

INFLUENCE OF ARTIFICIAL INTELLIGENCE (AI) ON CUSTOMER EXPERIENCE AND LOYALTY: MEDIATING ROLE OF PERSONALIZATION

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0. Abstract

Since the advent of artificial intelligence, a number of studies have focused their attention on understanding its importance in the corporate setting. To this effect, this study seeks to assess the influence of artificial intelligence on customer experience and customer loyalty; as well as the mediating effect of personalization on this relationship. A quantitative online survey was conducted and 636 responses were gathered. The gathered data were analysed using IBM's AMO for SEM and a number of findings were made. It was discovered that artificial intelligence yields positive and significant ($p < 0.05$) influence on customer experience, customer loyalty, and personalization. The influence of artificial intelligence on customer experience and customer loyalty is also mediated by personalization. Thus, it was concluded that companies seeking to develop strong customer loyalty and customer experience should integrate artificial intelligence into their product and service delivery process and this should be supported with personalization.

Keywords: Artificial Intelligence, Customer Experience, Customer Loyalty, Personalization.

1. Introduction

In recent times, digital solutions have recorded increased development, fuelled by progress in digitization, artificial intelligence (AI), and information and communication technology (ICT), and this has given rise to the view that humans are entering a new sphere of development commonly called the fourth industrial revolution. It is believed that this revolution will create a shift in decision-making from human to machine (Chatterjee et al., 2019; Syam & Sharma, 2018). Conventionally, information technology has been helpful in data processing, enhancing and supporting human decision-making in the process. As of today, there are numerous algorithms that can process data, learn from the processed data, and use these data to reach powerfully informed decisions. This entire process makes jobs both easier and faster, as it makes use of more data than humans can ever dream of analysing on their own. Artificial intelligence is the brain behind this entire process, and as a concept, it involves machines being able to mimic intelligent human behaviour, including knowledge acquisition and the ability to solve problems (Syam & Sharma, 2018).

Firms that adopt AI in their processes are able to automate routine functions, especially in the area of sales, but the most interesting aspect is that they are able to enhance their sales through customization, personalization, and improved service quality while increasing effectiveness at the same time (Moncrief, 2017; Paschen et al., 2019). This ability extends to the use of AI as an advanced analytics tool to engage in a number of activities like making tailored-made offers to customers based on their specifications, providing virtual agents to converse online with the customers, and proactively suggesting solutions to issues that the customers might face (Balducci & Marinova, 2018; Miklosik et al., 2019).

AI comes with numerous potentials that open vast doors for marketing practitioners, which is a must for them in the ever-changing sales environment that continually becomes more complex (Anzén & Ekberg, 2020). Over the last decades, there have been pronounced changes in consumers' purchasing behaviour (Steward et al., 2019). Due to increased access to information, consumers can now engage in their own research and set preferred purchasing criteria. A study has also found that B2B customers are usually 50–60% down the purchasing process prior to reaching a sales representative (Adamson et al., 2012; Gartner, 2018a). Additionally, there is an increased adoption of online channels throughout the purchasing process, with findings revealing that about 83% of buyers access digital channels for the purpose of gathering information as they process across the purchasing process (Gartner, 2018b). The majority of those that purchase via online channels are content-driven, find it comfortable to engage with brands via digital channels, and are technically savvy (Vieira et al., 2019). Therefore, the need for marketers to adapt their practises towards providing more of a digital solution is highlighted by this shift towards online purchasing.

Essentially, it is no longer enough for corporations to focus on the conventional approaches to marketing, which are founded on building brand awareness and generating qualified leads that could potentially lead to transactions. This is because today's business world features marketing that provides support for the entire customer journey (Steward et al., 2019), and this journey influences their decision to purchase a given product. The main challenge that comes with this is how the different touchpoints can be aligned with marketing actions in order to provide customers with relevant information. Additionally, there is the issue of understanding

the customers (those that make the purchase decisions) and the users (those that end up utilising the product) (Paschen et al., 2019).

