literature. While studies over a decade, arguing that interactivity may not benefit online shops (Wu et al. [72]; Wu [71]). However, recent studies based on Web 2.0 technology that allows users to create and share interactive web pages have associated actual interactivity to positive consumer attitude and behavior (see Addo et al. [2]; Addo et al. [1]; Park and Yoo [56]; Shin et al. [63]). The current study has confirmed that social factors including interactivity and social presence are key as important antecedents missing in traditional online shopping are necessary for building loyal followers and customers who keep buying and spreading positive Word of Mouth.

5.3. Implication for practice

First, the study proposed and tested the effects of interactivity via social presence and e-loyalty on purchase willingness. With the coming to force of the Africa Continental Free Trade Area (AfCFTA), the adoption of customer experience live-streaming in Africa will facilitate e-commerce and s-commerce to support AfCFTA. Considering that China and Africa are both developing economies and may have similar growth paths, China's live-streaming success experiences will be helpful in the African context. The world bank in 2015 specifically mentioned lessons Africa can learn from China's growth. It was very specific about trade, sustainable agriculture, intra-continental trade, and removing trade barriers (see World Bank [70]). In related work, the authors argued that Africa's productivity-China economic relationship includes learning from China's success experiences, which should be backed by the domestic adaptive capacity excel factor productivity. That the capability of African countries to benefit from China's digital economic and virtual trading successes will enhance factor productivity and institutional quality in Africa (see Miao et al. [50]).

Our findings support the claims that social presence and loyalty are necessary for the growth and success of electronic commerce. Thus, the improvement of social environments becomes necessary and sufficient for the growth of live-streaming and e-commerce in general.

The finding is a signal to corporate managers to invest in upgrading their interactive technology. It also provides useful insights for retailers, advertisers, and marketing communication managers to effectively develop an interactive strategy that targets a broader African market. Individuals can leverage the understanding presented by this study to develop skills that can improve their interactivity and customer trust, and loyalty. It indicates the telecommunication industry to prepare for coverage, availability, and speed that will support the emerging AfCFTA market. Finally, with the understanding of live-streaming, governments, policymakers, and other regional stakeholders can develop policies that will lay the foundation for effective intra-continental trading with live-streaming.

5.4. Limitations and suggestions for future work

Despite filling the gaps in prior studies, it is essential to note that this study's constructs and variables may not be conclusive and comprehensive enough. The sample may also not necessarily represent the growing number of live-streaming users nor a straightforward "cut-and-paste" for emerging markets. It is essential to extend the variables to arrive at a more comprehensive finding considering the market settings' unique characteristics. We used real consumer data in consumer experienced live-streaming away from social media data for the first time. Even though live-streaming interactive marketing is yet to kickstart in Africa, future research must analyze data from the African continent to better overview Africa's preparedness in line with AfCFTA. We suggest further studies to capitalize on the limitations to improve the understanding of the consumer experienced live streaming.

6. Conclusion

With inspiration from social presence theory, the study demonstrated the importance of interactivity, social presence, and e-loyalty on purchase willingness with actual online data away from customer perception analysis that dominated literature over the years. Even though these variables are not new, their combination in explaining purchase willingness in live-streaming customer experience e-commerce is scarce in the existing literature. It is also important to note that the parallel analysis of this phenomenon from multiple platforms for robustness is not typically seen in the literature. While these might not necessarily be the first work with these characteristics, we are confident it is one of the very few studies with these characteristics. The study re-conceptualizes and confirms the concept of social presence in computer-mediated environments with actual online data. We have exhausted significant controlled variables known to influence online purchasing and contributed to the debate on which of these variables affect e-purchasing. Next, the study reveals the positive effects of interactivity and social presence on e-loyalty for purchase decisions. The study suggests an effective way of building followers in online s-commerce marketplaces must factor in the powers of real-time synchronous interaction and a high level of social presence. Finally, we introduced a framework that needs future investigation to adopt and use live-streaming in emerging economies. With similar growth patterns between China and Africa, the success of live-streaming in China is an indication that Africa can leverage live-streaming interactive marketing at least at the regional levels and amount countries that speak common languages to boost trade among member states.

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