

The Moderating Role of Seamless User Experience in Omnichannel Marketing and Customer Retention: A Technology Acceptance Model-Based Study in Emerging Markets

Derrick Nukunu Akude ^{1)*} , Gloria Kakrabah-Quarshie Agyapong ²⁾ , Gladstone Atuwo ³⁾ ,
Nana Emmanuel Opoku ⁴⁾ , Obed Chris Glikpo ⁵⁾ 

¹⁾³⁾⁴⁾⁵⁾ Department of Marketing, Ghana Communication Technology University, PMB 100, Tesano, Accra, Ghana.

¹⁾dakude@gctu.edu.gh, ³⁾atuwogladstone@gmail.com, ⁴⁾nanapokuemmanuel19@gmail.com, ⁵⁾Obededzanie@gmail.com

²⁾ Department of Marketing and Supply Chain Management, University of Cape Coast, Cape Coast, Ghana.

²⁾gagyapong@ucc.edu.gh

Abstract

Background: In emerging markets, e-commerce firms increasingly adopt omnichannel marketing to enhance customer retention. A seamless user experience across digital and physical channels strengthens brand loyalty, yet implementation challenges remain significant due to infrastructural and connectivity constraints.

Objective: This paper investigated the moderating role of seamless user experience on the relationship between omnichannel marketing and customer retention among E-commerce users in Ghana.

Methods: The survey utilized a self-administered questionnaire approach, gathering a total of 384 completed responses for data analysis utilizing Smart PLS-SEM (version 4).

Results: The study noted the occurrence of a positively significant relationship between cross-channel customer experience and customer retention. Secondly, there is a positively significant effect between channel service configuration and customer retention. However, the connection between channel integration quality and customer retention is insignificant. Moreover, the relationship between omnichannel personalization and customer retention is insignificant. Furthermore, seamless user experience has a positively significant moderation role in the connection between omni-channel personalization and customer retention. In addition, seamless user experience has a negatively significant moderation role in the relationship between channel integration quality and customer retention. However, seamless user experience has a positively insignificant moderation role in the relationship between cross-channel customer experience and customer retention. Also, seamless user experience has a positively insignificant moderation role in the relationship between channel service configuration and customer retention.

Conclusion: This investigation provides insights into the value of integrating seamless user experience to strengthen the relationship between omnichannel marketing as well as customer retention thereby highlighting their implications for theory, managers and business success.

Keywords: Channel Integration Quality, Customer Retention, Seamless User Experience, Channel Service Integration, Cross-channel Customer Experience.

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I. INTRODUCTION

The rapid growth of digital technology has led to the rise of omnichannel marketing, where businesses engage customers through multiple platforms such as physical stores, websites, mobile apps, and social media. While omnichannel marketing is widely recognized for enhancing customer engagement, its influence on customer retention remains underexplored, particularly in emerging economies. In these regions, challenges such as limited digital literacy, inadequate infrastructure, and diverse consumer behaviors complicate the effective implementation of omnichannel strategies [1]. For instance, in Ghana, firms are progressively embracing omnichannel marketing to provide a seamless and easy customer experience by incorporating both online and offline channels [2]. Despite the attainment of omnichannel marketing in developed countries, Ghana continues to contend with challenges like poor

* Corresponding author

internet connectivity, infrastructural deficits, and fluctuating levels of digital capability [3]. These challenges may considerably change the efficiency of omnichannel marketing, especially when it comes to maintaining value-laden customer relationships. Since businesses in such markets are investing in omnichannel systems to stay competitive, it is important to appreciate the factors that influence customer retention in these specific situations.

Customer retention is important for business success, as it boosts profits by reducing costs aimed at attracting new customers and improving customer lifetime value [4].

However, there is a lack of enquiry on how omnichannel methods can successfully improve customer retention in emerging markets. Studies have shown that a reliable user experience (UX) across channels is vital for customer loyalty [5]. Nevertheless, inadequate tech infrastructure in these markets can delay channel integration, which reduces the success of omnichannel strategies. Consequently, the role of a seamless UX as a moderating variable between omnichannel marketing and customer retention needs further research. Also, customer retention is vital for profitability, reducing the costs of attracting new customers and improving customer lifetime value [6]. Though, the relationship between omnichannel marketing and customer retention has not been exhaustively researched in Ghana, current studies propose that a seamless user experience (UX) across channels is important for retaining loyal customers [7]. Customers who notice discrepancies in pricing, product information, or service quality across channels may become dissatisfied, leading to mistrust and a greater possibility of switching brands [8]. This shows the importance of a smooth UX as a moderator that may influence how well omnichannel marketing works to retain customers.

In developing nations, where customers often switch between traditional and digital channels, providing a reliable UX across these channels is key for the maintenance of customer satisfaction and loyalty. Nonetheless, many businesses struggle to connect their online and offline channels, which can lead to confusing experiences that irritate customers [9], [10]. Moreover, studies have shown that customers in emerging markets are more prone to ditch brands because of service inconsistencies across platforms [11]. Therefore, investigating how a seamless user experience (UX) impacts the relationship between omnichannel marketing and customer retention could aid businesses to improve their marketing strategies for enduring customer loyalty. This study aims to fill this gap by scrutinizing how a smooth UX affects the relationship between omnichannel marketing and customer retention in a developing economy. The findings will add to the broader understanding of omnichannel marketing and provide useful guidance for businesses in evolving markets to improve their customer retention strategies. Explicitly, the objectives of this investigation are: to evaluate the relationship between omnichannel marketing and customer retention; and to scrutinize the moderating role of seamless user experience on the relationship between omnichannel marketing and customer retention.

To investigate these dynamics, this study adopts a quantitative approach using survey data collected from e-commerce consumers in Ghana. The research framework is grounded in the Technology Acceptance Model (TAM), complemented by the Resource-Based View (RBV) and Service-Dominant Logic (SDL), to examine the relationships between omnichannel marketing, and customer retention with user experience as the moderator.

In the sections that follow, the document shall encompass an aggregation of literature pertaining to the domain of omnichannel marketing, customer retention, alongside seamless user experience. This will be succeeded by an exposition of the methodological framework employed in the investigation. Analytical discourse and resultant findings will be delineated in the ensuing segments, culminating in a conclusive section that will reflect on the discovered outcomes as well as their implications both theoretically and in practical application.

II. LITERATURE REVIEW

A. Theoretical Foundation and Hypotheses

Omnichannel marketing, customer retention as well as the moderating role of seamless user experience constitute a multifaceted interaction within the field of E-commerce. This literature review aims to synthesize existing theoretical frameworks and empirical literature to elucidate the relationships between these constructs.

B. Service-Dominant Logic (S-D Logic)

The traditional view of marketing has been challenged by Service-Dominant Logic (S-D Logic), initially proposed by [12]. This approach places emphasis on value creation through collaborative efforts between businesses and customers, rather than simple transactional sales. For businesses operating in developing countries, S-D Logic offers a framework for leveraging diverse channels to foster enhanced customer engagement and loyalty, despite existing infrastructural limitations and variances in consumer behaviour [13].

At the heart of S-D Logic lies the concept of value co-creation. Rather than being passive recipients, customers actively participate in shaping the value they receive [14]. This dynamic becomes particularly apparent within omnichannel environments, where customers engage through various touchpoints, including physical stores, online portals, and mobile applications. Organizations embracing S-D Logic understand that each channel represents an

opportunity for deeper customer connection, leveraging customer feedback and experiences to refine their value proposition.

Within developing economies, where customers frequently navigate both online and offline channels, businesses stand to gain considerably from this co-creative approach. By diligently collecting feedback derived from diverse customer interactions, firms can fine-tune their product offerings and service delivery. This, in turn, leads to heightened customer satisfaction and strengthened loyalty, as consumers value the consideration of their viewpoints in the services they receive [15].

S-D Logic underscores the importance of ensuring consistent experiences across various channels to facilitate seamless value co-creation [16]. Nevertheless, companies operating in developing nations often grapple with challenges such as underdeveloped digital infrastructure, unreliable internet connectivity, and varying levels of technological literacy among their customer base. These hurdles can impede the implementation of robust omnichannel strategies. However, by skillfully integrating their channels, businesses can mitigate these issues by providing consistent messaging and service quality, thereby ensuring a seamless experience for their customers.

For example, a retail company operating within a developing market might develop a unified customer experience by enabling customers to browse products online, verify in-store inventory, and receive tailored recommendations informed by their online browsing behavior [17]. This seamless integration enhances the overall customer experience and reinforces the brand's commitment to collaborative value creation with its customers. Such an approach is particularly crucial in developing economies, where the cultivation of customer trust and loyalty is paramount for long-term success.

Technology assumes a central role in the effective implementation of S-D Logic within omnichannel marketing strategies. Consequently, the proliferation of mobile technology and digital platforms has dramatically altered the manner in which customers interact with brands, thereby unlocking new avenues for engagement and feedback [18]. In developing nations, the rising adoption of smartphones and increased internet accessibility offer businesses expanded opportunities to connect with customers rapidly and across multiple channels.

For instance, companies can effectively leverage customer relationship management (CRM) systems to gather and analyze data originating from diverse points of interaction, yielding valuable insights into customer preferences and behaviors [19]. This data-driven methodology empowers businesses to tailor their product offerings and communications, crafting personalized experiences that resonate with their target audience. By actively involving customers in the value creation process, companies can foster stronger relationships and enhance customer retention, even within highly competitive market landscapes.

C. Resource-Based View Theory

The Resource-Based View, or RBV, initially took shape some time ago [20] and underwent further development [21]. The theory suggests that a company's edge over competitors, and its overall success, largely depends on its' unique resources and capabilities. These resources constitute both physical and less tangible assets such as people, money, technology, and the relationships of a firm. In emerging markets, RBV clarifies how firms can use their unique resources to build value-laden customer relationships, thereby improving retention and loyalty [22].