Similarly, consumers are increasingly becoming more demanding and conscious of the value they obtain from using a particular product or service (Sweeney & Soutar, 2001), and this is why value creation is pivotal in marketing (Anderson et al., 1992; Woodruff, 1997). Therefore, the purchase process within a complex setting needs to be designed in such a way to accommodate the high level of personalization and customization necessary for providing the best offering and to ensure an increase in value for the customers and profit for the company (Montgomery & Smith, 2009). Numerous marketing automation tools have been developed to facilitate these challenges. At the core of the development of these automations is the marketing mix being personalised and customised (Heimbach et al., 2015). There has been substantial growth in marketing automation within the private sector, with marketers projected to spend \$25 billion on marketing automation by 2023 (Adams, 2018).

Gao and Liu (2022) pointed out that artificial intelligence technology has revolutionised the interactive marketing experience for customers. They went on to state that while there have been a substantial number of studies on the application of AI in interactive marketing, personalization (although an important concept) has remained underexplored in both marketing research and practise (Leeftang et al., 2014; Heimbach et al., 2015; Järvinen and Taiminen, 2016; Lilien, 2016; Murphy, 2018; Strycharz et al., 2019). Additionally, numerous scholars have stressed the need to conduct research on how marketing practises will be impacted by AI (Flaherty et al., 2018; Moncrief, 2017; Paschen et al., 2019; Russo-Spena et al., 2019; Singh et al., 2019; Syam & Sharma, 2018). This is based on the fact that understanding and implementing AI in a successful way is pivotal for the overall success and competitiveness of businesses in the future, as AI allows for an improved level of personalization, which yields additional value for customers. In the Nigerian context, a review of existing empirical analysis shows that no study has focused on artificial intelligence in personalization in the past. Therefore, this novel research aims to introduce the concept of AI-enabled personalization (AIP) within the Nigerian sphere and extend it towards understanding its influence on customer experience and loyalty.

The interest in this research is based on the fact that there are numerous benefits that come with marketing automation, like an increase in the ability of the marketers to generate a high quantity of more potent leads (Järvinen & Taiminen, 2016; Sandell, 2016; Todor, 2017), an improved multichannel view of prospective consumer behaviour (Todor, 2017), improvements in lead conversion (Heimbach et al., 2015; Todor, 2017), and overall returns on investments (Montgomery & Smith, 2009; Świeczak, 2013; Todor, 2017). It is generally believed that delivering personalised content to potential consumers greatly improves the lead qualification process (Järvinen & Taiminen, 2016).

2. Literature

2.1. Artificial Intelligence

It was John McCarthy who first coined the term artificial intelligence in 1956. According to John McCarthy, it is the science and engineering of marketing intelligent machines. Therefore, AI is the branch of computer science that is focused on the study and design of intelligent agents capable of perceiving their environment and taking necessary actions to maximise their

chances of success in the said environment (Singh et al., 2013). Additionally, AI can be conceptualised as the ability to hold two varied ideas in mind at the same time and still be able to function as appropriate while holding these ideas. However, for AI to be effective, it must include the ability to learn from past experience, the ability to reason for decision-making, quick responses, and inference power. On the same note, it must be able to take decisions as they relate to priorities and handle complex and ambiguous tasks. When machines are programmed to undertake tasks that are usually carried out by humans, it is required that such machines exhibit intelligence, which is why they are said to possess artificial intelligence (Singh et al., 2013). The overall goal of artificial intelligence is to understand intelligence by building computer programmes capable of exhibiting intelligent behaviour through the use of symbolic influence or reasoning as designed inside the machine. Thus, AI's definition is not time-dependent, as it is capable of giving judgement to any system based on the time in mind.