In emerging markets, businesses often face challenges such as limited access to technology, inadequate infrastructure, and rapidly changing business environment. To resolve these challenges, firms must identify and nurture resources that drive customer retention [23]. Key resources might include a brand name that people trust, customer service systems that really work, or a team of skilled employees that consistently contributes to customer retention.

Furthermore, companies can use their understanding of the local market, and cultural knowledge, to customize their products and services. Consequently, businesses can craft marketing campaigns that truly connect with local consumers, thereby fostering customer loyalty [24]. Effectively using these resources sets businesses apart, allowing them to build a customer base that is genuinely devoted.

For example, a business that prioritizes quick customer service, actively seeks customer opinions, and resolves any problems promptly can improve their relational capital. This, in turn, can lead to delightful customers and higher retention rates [25]. Firms can use these relational resources to create a sense of community and trust; which is particularly important in emerging markets where personal connections often sway purchasing decisions.

Technology also plays a major role in the RBV framework, particularly when it comes to customer retention in emerging markets. Firms that invest in cutting-edge technology such as data analytics, CRM systems, and digital marketing can get valuable insight into what customers want and how they behave [26]. Consequently, this enable businesses to fine-tune their offerings and communications, resulting in a better experience overall.

For instance, big data analytics can help firms spot developing trends and shifts in customer behavior, which makes it possible to adjust marketing tactics and enhance customer engagement [27]. In emerging markets, where customer

needs are often evolving, the ability to adapt quickly through technology can significantly improve customer retention efforts.

D. Technology Acceptance Model (TAM)

Understanding how users adopt new technology is often aided by the Technology Acceptance Model [28]. The model proposes the idea that perceived usefulness (PU) and perceived ease of use (PEOU) are primary influences on technology adoption. In rapidly changing environments such as developing countries, TAM's insights can be especially valuable for creating positive user experiences. Because ultimately, a good user experience is critical as businesses seek to boost customer engagement and satisfaction on various online platforms [29].

Perceived usefulness is essentially a user's belief that a technology will enhance their work or increase their productivity. For digital platforms in developing nations, where consistent technological access may not be guaranteed, showing very clear advantages is key to gaining acceptance [30]. Companies should, therefore, highlight how their digital tools can simplify transactions, offer valuable information, or boost overall convenience. For instance, mobile banking apps that speed up financial transactions, can significantly affect user acceptance simply by showing the time and effort saved compared to traditional banking [31].

Perceived ease of use denotes, the degree to which users believe a system is easy to use. In developing countries, given the varying levels of technological skills among the population, making digital platforms quite user-friendly is vitally important for both adoption rates and sustained engagement [32]. A positive user experience includes designs that are simple, interfaces that reduce complexity, and customer support options that make the technology easily accessible. For example, e-commerce sites offering easy navigation, simple payment methods, and good customer service can considerably enhance perceived ease of use, thus leading to higher user satisfaction and stronger customer loyalty [33]. However, overly complicated platforms requiring advanced knowledge in technology may discourage potential users and harm overall technology acceptance. As businesses in developing countries work to promote digital engagement, prioritizing ease of use can significantly improve user experience and overall uptake.

Furthermore, cultural context has an important role in technology acceptance in emerging markets. Indeed, user attitudes toward technology can be heavily influenced by local customs, values, and general views on innovation [29]. Therefore, businesses should consider cultural factors when designing their digital platforms, so as to connect better with local users. Adapting the user experience to better fit with cultural norms can improve both perceived usefulness and perceived ease of use.

For example, businesses would do well to conduct thorough research in an attempt to understand local preferences, such as preferred payment methods, languages, and any emerging design trends. By integrating culturally relevant features into their online platforms, companies can create a better, more relevant user experience that subsequently fosters both acceptance and heightened engagement [34]. This type of cultural awareness is essential for businesses aiming to build value-laden relationships with customers in emerging economies.

III. METHODS

A. Omnichannel Marketing and Customer Retention

Recent studies indicate a relationship between omnichannel marketing and customer retention. A study in [35] found that both crowd perception and attitudes toward online reviews markedly influence the overall attitude toward omnichannel. Similarly, [36] noted that omnichannel experience promotes brand loyalty in emerging markets. However, in areas like Ghana, there are challenges to using omnichannel strategies, such as poor internet access, underdeveloped infrastructure, and lack of digital skills [3]. These issues can hinder the strategy's effectiveness in stimulating customer retention.

A study in [37] found that customers who interact with brands through various channels view them as more trustworthy, which leads to superior retention rates. This supports [38] findings that effective omnichannel strategies create awareness and ease, which ultimately enhances customer loyalty. Furthermore, [39] suggested that shoppers in Ghana appreciate the ease of switching channels while receiving a consistent brand experience, which ultimately leads to customer delight. In contrast, the current study looks at the relationship between omnichannel marketing and customer retention in e-commerce firms, investigating how these strategies influence customer loyalty online.

In another study, [40] stated that the effectiveness of omnichannel marketing relies heavily on integrating digital and physical channels. The authors found that when customers experience a smooth transition between online and offline interactions, they are more likely to remain loyal to the brand. This indicates that businesses should aim to create a seamless experience across channels to improve customer retention in developing economies. While omnichannel marketing is often credited with increasing customer engagement, its impact on customer retention is less explored, particularly in developing markets. Thus, the following hypotheses have been proposed;

H₁: *There is a statistically significant relationship between omnichannel marketing and customer retention.*

H_{1a}: *There is a statistically significant relationship between channel service configuration and customer retention.*

H_{1b}: *There is a statistically significant relationship between channel integration quality and customer retention.*

H_{1c}: *There is a statistically significant relationship between cross channel customer experience and customer retention.*

H_{1d}: *There is a statistically significant relationship between omnichannel personalization and customer retention.*

B. Moderating Role of seamless user experience

User experience is becoming more important in connecting omnichannel marketing and customer retention. A good user experience means easy to use, accessible, and consistent across many channels [40]. Research by [41] has shown that a positive user experience helps to improve the effects of omnichannel marketing strategies in developing countries.

Evidence shows that a good user experience is key to reducing customer frustration and drop-off rates. A study in [42] stated that customers who encounter problems when switching channels are likely to disengage and choose other options. This, suggest that businesses must focus on enhancing user experiences to retain customers.

Local culture also influences how well omnichannel marketing and user experience perform. Research by [43] shows that cultural aspects like collectivism and uncertainty avoidance influence consumer expectations and brand interactions. In India, customers sought more personalization and consistency in their omnichannel experiences. This shows the importance of understanding local culture to design a user experience that helps retain customers.

A study by [44] found that mobile technology and social media have shifted consumer behavior, making a strong user experience essential for retaining customers. Their results showed that brands effectively using local social media and mobile applications create better shopping experiences, leading to improved customer loyalty.

However, even with the strong link between omnichannel marketing, customer retention, and user experience, businesses in developing economies encounter challenges. Issues such as limited technology, varied digital skills, and resource gaps can hinder effective omnichannel strategies [45]. Many businesses struggle with integrating customer data across channels, which is vital for personalizing experiences [46]. Therefore, the following hypotheses have been proposed:

H₂: *There is a statistically significant moderation effect of seamless user experience on the relationship between omnichannel marketing as well as customer retention.*

H_{2a}: *There is a statistically significant moderation effect of seamless user experience on the relationship between channel service configuration as well as customer retention.*

H_{2b}: *There is a statistically significant moderation effect of seamless user experience on the relationship between channel integration quality as well as customer retention.*

H_{2c}: *There is a statistically significant moderation effect of seamless user experience on the relationship amid cross-channel customer experience as well as customer retention.*

H_{2d}: *There is a statistically significant moderation effect of seamless user experience on the relationship amid omnichannel personalization as well as customer retention.*

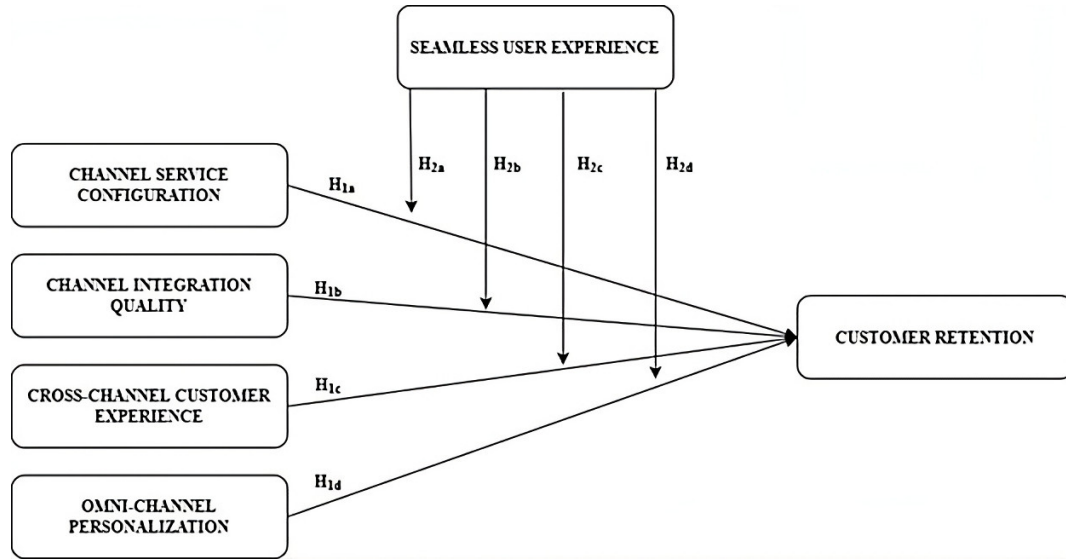


Fig. 1 Conceptual model

C. Survey instrument

The survey tool was made by choosing a questionnaire from past studies to consider the different parts of the research model. The formats of the questions for checking channel service configuration were modified [47], [48]. Additionally, items about the cross-channel customer experience were adapted [49]. Questions on channel integration quality were adjusted [50]. The sections on omnichannel personalization were also, revised [51]. The questions for customer retention were modified [52], [53] along with those for measuring seamless user experience [49], [54]. For this study, a 5-point Likert scale was used.

TABLE 1
 QUESTIONNAIRE ITEMS

Variable	Code	Statements	Reference
Channel Service Configuration	CSC1	The company provides consistent service quality across all channels (e.g., in-store, online, mobile).	[47], [48]
	CSC2	It is easy to switch between service channels without losing my place or service history.	
	CSC3	The company offers the same level of customer support across all service channels.	
	CSC4	Information provided through one channel (e.g., website) is consistent with the information provided through other channels (e.g., mobile app, call center).	
	CSC5	The company ensures that all channels (e.g., physical store, website, mobile app) are integrated to provide a unified service experience.	
Channel Integration Quality	CIQ1	I find the information about products and services consistent across all channels (e.g., online, in-store, mobile app).	[50]
	CIQ2	I am able to see accurate and real-time product availability across different channels (e.g., checking product stock online before purchasing in-store).	
	CIQ3	My preferences and purchase history are recognized across all channels (e.g., if I browse a product online, the store associates know about it when I visit the store).	
	CIQ4	It is easy for me to start a transaction on one channel and complete it on another (e.g., reserving a product online and picking it up in-store).	
	CIQ5	Customer service representatives across different channels are well-informed and provide consistent responses to my inquiries.	
Cross-Channel Customer Experience	CCC1	I find it easy to switch between different channels (e.g., starting a purchase online and completing it in-store).	[49]
	CCC2	I am satisfied with how the company handles my interactions across multiple channels.	
	CCC3	The shopping experience is consistent across all channels, regardless of whether I shop online, in-store, or on the mobile app.	
	CCC4	I feel that each channel (online, in-store, mobile app) plays to its strengths, providing a smooth and valuable experience.	
	CCC5	Information about my previous transactions, orders, or preferences is easily accessible across all channels.	

TABLE 1 (Cont.)
QUESTIONNAIRE ITEMS

Variable	Code	Statements	Reference
Omni-Channel Personalization	OCP1	The product recommendations I receive are tailored to my preferences, no matter which channel I use (online, mobile app, in-store).	[51]
	OCP2	My past interactions on one channel (e.g., online browsing history) influence the personalized suggestions I receive on other channels (e.g., in-store or on the mobile app).	
	OCP3	The offers and promotions I receive are relevant and based on my preferences, regardless of the channel through which I engage with the brand.	
	OCP4	The communications I receive (emails, notifications, etc.) are personalized based on my shopping habits and preferences across different channels.	
	OCP5	The brand uses information from all my interactions (online, mobile app, in-store) to create a personalized shopping experience.	
Customer Retention	CR1	I frequently make repeat purchases from this e-commerce platform.	[52], [53]
	CR2	I would recommend this e-commerce platform to others due to its integrated shopping experience.	
	CR3	I am more likely to stay loyal to this e-commerce platform because of its Omnichannel shopping options.	
	CR4	The availability of multiple shopping channels encourages me to remain a customer of this e-commerce platform.	
	CR5	I believe that this e-commerce platform values my loyalty by offering a seamless experience across channels.	
Seamless User Experience	SUE1	A seamless shopping experience across channels positively influences my decision to continue shopping with this platform.	[49], [54]
	SUE2	I am more likely to shop on this platform because of the convenience of its Omnichannel options.	
	SUE3	A consistent user experience across multiple channels encourages me to make repeat purchases.	
	SUE4	I trust this e-commerce platform more because of its seamless and consistent shopping experience across channels.	
	SUE5	The smooth transition between different channels makes me more inclined to shop frequently on this platform.	

D. Sampling and data collection

The survey design used was cross-sectional, targeting e-commerce users in Ghana who engage with brands through different channels. The focus was on people aged 18 to 50 who are digitally active and have access to both online and offline shopping options. The study applied Stratified Random Sampling, which divides participants by their preferred channels or how often they use them (like app users, desktop users, in-store shoppers, and social media users) to get a fair representation across these channels. The sample size was determined using the formula from [55], [56], and [57], which is outlined below. This approach justifies using a sample size of about 384 when the total population size is either large or unknown. To determine the desired confidence level and margin of error, a 95% confidence level (corresponding to a Z-score of 1.96) and a 5% margin of error ($E = 0.05$) were selected. Assuming an estimated population proportion (p) of 0.5, which represents maximum variability and yields the largest possible sample size, the required sample size was calculated using the stratified sample size formula based on the proportional allocation method:

$$n = \frac{Z^2 \cdot p \cdot (1-p)}{E^2} \quad (1)$$

Substituting the values into the formula, the calculation results in a sample size of approximately 384 respondents.

An online survey was sent to the sample group. The survey gathers demographic details, how often respondents use each channel, satisfaction with moving between channels, and views on the overall experience across channels. Each questionnaire was completed by a customer of the E-commerce brand. Before starting the survey, participants received a cover letter explaining the study's goals and participation requirements. Researchers held informal talks to assess the participants' interest in joining the study. After expressing interest, those willing to fill out the questionnaire were invited to participate on a voluntary basis.

E. Data Analysis

Statistical analysis was done using Smart PLS (version 4.0) software to scrutinize the relationship between omnichannel marketing and customer retention outcomes, with seamless user experience as a moderating variable [58]. PLS-SEM was chosen as it is flexible for different modeling complexities, unlike the strict assumptions often needed for multivariate statistics [59].

According to [57], it is advised that metrics for measuring a theoretical construct in the structural model reach a minimum of 0.70 when using previously validated constructs. This level is important because it shows that the indicator explains over 50% of the variance related to it. Since this research used validated constructs from earlier studies, a reliability check was carried out with the relevant indicators, following the reliability standard of 0.70. This methodological approach aligns with the rigorous standards demonstrated in [60], [61], ensuring the reliability and validity of the study's findings

IV. RESULTS

A. Profile of respondents

In total, there were 384 valid responses gathered for the statistical analysis. The gender distribution among the respondents is fairly even, showing different gender identities: About 173 respondents (45%) identified as male, which indicates balanced participation in omnichannel usage. Additionally, 192 respondents (50%) identified as female, demonstrated a slightly higher involvement from females in the sample. A small number, 19 respondents (5%), identified as "Other," reflected diversity in the sample.

The demographics show that 5% (n=19) were under 18, meaning youth representation is limited, while 20% (n=77) were aged 18-25, a group that is very active online. The largest age segment, 26-35 years, made up 30% (n=115), indicating higher buying power and frequent digital usage. The 36-45 age group comprised 25% (n=95), is important for e-commerce due to their use of multiple channels for convenience. Respondents aged 46-55 represented 15% (n=58), demonstrates a gradual shift to digital while still preferring traditional options. Lastly, 5% (n=19) were over 55, usually leaning towards in-store or phone interactions but slowly starting to use digital platforms.

TABLE 2
 DEMOGRAPHIC PROFILE AND CHANNEL USAGE OF RESPONDENTS (N = 384)

Category	Sub-category	Frequency (n)	Percentage (%)
Gender	Male	173	45%
	Female	192	50%
	Other	19	5%
Age Group	Under 18	19	5%
	18-25	77	20%
	26-35	115	30%
	36-45	95	25%
	46-55	58	15%
	Over 55	19	5%
Frequency of Channel Use	Rarely	38	10%
	Occasionally	96	25%
	Frequently	154	40%
	Very Frequently	96	25%
Preferred Channels	In-store	77	20%
	Website	135	35%
	Mobile App	115	30%
	Phone Support	38	10%
	Social Media	58	15%
	Other (e.g., Email, Chat)	19	5%

Respondents were asked how often they used the different service channels offered by the company, showing engagement levels: 38 respondents (10%) indicated that they rarely used the company's channels, implying infrequent brand interaction. About 96 respondents (25%) reported occasional use, suggesting selective channel engagement. The largest group, 154 respondents (40%), indicated frequent usage of the channels, signaling a high level of engagement with the brand. Another 96 respondents (25%) reported very frequent usage, likely indicating loyalty as they interact with the brand often across various touchpoints.

The survey results on channel preferences showed diverse omnichannel habits. In-store shopping was significant, with 20% (n=77) of respondents preferring physical locations. The website was the most popular choice, selected by 35% (n=135), due to its convenience. Mobile apps were favored for easy access, used by 30% (n=115). Phone support was chosen by 10% (n=38) for solving complex issues, while 15% (n=58) used social media for engagement, showing a shift toward digital platforms. A minor group (5%, n=19) favored other approaches, like email or third-party chats, signifying a less frequent use of services.

B. Evaluation of measurement model

The assessment of the measurement model was conducted through the application of Smart PLS-SEM (version 4). The conceptual framework of this study was constituted by six distinct constructs, which include channel service configuration, channel integration quality, cross-channel customer experience, omnichannel personalization and customer retention with seamless user experience as the moderator.

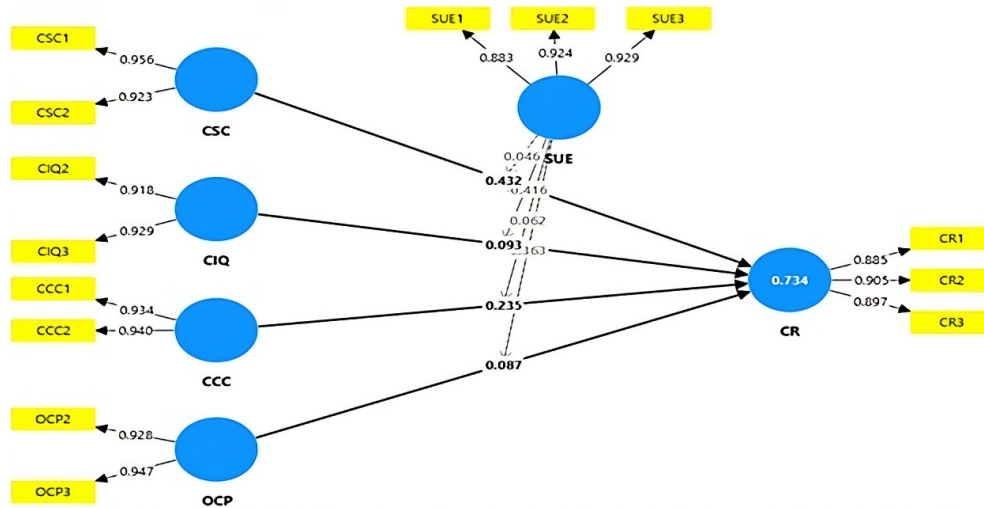


Fig. 2 Measurement model

In evaluating the measurement model, a detailed review of the reliability, convergent and discriminant validity for the six identified constructs, was performed [58], [62]. Reliability is confirmed when the values of the Cronbach's alpha, composite reliability (rho_a), and composite reliability measure (rho_c) are equal to or above 0.7. Additionally, to establish convergent validity, the average variance extracted (AVE) must be greater than 0.5 [58]. It is important to note that the initial survey was checked for content validity by three academic departments: marketing, finance, and accounting.