2.2. Artificial Intelligence through Customers' Buying Journey

In their whitepaper, CXPA pointed out that there are numerous benefits that come with embedding AI throughout the customer journey (CXPA, 2018). They went further to discuss these benefits as follows:

- In the course of the awareness stage, predictive analytics (a subfield of AI) can be used to identify interesting features for customers as well as make suggestions and recommendations for products and/or services.
- In the consideration phase, marketers can also use AI to aid the integration of data across websites, providing customers with an opportunity to gain knowledge and make comparative analyses among related products.
- In the course of making purchases, AI can actually learn about the consumers' unique buying patterns by studying data patterns and providing necessary recommendations on things the consumers should buy.
- During the support phase, AI can also study consumer' behaviour and be used to track any signs of dissatisfaction among any of the consumers in order to enable the company to take appropriate measures towards addressing such an issue. By using such strategies, the marketer will be able to deliver highly personalised customer service.
- Finally, AI can be used to provide appropriate customer support as it supports two-way conversations.

2.3. Personalization

Personalization, as a concept, is broad and featured in numerous marketing research studies, including those that focus on human-computer interaction, data mining, machine learning, and others (Zanker et al., 2019). Within the marketing context, personalization is generally used to refer to a form of customer-oriented marketing strategy aimed at delivering the right message to the right customer at the right time (Aguirre et al., 2015; Dangi & Malik, 2017). That is to say, the messages are targeted at a particular customer or segment of customers based on their predefined (existing and known) features.

While the increased interest in personalization among researchers is a product of increased adoption of the internet (Montgomery & Smith, 2009) and e-commerce service features (Dangi & Malik, 2017), personalization actually precedes the internet (Montgomery & Smith, 2009). As pointed out by Vesanen (2007), personalization is likely to be as old as trade itself. To demonstrate this, in an offline personalization context, customers are usually approached by the sales representative, who adjusts their behaviour to the features of the customers, such as greeting them by their names (Aguirre et al., 2015). That notwithstanding, the usage and possibilities of personalization have been greatly advanced by the internet. To demonstrate this, it is now possible for customers to access individualised search results that are personalised based on their characteristics and choices. For instance, Google is known to personalise their search results by refining them based on users' past behaviour (Montgomery & Smith, 2009). In marketing literature, different definitions of personalization abound (Strycharz et al., 2019). However, Vesanen (2007) provides a summarised view of these definitions to offer discussions on the numerous faces of personalization. Some of the definitions centre on context to define personalization as an individualised web experience (Allen et al., 2001). In their own definition, Montgomery and Smith (2009) proposed for it to be defined within the context of technology as an enabler: "personalization as being where products and services are adapted by the producer for the consumers with the aid of information that has been inferred from the behaviour of the consumer or transactions". A more general concept is offered by other definitions (e.g., Imhoff et al., 2001; Wind & Rangaswamy, 2001), while some are focused more on value creation (Peppers & Rogers, 1999).

However, for the purpose of this study, personalization is defined (based on the definition of Imhoff et al. (2001) as the ability of a company to recognise consumers as individuals and treat them as such by offering personalised communications (messaging, targeted banner ads, special offers on bills, or other forms of personal transactions) aimed at boosting their overall experience with the brand and retaining their patronage in the process. While Wind and Rangaswamy (2001) stated that personalization can be initiated by the customers (for instance, customising the content and look of a web page) or the company (for instance, offering individualised products and services, greeting the customers by their name, etc.), this research is focused on personalization that is initiated by the company.

2.4. Customer Experience

Customer experience (CX) represents the internal and subjective responses of consumers to any direct or indirect engagement with a company (Brakus et al., 2009; Gentile et al., 2007; Meyer & Schwager, 2007). It encompasses the search process, purchase, usage, and other activities following sales, and the retailer may or may not control these elements (Verhoef et al., 2009). CX is known to occur when consumers search for and purchase products, services, or both (Brakus et al., 2009). Customer experience is a product of different factors (Piotrowicz & Cuthbertson, 2014). To aid a better understanding of CX, Gentile et al. (2007) introduced six components of CX: sensorial, cognitive, emotional, lifestyle, relational, and pragmatic. The most common components in empirical research are the cognitive and affective components of customer experience (Frow & Payne, 2007; Rose et al., 2012; Tynan & McKechnie, 2009). The central logic of these components was opined by Rose et al. (2012), being that online customers interpret online stores' stimuli from both emotional and cognitive perspectives, and

they make use of these components in forming the core construct of their overall customer experience.