TABLE 3
CRONBACH ALPHA, COMPOSITE RELIABILITY RHO_A AND COMPOSITE RELIABILITY RHO_C

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
CCC	0.860	0.861	0.935	0.877
CIQ	0.827	0.830	0.920	0.853
CR	0.877	0.879	0.924	0.802
CSC	0.869	0.915	0.938	0.882
OCP	0.863	0.876	0.935	0.879
SUE	0.900	0.915	0.937	0.832

Note: CSC = channel service configuration, CIQ = channel integration quality, CCC = cross-channel customer experience, OCP = Omni-channel personalization, CR = customer retention, SUE = seamless user experience.

The information summarized in Table 3 conveys that the items alongside the constructs within this research exhibited sufficient levels of convergent validity and reliability regarding each of the six constructs being analyzed. In the study at hand, the evaluation of discriminant validity was conducted utilizing the heterotrait-monotrait (HTMT) ratio as delineated by [63]. To affirm the discriminant validity, it is imperative that the HTMT ratio for each concept remains beneath the threshold of 0.9, as indicated by [58]. The findings pertinent to HTMT are delineated in Table 4, which indicates an acceptable level of discriminant validity.

TABLE 4
DISCRIMINANT VALIDITY ASSESSMENT (HTMT)

	CCC	CIQ	CR	CSC	OCP
CIQ	0.870				
CR	0.861	0.830			
CSC	0.854	0.843	0.864		
OCP	0.886	0.892	0.837	0.822	
SUE	0.860	0.809	0.763	0.730	0.894

C. Evaluation of the structural model

The structural model necessitates evaluation in order to analyze the interconnections between omnichannel marketing and customer retention, while also considering the moderating effect of seamless user experience. As a result, the hypotheses put forth in the study underwent testing.

D. Collinearity assessment

The evaluation of collinearity related to latent variables is done using the Variance Inflated Factor (VIF). As stated by [64], a VIF value of 5 or higher may indicate collinearity issues. The information in Table 5 shows that all VIF values are below 5, which indicates that there are no potential collinearity problems in the model. Thus, it can be said that the model is not affected by common method bias [65].

TABLE 5 INNER VIF	
	VIF
CCC -> CR	3.556
CIQ -> CR	3.379
CSC -> CR	3.045
OCP -> CR	4.034
SUE -> CR	3.396

Furthermore, the VIF values can be interpreted to rank the relative influence of each predictor on the dependent construct (Customer Retention). A higher VIF value suggests that a predictor shares more variance with the other predictors, often indicating stronger involvement or weight in the model. Based on the VIF scores, OCP (4.034) emerges as the most influential predictor, followed by CCC (3.556), CIQ (3.379), SUE (3.396), and CSC (3.045). This ranking provides insights into which dimensions of the omnichannel framework contribute most significantly to customer retention in the study context.

The review of path coefficients requires evaluation of the R-square (R^2) and the Stone-Geisser criterion (Q^2) regarding omnichannel marketing and customer retention to assess the structural model [64]. The R^2 value of 0.734 for customer retention is seen as a strong score in the behavioral sciences [66]. This figure indicates that 73.4% of the variance in customer retention is explained by the four predictors. Notably, this variance is above the minimum R^2 threshold of 25% [67], which is significant. According to the findings of [66], the Q^2 value must be more than zero to show that a structural model can predict outcomes; in this case, a Q^2 of 0.698 was found for customer retention. These numbers highlight that the model has suitable predictive abilities.

The path coefficient analysis shows that channel service configuration, channel integration quality, cross-channel customer experience, and omnichannel personalization all positively affect customer retention, in that order. It is important to note that among these factors, channel service configuration had the greatest impact on customer retention, followed by cross-channel customer experience, channel integration quality, and finally, omnichannel personalization.

E. Hypotheses testing (Direct effect)

As a conclusion of the direct effect, two of the four hypotheses were supported; cross-channel customer experience to customer retention ($\beta = 0.235$, $p < 0.05$), and channel service configuration to customer retention ($\beta = 0.432$, $p < 0.01$). However, channel integration quality to customer retention is insignificant ($\beta = 0.093$, $p = 0.221$); Additionally, omnichannel personalization to customer retention is insignificant ($\beta = 0.087$, $p = 0.399$) as can be demonstrated in Table 6.

TABLE 6 HYPOTHESES ANALYSIS					
	Original sample (O)	f - square	T statistics (O/STDEV)	P values	Decision
CCC -> CR	0.235	0.058	2.911	0.004	Supported
CIQ -> CR	0.093	0.010	1.223	0.221	Not supported
CSC -> CR	0.432	0.230	6.842	0.000	Supported
OCP -> CR	0.087	0.007	0.844	0.399	Not supported

The examination further evaluated the effect size (f^2), serving as an indicator for ascertaining the significance of a particular exogenous construct with respect to influencing an outcome variable. In accordance with recommendations by [68], findings indicated that cross-channel customer experience exhibit a small effect on customer retention, whereas channel integration quality was found to exert no effect on customer retention. Additionally, it was

determined that channel service configuration had a large effect on customer retention whereas, omnichannel personalization does not demonstrate any effect on customer retention.

F. Moderation effect

The current investigative hypothesis pertains to the evaluation of the moderating function that seamless user experience exerts on the relationship existing between omnichannel marketing and customer retention. The notion of moderation delineates a scenario whereby the interrelation between two constructs does not exhibit a linear progression; rather, it is contingent upon the level or value associated with an additional variable referred to as a moderator [64].

In this regard the appraisal of the moderation effect was applied. It is worthy of note that seamless user experience has a positively significant moderation effect ($\beta = 0.363$, $p < 0.05$) on the relationship between omnichannel personalization and customer retention. However, seamless user experience has a positively insignificant moderation effect ($\beta = 0.062$, $p = 0.472$) on the relationship between cross channel customer experience and customer retention. Additionally, seamless user experience has a negatively significant moderation effect ($\beta = -0.416$, $p < 0.001$) on the relationship between channel integration quality and customer retention. Also, seamless user experience has a positively insignificant moderation effect ($\beta = 0.046$, $p = 0.392$) on the relationship amid channel service configuration and customer retention (Table 7).

TABLE 7
 HYPOTHESES TESTING (MODERATION EFFECT)

	Original sample (O)	f - square	T statistics (O/STDEV)	P values	Decision
SUE x OCP -> CR	0.363	0.097	2.755	0.006	Supported
SUE x CCC -> CR	0.062	0.004	0.719	0.472	Not supported
SUE x CIQ -> CR	-0.416	0.149	3.868	0.000	Supported
SUE x CSC -> CR	0.046	0.003	0.856	0.392	Not supported

In accordance with [69] proposition, Table 7 further elucidates that the moderating function of seamless user experience exhibits a small effect on the relationship between omnichannel personalization ($f^2 = 0.097$) and customer retention. Additionally, the moderating role of seamless user experience has no effect on the relationship between cross-channel customer experience ($f^2 = 0.004$) and customer retention. Furthermore, the moderating effect of seamless user experience demonstrate a medium effect on the connection involving channel integration quality ($f^2 = 0.149$) and customer retention. Moreover, the moderating role of seamless user experience has no effect on the relationship between channel service configuration ($f^2 = 0.003$) and customer retention.

V. DISCUSSION

The present inquiry, grounded in service-dominant logic, resource-based view theory, and the technology acceptance model, embarks on an exploration that juxtaposes the moderating influence of seamless user experience on the relationship between omnichannel marketing and customer retention in relation to E-commerce brands in Ghana. The findings furnish empirical validation regarding the pivotal function of seamless user experience in moderating the interplay between omnichannel marketing and customer retention.

Among the four put forth hypotheses pertaining to direct effects, two garnered support (refer to Table 6). Observations revealed a positively significant relationship between cross-channel customer experience and customer retention in relation to E-commerce brands. This highlights the importance of smooth interactions between digital and physical points to build loyalty. By keeping branding and communication consistent, e-commerce brands can improve customer trust and engagement, which supports loyalty. When brands connect their channels, they can know what customers like more. This encourages them to make suggestions that connect on a personal level. Additionally, making it easier for customers to use different platforms and keeping a consistent brand look helps build trust. This way, customers can find, interact with, and stay loyal to the brand more easily. A study in, [70] found that cross-channel integration considerably enhances consumer loyalty, mediated by consumer empowerment and feelings of satisfaction. Similarly, [71] suggested that omnichannel retail strategies, including digital and offline integration, positively influence customer loyalty among Nigerian e-commerce stores.

In a similar way, the link between channel service configuration and customer retention for E-commerce brands showed a notable positive effect. This highlights the real importance of an efficient and well-managed service throughout the whole shopping process. By improving accessibility, adding unique personalizations, and ensuring that the brand remains constant, e-commerce builds long-term connections through experiences that are both smooth and responsive. Reducing challenges by connecting platforms makes shifting between devices easier, which results in

greater satisfaction. Furthermore, information collected from various channels drives continuous changes, making services a more effective match with what buyers actually want. This adaptable approach keeps brands centered around their customer, which leads to better retention by enhancing trust, commitment, and consistent brand quality in a competitive business environment. A study in, [72] found that e-service quality significantly impacts e-customer loyalty, mediated by e-satisfaction and e-trust. Similarly, [73] observed that e-service quality dimensions are positively correlated with e-loyalty determinants, with e-satisfaction having a stronger effect. Furthermore, [74] indicated that personalization and trust significantly enhance customer satisfaction, which in turn promotes customer loyalty.

Conversely, while the relationship between channel integration quality and customer retention in relation to E-commerce brands was identified as positive, but lacked statistical significance. This shows a need for a broader view on loyalty. Customers tend to focus on convenience, personalization, and additional services more than just integration. They see smooth multi-channel experiences as normal. Although quality of integration can lessen issues, it might not be enough to create loyalty on its own, since competitive pricing and specific support are more important. Furthermore, difficulties in measuring the quality of integration may hide its effects, indicating a need for more detailed methods to understand its real impact on keeping customers. Similarly, [75] observed that the effectiveness of online-offline channel integration (OOCI) on customer loyalty is mediated by customers' perceptions of usefulness and risk. They also established that retailer credibility plays a vital role in this mix, further highlighting that integration quality must be complemented by other factors to improve customer loyalty. Furthermore, [76] has shown that while channel integration quality is linked to customer engagement and openness to relationship programs, its direct effect on customer satisfaction and loyalty in omnichannel retailing is not entirely validated, signifying the need for further research into these relationships.

Similarly, the relationship between omnichannel personalization and customer retention in relation to E-commerce brands is positively insignificant. This demonstrates an intricate fact: personalization can enhance customer experience, but it might not alone lead to customer loyalty. Customers tend to appreciate experiences tailored to them, but they often seem to value practical benefits like quality products, fair prices, and easy shopping even more than perfectly personalized recommendations. Effective personalization also means consistent and relevant communication across channels, which can be a challenge to accomplish. Ultimately, personalization seems to work best when incorporated in a broader plan for customer retention that includes quality and value. It is also possible that difficulties in measurement to appreciate the impact of personalization on customer perceptions, may indicate the need for better tools to evaluate customer insights. A study in [77] found that while personalized recommendations in AI-driven e-commerce platforms can enhance trust and satisfaction, their direct impact on customer loyalty is limited. The study emphasizes that personalization should be part of a broader strategy that includes quality and value to effectively foster customer retention. Similarly, [78] argue that algorithmic personalization alone may not suffice to build brand loyalty. They suggest that while personalization can enhance the customer experience, it must be complemented by other factors such as product quality and fair pricing to truly drive customer retention.

The subsequent hypotheses scrutinized the moderating influence exerted by seamless user experience on the nexus between omnichannel marketing and customer retention (as delineated in Table 7). The examination unveiled a notable positive moderation effect of seamless user experience on the relationship between omnichannel personalization and customer retention in relation to E-commerce brands. This shows that a smooth journey matters for personalizing impact. A good experience boosts the value of personalized content, lessens customer work, builds trust, and enables timely and relevant suggestions across channels. Also, combined data insights help create better personalization, resulting in more satisfaction and loyalty. This points out that e-commerce brands should concentrate on making experiences smooth and consistent to enhance personalization effectiveness and encourage lasting customer retention. A scale for gauging seamless experience in omnichannel shopping was crafted in a study, as noted in [79]. The findings suggested that, this seamlessness has a substantial effect on customer actions, like repurchase intention and positive recommendations signifying its' vital role in maintaining customer loyalty. Similarly, [80] suggested that omnichannel strategies that deliver a smooth retail journey have a notable effect on customers' engagement and perceived brand authenticity, which are key to creating loyalty and trust. Additionally, a study in [81] confirmed that a well-executed omnichannel marketing plan, which includes user experience and personalization, can enhance customer satisfaction and loyalty in today's retail landscape.

Furthermore, this study finds that seamless user experience negatively moderates the relationship between channel integration quality and customer retention in relation to E-commerce brands. The potential issue here is that focusing too much on making everything flow perfectly might overshadow the actual quality of integration efforts, as customers may overlook some of the finer technical specifics involved. Moreover, if customer expectations for a flawless and personalized experience are set too high, it may ironically result in customer dissatisfaction and, ultimately, a consequent decrease in customer loyalty. A "one-size-fits-all" approach may not cater to varied customer preferences well. For better retention, brands must strike a balance between smoothness and efficient, value-centered channel

integration that recognizes individual customer needs while enhancing personalized, relevant experiences at every interaction point. A study in [76] found that while channel integration quality positively influences customer engagement, the effectiveness of this relationship can be diminished if the seamlessness of the user experience leads customers to overlook the integration efforts, thereby affecting their loyalty. Similarly, [82] observed that in the fashion retail sector, while seamlessness enhances customer experience, overemphasis on creating a smooth journey without considering individual customer preferences can lead to a generic experience that may not effectively foster customer retention.

Nonetheless, the moderation function of seamless user experience concerning the relationship between cross-channel customer experience and customer retention in relation to E-commerce brands proved to be positively insignificant. This implies that things besides seamlessness might influence customer loyalty. Customers could see cross-channel experiences as a whole, where consistency and relevance are more important than smooth transitions. As seamlessness turns into a norm, its role in keeping customers lessens. Moreover, the mixed nature of cross-channel interactions, expectations from customers, and other factors like product quality may eclipse seamlessness. Difficulties in measuring these aspects accurately may also lead to the absence of a strong effect. Similarly, research by [83] indicates that while channel integration quality increases trust and customer retention, the seamlessness of user experience does not significantly moderate this relationship. This implies that customers may prioritize the quality and consistency of information across channels over the seamlessness of transitions between them.

Moreover, the moderation role of seamless user experience on the relationship between channel service configuration and customer retention in relation to E-commerce brands is positively insignificant. This means that if service setups are good already, seamlessness might not really help keep customers. Customers might care more about the quality of service and customization than smooth transitions. Since seamless experiences are so commonplace now, people might not always recognize them right away. Moreover, retaining customers depend on a lot of factors, like product quality and the level of support. The minor role of seamlessness could be the result of difficulties with research methods, demonstrating a need for enhanced studies to better appreciate how these factors work together. Recent studies lay credence to these observations. For example, [76] suggested that while seamless experiences notably influence customer behaviors like repurchase intention and word-of-mouth recommendation, their moderating effect on the relationship between cross-channel customer experience and customer retention is not significant. This demonstrates that seamlessness alone may not necessarily improve customer loyalty without other aspects like consistency and relevance in customer interactions. Correspondingly, [83] proposed that while channel integration quality enhances trust and customer retention, the seamlessness of user experience does not significantly moderate this relationship. This indicates that customers care more about getting quality information and sighting it consistently across different channels than about how smoothly they can switch between them. Furthermore, a study by [74] highlights that customer satisfaction and trust are vital for customer loyalty. While personalized experiences can lead to customer delight, they must be part of an expansive strategy that includes service quality and reliability to effectively nurture customer retention.

A. Theoretical implications

This research shows how omnichannel marketing and customer retention are connected. Therefore, this study adds to the existing literature on omnichannel marketing and its relationship with customer retention metrics. Additionally, by evaluating the moderating roles exerted by seamless user experience on the relationship between omnichannel marketing and customer retention, this study deepens scholarly knowledge.

In order to maintain the applicability of this investigation within its precise context, it becomes important that the modified measurements of latent constructs are employed. This approach can lead to a more nuanced and elaborate understanding of the interrelations among the various constructs, thereby providing valuable insights.

Moreover, the conceptual outline of the moderating roles played by seamless user experience with regard to the nexus between omnichannel marketing and customer retention affords a new pathway for further study aimed at extending the understanding of customer retention. This also serves to empower E-commerce entities in their pursuit of omnichannel marketing strategies, consequently enhancing their competitive edge.

omnichannel strategies should not just focus on combining different service channels. They should also involve customers in creating value through smooth experiences. The research backs the idea that having smooth transitions between channels is essential for working together to create good experiences, which helps to keep customers coming back.

From the resource-based view, e-commerce brands need to see seamless omnichannel integration as an important resource for gaining a lasting competitive edge. Companies should work on building skills that allow them to provide better cross-channel experiences, making it difficult for others to copy.

According to the technology acceptance model, when e-commerce brands make an effort to provide a smooth and easy user experience across various channels, it improves how easy and useful their digital services seem. This improvement can help retain customers. Seamlessness lowers adoption barriers and boosts the chances of ongoing engagement, highlighting the need for using technology that makes the customer journey smooth and enjoyable.

B. Managerial implications

For management, the findings of this study present noteworthy implications. Customer retention for e-commerce businesses hinges on a multifaceted approach, with channel utilization being paramount. Specifically, investing in integrated CRM and communication tools becomes essential, facilitating straightforward customer engagements and informing continuous improvements. Indeed, real-time data and responsiveness empower brands to tailor their strategies to customer actions, thus boosting engagement and bolstering loyalty.

To enhance customer retention, e-commerce firms should prioritize service setups across channels via investments in integrated CRM and support systems. Focusing on a connected model that values personalization and ease leads to more satisfied and loyal customers. Routine evaluations and data analysis reveal opportunities for improvement, thereby paving the way for value-laden customer relationships over time.

Rather than seeing channel integration as merely a retention tactic, e-commerce brands ought to frame it as a component of a larger customer experience blueprint. By pairing robust integration with tailored recommendations, competitive pricing, and accessible support options, they can nurture loyalty. It is also vital to gauge customer expectations; because, given integration's increasing prevalence, it might no longer be a differentiator.

E-commerce managers should aim for balance in their customer loyalty strategies, placing significant emphasis on product quality, competitive pricing, and accessible support, rather than relying too much on channel personalization. Instead of overshadowing crucial service elements, personalization should supplement them, ensuring offerings remain appealing across all channels. Generally speaking, a blended strategy where value-focused experiences are combined with personalization will create robust and lasting customer loyalty in the competitive e-commerce arena.