2.5. Artificial Intelligence and Personalization

A significant body of studies has looked at the relationship between artificial intelligence and personalization. In the work of Gao and Liu (2022), the focus was on artificial intelligence-enabled personalization in interactive marketing, a journey from the customers' perspective. Their study, drawn from Lemon and Verhoef's customer journey, revealed that artificial intelligence-based personalization manifests itself as personalised profiling, nudges, navigation, and retention across the five stages of the customer journey. The authors further developed a number of managerial recommendations that can be used to respond to the dilemmas encountered in the course of the journey.

In a general sense, it is anticipated that the impact of AI on personalization will significantly increase within the marketing context (Paschen et al., 2019). In another study, Kumar et al. (2019) assessed the convergence of AI and personalization, which led to the discovery that personalization is a pivotal factor when it comes to the popularity and adoption of AI. Before the advent of AI, personalization was limited by the quality and volume of the information companies had about their customers and their ability to generate insight and implement the insight (Kumar et al., 2019). However, with AI, personalization has become internalised in corporations across the world, and it has seen a significant growth in its essence per se. Therefore, AI augmented personalization functions and made it easier for companies to offer improved personalised services. This is a significant difference from the initial years of personalization, when its efforts in marketing were limited based on predefined rules created by experts (Kumar et al., 2019).

For every company, shaped by their overall objectives, there are different kinds of AI that could be required for personalization (from the less complex ones to the highly complex ones). The complexity of AI required to deliver personalization in a company will depend on the degree of personalization the company aims to achieve. The much simpler forms of personalization (for instance, mass personalization, as is common in many web applications) would require less complex intelligence. Huang and Rust (2018) went further to highlight the nature of the complexity of AI required for mass personalization by stating that it can be undertaken by agents possessing analytical intelligence. However, a company that wishes to offer personalised, quality services based on intuition as the form of knowledge would need to apply intuitive intelligence (Huang & Rust, 2018).

Certainly, AI has enhanced a wide variety of personalization applications. They include: automatic generation of advertising copies (Deng et al., 2019); recommender systems (Zanker et al., 2019); prediction of customers' level of satisfaction (Daqar & Smoudy, 2019); tailored and targeted marketing for generating leads (Syam & Sharma, 2018); and a host of other marketing functions.

The recommender system (RS) is the most frequent and prominent example of personalization enabled by AI (Zanker et al., 2019). As defined by Han et al. (2004), RS is a system that makes it possible for users to access desired items as it recommends such items to the users either based on content in relation to similar items the users have utilised or ratings from other users that have similar features. What the recommender system does is offer personalised product

recommendations aimed at fulfilling the needs of consumers (Singh et al., 2019). Many B2C corporations like Amazon, Netflix, and Microsoft Premier have developed advanced versions of the RS (Gabrani et al., 2017), which they use to recommend series to their users based on identified behaviour. Even in most social networks (Facebook, Twitter, Instagram, TikTok, etc.), RS are easily visible, with video and content recommendations based on users' characteristics and behaviours. For instance, users are welcomed and greeted in their registered names, and the contents are recommended to them based on their past viewing experience.

Aside from the RS, automated generation of personalised marketing messages is an area that is increasingly growing both in practice and research. For instance, Deng et al. (2019) promoted a system that can be used to generate personalised advertising copy capable of automatically personalising advertising contents tailored to the individual needs of customers. Research has also found that in cases where systems offer personalised marketing contents, a higher clickthrough rate is recorded (Anzén & Ekberg, 2020).