E-commerce brands should prioritize frictionless user experiences across all touchpoints to maximize the benefits of omnichannel personalization. By blending seamless interactions with relevant, tailored content, they can significantly enhance customer satisfaction and foster loyalty. Managers must ensure personalization aligns with a consistent customer journey, so that customers receive relevant offers and support exactly when they need it, thereby building trust and driving repeat business.

E-commerce firms should seek a strategic balance between simple, intuitive user experiences and robust channel integration. A smooth transition for customers reduces friction, but should not compromise the technological strengths of integration. Brands must ensure their integration strategies not only provide smooth navigation but are enhancing personalization and cater to a broad spectrum of customer needs. Emphasizing both components will likely enhance customer retention.

Instead of pursuing perfect seamlessness, e-commerce brands ought to place greater emphasis on the relevance and overall quality of their cross-channel experiences. While a frictionless journey remains important, optimizing the quality of product offerings, clear communication, and highly personalized interactions is, in most cases, key to customer retention. In fact, consistent, high-quality experiences throughout all channels, coupled with personalized and relevant messaging, will enhance the perceived value of each customer interaction.

E-commerce managers should focus on improving channel service setups—ensuring that quality, personalization, and responsiveness are prioritized over just achieving smooth transitions between touchpoints. While a seamless user experience is essential, it may not significantly influence customer retention if the service is already well-crafted. Managers should allocate efforts to boost service quality and personalization rather than putting too much emphasis on seamlessness.

C. Limitations and recommendations for future research

This study looks at online shopping in Ghana, which might make it hard to apply findings to other places with different shopping habits, technologies, and cultures. Future research should include more African countries or emerging markets to see how seamless user experiences affect customer loyalty. A comparative study could help better understand seamlessness in different online shopping settings.

The study might not have a large enough sample size and may focus on specific demographic groups, which could skew the results. Differences in customer groups, such as age, income, education, and tech savviness, might change how a seamless user experience affects loyalty. For future studies, it is prudent to think about expanding the number of respondents involved. Breaking down customers by demographics like age or location could clarify how well omnichannel strategies function for different types of groups.

Online stores in Ghana might adopt CRM systems or AI at different paces. This variation can play a role in how reliable our findings are. It is important for businesses to put some serious resources into these tools. Future research should examine how digital assets enhance user experience and retain customers by delivering satisfaction in online shops.

It is difficult to measure smooth user experience across different channels. This is because customers have different perceptions. This can limit our understanding and maybe impact data accuracy. This variety in perception can restrict how researchers the connection between consistent experiences and a customer's commitment to a brand. Future research ought to focus on creating clear, rock-solid methods for evaluating seamless user experience by utilizing customer feedback and usage stats. This would give more reliable insights into how that impacts customer loyalty.

VI. CONCLUSIONS

Customer experience across channels clearly links to retention, emphasizing interactions that are easy, branding that is consistent, and personalized engagements. E-commerce brands that offer a unified experience can enhance customer satisfaction and loyalty, thereby gaining an edge over their rivals. The arrangement of service channels also matters, as it shows how crucial it is to have channels that are organized, accessible, and connected. E-commerce brands can foster loyalty and improve customer experiences by focusing on accessibility, brand consistency, and, personalization.

Channel integration quality impacts customer retention, but the connection is not strong. This implies integration can lead to customer retention, but it is not the only factor. E-commerce brands should consider other factors that drive retention such as customer support, simplicity, personalized service and the use of integration quality.

Omnichannel personalization may enhance e-commerce experience, but its' limited impact on customer retention emphasizes the value of a wider customer loyalty strategy. Personalization should be seen as one piece of a larger plan that prioritizes product quality, convenience, and general customer support to create an experience that truly resonates with customers.

A smooth user experience plays a positive role, pointing to the need to combine omnichannel personalization with a journey that is easy to use, ultimately improving customer retention. Hence, e-commerce brands should invest in both personalized experiences and the overall journey quality in order to strengthen loyalty while effectively meeting customer needs in a competitive market.

A seamless user experience can have a negative effect on the link between channel integration quality and customer retention. This suggests that e-commerce brands might need to tweak their strategies. Although a seamless experience is important for customer satisfaction, it should not overshadow the importance of integrating channels to provide valuable, coherent experiences. To effectively improve retention, brands need to find the right balance between technical integration and experiences that are actually user-friendly.

The fact that seamless user experience does not always greatly impact the connection between cross-channel experience and customer retention challenges the assumption that seamlessness is always key to loyalty. It seems that the quality of cross-channel interactions and overall engagement might be more impactful. To build lasting loyalty, e-commerce brands should adopt a more comprehensive approach, addressing a wide array of customer experience aspects.

The findings also suggest that a seamless user experience may not always significantly enhance the effectiveness of well-structured service configurations on customer retention. Seamlessness has value, but e-commerce brands probably ought to focus on creating service configurations that directly meet customer needs, rather than placing too much emphasis on seamlessness. This underscores how important a balanced strategy is when it comes to customer retention.

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ORCID:

Derrick Nukunu Akude: <https://orcid.org/0000-0003-4960-9119>

Gloria Kakrabah-Quarshie Agyapong: <https://orcid.org/0000-0001-6233-6747>

Gladstone Atuwo: <https://orcid.org/0009-0003-3569-7354>

Opoku Nana Emmanuel: <https://orcid.org/0009-0002-2167-6221>

Obed Chris Glikpo: <https://orcid.org/0009-0001-4952-8848>

REFERENCES

- [1] I. D. Nagy, D.-C. Dabija, R. E. Cramarencu, and M. I. Burcă-Voicu, "The Use of Digital Channels in Omni-Channel Retail—An Empirical Study," *J. Theor. Appl. Electron. Commer. Res.*, vol. 19, no. 2, pp. 797–817, 2024, doi: 10.3390/jtaer19020042.
- [2] L. Qin and M. D. De-Juan-Vigaray, "Social commerce: Is interpersonal trust formation similar between USA and Spain?," *J. Retail. Consum. Serv.*, vol. 62, p. 102642, 2021, doi: 10.1016/j.jretconser.2021.102642.
- [3] W. Quaye, G. Akon-Yamga, M. Akuffo-Bea-Essilfie, and J. A. Onumah, "Technology adoption, competitiveness and new market access among SMEs in Ghana: What are the limiting factors?," *Afr. J. Sci. Technol. Innov. Dev.*, vol. 16, no. 7, pp. 1023–1037, 2024, doi: 10.1080/20421338.2024.2414949.
- [4] V. Mittal, K. Han, C. Frennea, and others, "Customer satisfaction, loyalty behaviors, and firm financial performance: what 40 years of research tells us," *Mark. Lett.*, vol. 34, pp. 171–187, 2023, doi: 10.1007/s11002-023-09671-w.
- [5] J. Guo, W. Zhang, and T. Xia, "Impact of shopping website design on customer satisfaction and loyalty: The mediating role of usability and the moderating role of trust," *Sustainability*, vol. 15, no. 8, p. 6347, 2023, doi: 10.3390/su15086347.
- [6] D. Kvičala, M. Králová, and P. Suchánek, "The impact of online purchase behaviour on customer lifetime value," *J. Mark. Anal.*, pp. 1–18, 2024, doi: 10.1057/s41270-024-00328-9.
- [7] J. A. Addae, K. G. Boakyee, G. O. A. Ampong, H. Anyigba, M. Majeed, A. Abubakari, and K. S. Ofori, "The interplay between multichannel integration quality, service convenience, service experience, multichannel perceived value and e-WoM," *Int. J. Qual. Reliab. Manag.*, vol. 42, no. 4, pp. 1110–1131, 2024, doi: 10.1108/ijqrm-08-2023-0264.
- [8] T. Liu and M. Liu, "Does cross-channel consistency always create brand loyalty in omni-channel retailing?," *International Journal of Retail & Distribution Management*, vol. 52, no. 1, pp. 125–145, 2024, doi: 10.1108/IJRDM-12-2022-0517.
- [9] J. Radomska, A. Kawa, M. Hajdas, P. Klimas, and S. C. Silva, "Unveiling retail omnichannel challenges: developing an omnichannel obstacles scale," *International Journal of Retail & Distribution Management*, 2025, doi: 10.1108/IJRDM-04-2024-0169.
- [10] J. Wang et al., "The impact of consumers' cross-channel experiencing behavior on omnichannel integration based on game-theoretic analysis," *Humanities and Social Sciences Communications*, vol. 12, Art. no. 904, 2025, doi: 10.1057/s41599-025-05270-4.
- [11] E. Yulianwan, L. Sanny, H. Saroso, and S. Candra, "How gamification affects switching behaviors in the mobile-commerce platform: the role of customer engagement and switching cost," *Frontiers in Communication*, vol. 10, Art. no. 1608764, 2025, doi: 10.3389/fcomm.2025.1608764.
- [12] S. L. Vargo and R. F. Lusch, "Evolving to a new dominant logic for marketing," *Journal of Marketing*, vol. 68, no. 1, pp. 1–17, 2004, doi: 10.1509/jmkg.68.1.1.24036.
- [13] C. J. Madueke and S. Eyupoglu, "Sustaining economic growth: E-service quality's role in fostering customer loyalty in Nigeria SMEs," *Sustainability*, vol. 16, no. 21, Art. no. 9175, 2024, doi: 10.3390/su16219175.
- [14] S. L. Vargo and R. F. Lusch, "Service-dominant logic: Continuing the evolution," *J. Acad. Mark. Sci.*, vol. 36, no. 1, pp. 1–10, 2008, doi: 10.1007/s11747-007-0069-6.
- [15] B. Ly, "Understanding customer loyalty in digital services: insights from food delivery in emerging markets," *Journal of Innovation and Entrepreneurship*, vol. 14, Art. no. 77, 2025, doi: 10.1186/s13731-025-00552-2.
- [16] S. L. Vargo and R. F. Lusch, "Service-dominant logic 2025," *International Journal of Research in Marketing*, vol. 34, no. 1, pp. 46–67, 2017, doi: 10.1016/j.ijresmar.2016.11.001.
- [17] Y. P. Chang and J. Li, "Seamless experience in the context of omnichannel shopping : scale development and empirical validation," *Journal of Retailing and Consumer Services*, vol. 64, p. 102800, Jan. 2022, doi: 10.1016/j.jretconser.2021.102800.
- [18] I. O. Asante, Y. Jiang, and X. Luo, "Leveraging Online Omnichannel Commerce to Enhance Consumer Engagement in the Digital Transformation Era," *Journal of Theoretical and Applied Electronic Commerce Research*, vol. 20, no. 1, p. 2, Dec. 2024, doi: 10.3390/jtaer20010002.
- [19] K. K. Alnofeli, S. Akter, and V. Yanamandram, "Unlocking the power of AI in CRM: A comprehensive multidimensional exploration," *Journal of Innovation & Knowledge*, vol. 10, no. 3, p. 100731, May 2025, doi: 10.1016/j.jik.2025.100731.

- [20] B. Wernerfelt, "A resource-based view of the firm," *Strategic Management Journal*, vol. 5, no. 2, pp. 171–180, 1984. [Online]. Available: <http://www.jstor.org/stable/2486175>
- [21] J. Barney, "Firm Resources and Sustained Competitive Advantage," *Journal of Management*, vol. 17, no. 1, pp. 99–120, Mar. 1991, doi: 10.1177/014920639101700108.
- [22] N. Sipos, A. Rideg, A. S. al Najjar, and L. Lukovszki, "Resource-based view of marketing innovation in SMEs: a multi-country empirical analysis based on the global competitiveness project," *Journal of Innovation and Entrepreneurship*, vol. 14, no. 1, p. 94, Aug. 2025, doi: 10.1186/s13731-025-00573-x.
- [23] E. Boom-Cárcomo, S. Molina-Romero, C. Galindo-Angulo, and M. del Mar Restrepo, "Barriers and Strategies for Digital Marketing and Smart Delivery in Urban Courier Companies in Developing Countries," *Journal of the Knowledge Economy*, vol. 15, no. 4, pp. 19203–19232, Mar. 2024, doi: 10.1007/s13132-024-01823-1.
- [24] C. Nie and T. Wang, "How global brands incorporate local cultural elements to improve brand evaluations," *International Marketing Review*, vol. 38, no. 1, pp. 163–183, Dec. 2019, doi: 10.1108/IMR-01-2019-0035.
- [25] A. Rosário and J. A. Casaca, "Relationship Marketing and Customer Retention - A Systematic Literature Review," *Studies in Business and Economics*, vol. 18, no. 3, pp. 44–66, Dec. 2023, doi: 10.2478/sbe-2023-0044.
- [26] Chinekwu Somtochukwu Odionu, Bernadette Bristol-Alagbariya, and Richard Okon, "Big data analytics for customer relationship management: Enhancing engagement and retention strategies," *International Journal of Scholarly Research in Science and Technology*, vol. 5, no. 2, pp. 050–067, Dec. 2024, doi: 10.56781/ijrst.2024.5.2.0039.
- [27] C. Patricio-Peralta, J. Z. Mondragon, L. S. Terrones, and J. R. Villacorta, "Big data analysis and its impact on the marketing industry: a systematic review," *Indonesian Journal of Electrical Engineering and Computer Science*, vol. 35, no. 2, p. 1032, Aug. 2024, doi: 10.11591/ijeecs.v35.i2.pp1032-1040.
- [28] F. D. Davis, "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology," *MIS Quarterly*, vol. 13, no. 3, p. 319, Sep. 1989, doi: 10.2307/249008.
- [29] Dina Mardhatilah, A. Omar, and E. D. Septiari, "BUILDING CONSUMER ENGAGEMENT IN SOCIAL MEDIA: A SYSTEMATIC LITERATURE REVIEW," *Journal of Business Management and Accounting*, vol. 14, no. 1, pp. 1–35, Jan. 2024, doi: 10.32890/jbma2024.14.1.1.
- [30] M. Hadizadeh, J. Ghaffari Feyzabadi, Z. Fardi, S. M. Mortazavi, V. Braga, and A. Salamzadeh, "Digital Platforms as a Fertile Ground for the Economic Sustainability of Startups: Assaying Scenarios, Actions, Plans, and Players," *Sustainability*, vol. 16, no. 16, p. 7139, Aug. 2024, doi: 10.3390/su16167139.
- [31] F. Charnley et al., "Can Digital Technologies Increase Consumer Acceptance of Circular Business Models? The Case of Second Hand Fashion," *Sustainability*, vol. 14, no. 8, p. 4589, Apr. 2022, doi: 10.3390/su14084589.
- [32] J. Li, M. Jin, and X. Chen, "Understanding continued use of smart learning platforms: psychological wellbeing in an extended TAM-ISCM model," *Frontiers in Psychology*, vol. 16, May 2025, doi: 10.3389/fpsyg.2025.1521174.
- [33] H. Muharam, H. Chaniago, E. Endraria, and A. bin Harun, "E-Service Quality, Customer Trust and Satisfaction: Market Place Consumer Loyalty Analysis," *Jurnal Minds: Manajemen Ide dan Inspirasi*, vol. 8, no. 2, p. 237, Sep. 2021, doi: 10.24252/minds.v8i2.23224.
- [34] N. Shaw, "A Study of the Factors Influencing Consumer Behaviour," *Global Research Journal of Social Sciences and Management*, vol. 02, no. 01, pp. 48–58, 2024, doi: 10.55306/GRJSSM.2024.2105.
- [35] H. Jo and Y. Bang, "Navigating the Omnichannel Landscape: Unraveling the Antecedents of Customer Loyalty," *Sage Open*, vol. 14, no. 1, Jan. 2024, doi: 10.1177/21582440241233091.
- [36] C. Lazaris, P. Sarantopoulos, A. Vrechopoulos, and G. Doukidis, "Effects of Increased Omnichannel Integration on Customer Satisfaction and Loyalty Intentions," *International Journal of Electronic Commerce*, vol. 25, no. 4, pp. 440–468, Oct. 2021, doi: 10.1080/10864415.2021.1967005.
- [37] S. Hajduk, P. S. Venkateswaran, M. T. V. John Paul, and P. Divya, "A Study on The Influence of Perceived Quality on Brand Trust and Loyalty Towards FMCG Products," *FMD Transactions on Sustainable Technoprise Letters*, vol. 2, no. 1, pp. 42–52, Mar. 2024, doi: 10.69888/FTSTPL.2024.000229.
- [38] E. W. Mainardes, C. A. de M. Rosa, and S. N. Nossa, "Omnichannel strategy and customer loyalty in banking," *International Journal of Bank Marketing*, vol. 38, no. 4, pp. 799–822, Feb. 2020, doi: 10.1108/IJBM-07-2019-0272.
- [39] P. Anabila, L. E. K. Ameyibor, M. M. Allan, and C. Alomenu, "Service Quality and Customer Loyalty in Ghana's Hotel Industry: The Mediation Effects of Satisfaction and Delight," *Journal of Quality Assurance in Hospitality & Tourism*, vol. 23, no. 3, pp. 748–770, May 2022, doi: 10.1080/1528008X.2021.1913691.
- [40] S. Akter, M. I. Hossain, S. Lu, S. Aditya, T. M. T. Hossain, and U. Kattiyapompong, "Does Service Quality Perception in Omnichannel Retailing Matter? A Systematic Review and Agenda for Future Research," in *Exploring Omnichannel Retailing*, Cham: Springer International Publishing, 2019, pp. 71–97. doi: 10.1007/978-3-319-98273-1_4.
- [41] Z. Yang, D. Hu, and X. Chen, "The role of omnichannel integration and digital value in building brand trust: a customer psychological perception perspective," *Internet Research*, vol. 35, no. 3, pp. 1029–1064, May 2025, doi: 10.1108/INTR-06-2023-0464.
- [42] Tochukwu Ignatius Ijomah, Courage Idemudia, Nsiong Louis Eyo-Udo, and Kikelomo Fadilat Anjorin, "The role of big data analytics in customer relationship management: Strategies for improving customer engagement and retention," *World Journal of Advanced Science and Technology*, vol. 6, no. 1, pp. 013–024, Jul. 2024, doi: 10.53346/wjast.2024.6.1.0038.
- [43] N. Oly Ndubisi, "Understanding the salience of cultural dimensions on relationship marketing, it's underpinnings and aftermaths," *Cross Cultural Management: An International Journal*, vol. 11, no. 3, pp. 70–89, Sep. 2004, doi: 10.1108/13527600410797855.
- [44] M. Z. Hossain and H. Kibria, "Exploring the Evolution of Brand Loyalty in the Age of Social Media," *Journal of Service Science and Management*, vol. 17, no. 03, pp. 219–247, 2024, doi: 10.4236/jssm.2024.173011.
- [45] C. Gereia and V. Herskovic, "Transitioning from Multichannel to Omnichannel Customer Experience in Service-Based Companies: Challenges and Coping Strategies," *Journal of Theoretical and Applied Electronic Commerce Research*, vol. 17, no. 2, pp. 394–413, Mar. 2022, doi: 10.3390/jtaer17020021.