Syam and Sharma (2018) assessed the application of AI in the marketing and sales processes. The researchers discovered that when it comes to lead generation, AI significantly contributes towards the delivery of individually tailored and highly personalised marketing content. On the same note, they looked at how robo-advisors could be integrated into the sales process and discovered that the robo-advisor can actually gain access to customers' communication histories and, as such, be able to personalise their communication to meet the individual needs of each customer (Syam & Sharma, 2018). There is also numerous evidence to support the fact that AI could be used to track the behaviour of customers and identify identity dissatisfaction (Anzén & Ekberg, 2020). Thus, it is imperative that companies that integrate AI in their marketing systems potentially take proactive actions towards enhancing customer satisfaction (Daqar & Smoudy, 2019). Based on the discussions above, it is hypothesised that:

H1: *Artificial intelligence does not yield significant influence on personalization.*

2.6. Artificial Intelligence and Customer Experience

In brand management, the ability to create a competitive edge through customer experience is considered critical to the success of any company. However, many companies face the challenge of handling the absence of direct touchpoint personnel (such as information sharing, staff to attend to customers during rush hour, and so on). The overall customer experience is developed through engagement with personnel (workers), functionality of the product or service (technical attributes), and mechanical (ambient environment, sensory components, etc.) aspects of the product and service delivery throughout different touchpoints in the course of their journey (Prentice & Nguyen, 2020). Each of these three components substantially impacts the motional and cognitive perceptions of the users when it comes to service quality. Extant empirical reviews show that AI influences business and service initiatives like consumer habits, sales cycles, and activities provided to support the overall customer experience (Davenport et al., 2020; Grewal et al., 2020). That notwithstanding, four components of consumer experience have been identified in extant studies: cognitive, emotional, sensory, and bodily factors, together with social features (Verhoef & Bijmolt, 2019). It was based on this that Dwivedi et al. (2019) identified the cognitive components of the customer experience as being related to rapidity, usefulness, and accessibility to a service.

From a contrasting standpoint, the sensory and corporeal aspects of consumers' experiences are usually distinguished in both online and offline settings. When it comes to offline interactions, they include layouts, artefacts, lights, and signs (Verhoef & Bijmolt, 2019). In the online setting, the experience includes the structure of technologies being used to deliver products and services, like transparent design and a beautiful GUI (Davenport et al., 2020). On a final note, the influence of other factors, such as family, friends, and overall customers' public relationships, is linked to social components of the customer experience (Lam, 2001). Based on studies like the work of Kushwaha et al. (2021), the use of mixed realities and virtual realities provides consumers with a futuristic and realistic buying experience (Hoyer et al., 2020; Pillai et al., 2020), based on the impact that machine learning and augmented reality have on consumers' cognition (Suh, 2005). This is also featured in the use of artificial intelligence for production and making operations-related decisions. To ensure that all these technologies can have a significant influence on the consumer experience, it is necessary to gain an improved understanding of the consumer, which would consist of their interests and past experiences. The application of AI in this process makes things easier because AI technologies can learn how to engage consumers based on available data and information about them (Paschek et al., 2017; Omale, 2019).

In line with the work of Gartner (2020), the application of AI technologies like natural-language understanding, machine learning, and natural-language processing can be very useful in analysing sentiments and feedback from customers with a precision, scale, and speed that could never be achieved by humans. The implication is that AI is potentially the main tool that marketers can use to improve the overall customer experience and enhance their competitive edge (Newman, 2019). In the context of retailing, AI technology is usually used together with other technologies like computer vision-driven image recognition, augmented reality, and predictive inventory (Saponaro et al., 2018).

In the study conducted by IBM (2018), it was shown that AI can improve the overall customer experience in three major ways:

- **Insight:** By using AI-assisted technologies, marketers will be able to develop better insight about customers' needs. The technology can also be used to identify the right combination of channels that should be used when engaging these customers.
- **Customer interaction:** when AI is integrated into different market-related experiences that the customers can connect with and interact with, the marketer will also be able to create an improved experience for the customers.
- **Automation:** additionally, AI can be used to improve efficiency and effectiveness of the workflow, as its ability to automate the entire process gives the marketer needed time to strategize, be creative, and work smarter for improved outcomes.