- [46] A. Recio-Román, M. Recio-Menéndez, and M. V. Román-González, "The Future of Retail," 2024, pp. 309–333. doi: 10.4018/979-8-3693-6145-0.ch013.
- [47] S. A. Neslin et al., "Challenges and Opportunities in Multichannel Customer Management," *Journal of Service Research*, vol. 9, no. 2, pp. 95–112, Nov. 2006, doi: 10.1177/1094670506293559.
- [48] P. C. Verhoef, P. K. Kannan, and J. J. Inman, "From Multi-Channel Retailing to Omni-Channel Retailing," *Journal of Retailing*, vol. 91, no. 2, pp. 174–181, Jun. 2015, doi: 10.1016/j.jretai.2015.02.005.
- [49] N. Beck and D. Rygl, "Categorization of multiple channel retailing in Multi-, Cross-, and Omni-Channel Retailing for retailers and retailing," *Journal of Retailing and Consumer Services*, vol. 27, pp. 170–178, Nov. 2015, doi: 10.1016/j.jretconser.2015.08.001.
- [50] M. Gao and L. Huang, "Quality of channel integration and customer loyalty in omnichannel retailing: The mediating role of customer engagement and relationship program receptiveness," *Journal of Retailing and Consumer Services*, vol. 63, p. 102688, Nov. 2021, doi: 10.1016/j.jretconser.2021.102688.
- [51] V. A. Zeithaml, L. L. Berry, and A. Parasuraman, "The Behavioral Consequences of Service Quality," *Journal of Marketing*, vol. 60, no. 2, pp. 31–46, Apr. 1996, doi: 10.1177/002224299606000203.
- [52] R. L. Oliver, "Whence Consumer Loyalty?," *Journal of Marketing*, vol. 63, no. 4_suppl1, pp. 33–44, Oct. 1999, doi: 10.1177/00222429990634s105.
- [53] P. C. Verhoef, S. A. Neslin, and B. Vroomen, "Multichannel customer management: Understanding the research-shopper phenomenon," *International Journal of Research in Marketing*, vol. 24, no. 2, pp. 129–148, Jun. 2007, doi: 10.1016/j.ijresmar.2006.11.002.
- [54] Y. P. Chang and J. Li, "Seamless experience in the context of omnichannel shopping : scale development and empirical validation," *Journal of Retailing and Consumer Services*, vol. 64, p. 102800, Jan. 2022, doi: 10.1016/j.jretconser.2021.102800.
- [55] R. v. Krejcie and D. W. Morgan, "Determining Sample Size for Research Activities," *Educational and Psychological Measurement*, vol. 30, no. 3, pp. 607–610, Sep. 1970, doi: 10.1177/001316447003000308.
- [56] W. G. Cochran, *Sampling Techniques*, 3rd ed., New York: John Wiley & Sons, 1977 ISBN 0-471-16240-X. Accessed on October 22, 2024
- [57] G. D. Israel, *Determining Sample Size*, Institute of Food and Agricultural Sciences (IFAS), University of Florida, PEOD6, 1992. Accessed on October 22, 2024
- [58] J. F. Hair, J. J. Risher, M. Sarstedt, and C. M. Ringle, "When to use and how to report the results of PLS-SEM," *European Business Review*, vol. 31, no. 1, pp. 2–24, Jan. 2019, doi: 10.1108/EBR-11-2018-0203.
- [59] C. M. Ringle, S. Wende, and J.-M. Becker, *SmartPLS 4*, Oststeinbek: SmartPLS GmbH, 2022. [Online]. Available: <http://www.smartpls.com>. Accessed on October, 22 2024
- [60] K. Boonlertvanich, "Service quality, satisfaction, trust, and loyalty: the moderating role of main-bank and wealth status," *International Journal of Bank Marketing*, vol. 37, no. 1, pp. 278–302, Feb. 2019, doi: 10.1108/IJBM-02-2018-0021.
- [61] D. R. Sánchez Carrera, R. de la Cruz Hernández, L. del C. López Hernández, and D. R. Acosta, "Fundamentals and applications of research methodology: Approaches, phases and scientific validity," *Seminars in Medical Writing and Education*, vol. 2, p. 158, Dec. 2023, doi: 10.56294/mw2023158.
- [62] Y. Haji-Othman and M. S. S. Yusuff, "Assessing Reliability and Validity of Attitude Construct Using Partial Least Squares Structural Equation Modeling (PLS-SEM)," *International Journal of Academic Research in Business and Social Sciences*, vol. 12, no. 5, May 2022, doi: 10.6007/IJARBS/v12-i5/13289.
- [63] M. H. Hanafiah, "Formative vs. reflective measurement model: Guidelines for structural equation modeling research," *Int. J. Anal. Appl.*, vol. 18, no. 5, pp. 876–889, 2020. doi: 10.28924/2291-8639-18-2020-876.
- [64] J. Henseler, C. M. Ringle, and M. Sarstedt, "A new criterion for assessing discriminant validity in variance-based structural equation modeling," *Journal of the Academy of Marketing Science*, vol. 43, no. 1, pp. 115–135, Jan. 2015, doi: 10.1007/s11747-014-0403-8.
- [65] J. F. Hair, M. Sarstedt, C. M. Ringle, and S. Gudergan, *Advanced Issues in Partial Least Squares Structural Equation Modeling*. 2017[Online]. Available: <https://nls.idls.org.uk/welcome.html?ark:/81055/vdc100044101027.0>. Accessed on October 24, 2024
- [66] N. Kock, "Common Method Bias in PLS-SEM," *International Journal of e-Collaboration*, vol. 11, no. 4, pp. 1–10, Oct. 2015, doi: 10.4018/ijec.2015100101.
- [67] F. Ali, S. M. Rasoolimanesh, M. Sarstedt, C. M. Ringle, and K. Ryu, "An assessment of the use of partial least squares structural equation modeling (PLS-SEM) in hospitality research," *International Journal of Contemporary Hospitality Management*, vol. 30, no. 1, pp. 514–538, Jan. 2018, doi: 10.1108/IJCHM-10-2016-0568.
- [68] J. F. Hair, Jr, G. T. M. Hult, C. Ringle, and M. Sarstedt, *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Sage Publications, 2014 ISBN978-1-4522-1744-4.
- [69] J. Cohen, *Statistical Power Analysis for the Behavioral Sciences*. Routledge, 2013. doi: 10.4324/9780203771587.
- [70] I. AYACHI and R. E. TRABELSI, "Cross-Channel Integration and Consumer Loyalty: Mediating Effect of Consumer Empowerment and Satisfaction," *International Journal of Research and Innovation in Social Science*, vol. VII, no. XII, pp. 1330–1344, 2024, doi: 10.47772/IJRISS.2023.7012101.
- [71] I. R. Chiyem, P. N. Ofili, E. C. Nelson, and E. M. Ebele, "Omni-channel retail strategies and customer loyalty: A focus on E-commerce stores in Nigeria," *Edelweiss Applied Science and Technology*, vol. 8, no. 6, Nov. 2024, doi: 10.55214/25768484.v8i6.3365.
- [72] S. R. D. Rahmayanti and M. Oetarjo, "E-Service Quality Dynamics and Global Customer Loyalty Impact," *Indonesian Journal of Law and Economics Review*, vol. 19, no. 2, May 2024, doi: 10.21070/ijler.v19i2.1061.
- [73] S. Chmeis and R. Zaiter, "The impact of e-service quality on e-loyalty through the mediating effects of e-satisfaction and e-trust in Lebanon," *Technium Social Sciences Journal*, vol. 60, pp. 188–199, Aug. 2024, doi: 10.47577/tssj.v60i1.10453.
- [74] M. U. Wattoo, J. Du, F. Shahzad, and S. Kousar, "Shaping E-commerce Experiences: Unraveling the Impact of Service Quality on Youth Customer Behavior in a Developing Nation," *Sage Open*, vol. 15, no. 1, Jan. 2025, doi: 10.1177/21582440241311786.
- [75] T. Ma, X. Wu, and Y. Li, "Integrating online and offline channels for online customer loyalty: the moderating role of retailer credibility," *Information Technology & People*, vol. 36, no. 2, pp. 758–784, Mar. 2023, doi: 10.1108/ITP-06-2021-0441.

- [76] M. Gao and L. Huang, "Quality of channel integration and customer loyalty in omnichannel retailing: The mediating role of customer engagement and relationship program receptiveness," *Journal of Retailing and Consumer Services*, vol. 63, p. 102688, Nov. 2021, doi: 10.1016/j.jretconser.2021.102688.
- [77] N. Hassan, M. Abdelraouf, and D. El-Shihy, "The moderating role of personalized recommendations in the trust–satisfaction–loyalty relationship: an empirical study of AI-driven e-commerce," *Future Business Journal*, vol. 11, no. 1, p. 66, Apr. 2025, doi: 10.1186/s43093-025-00476-z.
- [78] C. J. Obiegbu and G. Larsen, "Algorithmic personalization and brand loyalty: An experiential perspective," *Marketing Theory*, vol. 25, no. 2, pp. 199–219, Jun. 2025, doi: 10.1177/14705931241230041.
- [79] Y. P. Chang and J. Li, "Seamless experience in the context of omnichannel shopping : scale development and empirical validation," *Journal of Retailing and Consumer Services*, vol. 64, p. 102800, Jan. 2022, doi: 10.1016/j.jretconser.2021.102800.
- [80] M. Massi, C. Piancatelli, and A. Vocino, "Authentic omnichannel: Providing consumers with a seamless brand experience through authenticity," *Psychology & Marketing*, vol. 40, no. 7, pp. 1280–1298, Jul. 2023, doi: 10.1002/mar.21815.
- [81] Q. Tran Xuan, H. T. H. Truong, and T. Vo Quang, "Omnichannel retailing with brand engagement, trust and loyalty in banking: the moderating role of personal innovativeness," *International Journal of Bank Marketing*, vol. 41, no. 3, pp. 663–694, Apr. 2023, doi: 10.1108/IJBM-07-2022-0292.
- [82] H. Riaz, U. Baig, I. Meidute-Kavaliauskiene, and H. Ahmed, "Factors Effecting Omnichannel Customer Experience: Evidence from Fashion Retail," *Information*, vol. 13, no. 1, p. 12, Dec. 2021, doi: 10.3390/info13010012.
- [83] Y. Choi, "A Study of the Influence of Cross-Channel Integration in Customer Retention," *International Journal of Customer Relationship Marketing and Management*, vol. 11, no. 1, pp. 19–30, Jan. 2020, doi: 10.4018/IJCRMM.2020010102.

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