Jeffs (2018) affirmed the above views by stating that companies seeking to deliver superior services for their customers must consider integrating AI technologies in tackling issues that yield the greatest impact on the experience of their market. Dahlhoff et al.'s (2018) study was based on the application of AI to drones as a delivery method. Findings showed a promising outcome for the researcher, as almost 40% of the customers would consider using drones as a delivery method, which amounts to taking the overall customer experience to a whole new

level. Oracle (2017) focused on the influence of AI on customer experience, with findings from their work showing that AI brings customer data to life as it uses machine intelligence to filter through huge volumes of data, analyse the data, learn from the data, and interpret the data in ways that can be easily understood and used for informed decisions. Debecker (2016) focused on showing the need for a chatbot (an AI-assisted customer support system). The study revealed that 51% of customers are of the view that businesses should be open 24/7, and with the aid of intelligent chatbots, businesses will be able to offer customers human-like support 24/7. Thus, it is hypothesised that:

H₂: *Artificial intelligence does not yield significant influence on customer experience.*

2.7. Artificial Intelligence and Customer Loyalty

Although a number of studies have looked at artificial intelligence and marketing management in general, only a handful of them have focused primarily on customer loyalty. One of the most recent studies within this context is Chen et al. (2023), where the authors considered whether AI chatbots can help retain customers by looking at the impact of AI service quality on customer loyalty. A total of 459 insights provided by the respondents were analysed in this study. It was found that AI chatbots have a positive influence on both service quality and customer loyalty through cognitive trust, perceived value, satisfaction, and affective trust.

In another study, Prentice et al. (2020) focused on the impact of artificial intelligence and employee service quality on customer loyalty and satisfaction. The study was conducted across different hotels in Portugal and focused on the departure guests that had experienced both employee services and AI associated with the surveyed hotels. It was found from the results that AI and employee service quality had a significant influence on customer satisfaction and loyalty. However, when regressing both AI and employee services within the same equation, the impact of AI became both negative and insignificant.

In a Forbes leadership report, Hanifin (2019) discussed what artificial intelligence means for customer loyalty marketing. Bill Hanifin, CEO of Hanifin Loyalty LLC, a company that focused on creating data-inspired customer strategy, stated that it was found in one of their studies that in 2017, 80% of enterprises had integrated some form of AI (deep learning, machine learning) in their production systems, while another 30% were in the process of expanding on their AI investment. It was also found in the same study that improving customer experiences is a motivation for 62% of enterprises that decide to invest in AI. Thus, when it comes to management's perception of the influence of AI on customer loyalty, it is largely agreed that there exists a positive relationship as AI improves service delivery and overall customer loyalty in the process (Hanifin, 2019). Based on the discussions above, it is hypothesised that:

H₃: *Artificial intelligence does not yield significant influence on customer loyalty.*

2.8. Personalization and Customer Experience

Extant empirical reviews reveal that retailers increasingly integrate digital technologies, like personalization, into their customer experience strategies (Jain et al., 2021; Tyrväinen et al., 2020). One major impact of the personalization technologies is that they make it both possible and easier for these retailers to collect and analyse customer data at an affordable cost while also delivering personalised (tailored) contents to each of the customers based on individual

characteristics (Kalaighnam et al., 2018; Oberoi et al., 2017). For instance, online retailers like eBay and Amazon are known to tailor content suggestions on their websites in line with the customer's past searches. The overall outcome (or at least expectations) is that personalising these service offerings will improve the customer experience (Baier & Stüber, 2010; Hänninen et al., 2019; Jain et al., 2021; Kalaighnam et al., 2018) and lead to sustainable sales (Behera et al., 2020).

On the side of the relationship between personalization and customer experience, a number of studies have tried to understand the link. One of such is the work of Lambillotte et al. (2022), which focused on enhancing the playful customer experience through personalization. The author started by pointing out that there is limited knowledge about the effect of personalization on customer experience, and this led to their lab experiment, which aimed to specifically assess the effect of actual and perceived personalization on playful customer experience via both objective and subjective measures, aided by eye-tracking technologies. Findings from their study revealed that personalization, irrespective of whether it is perceived or not, yields a significant positive influence on the playful customer experience of a retailer's website. To further buttress the findings, it was revealed that the contents need to be perceived as personalised in order for them to influence the subjective experience of playful customers, while actual personalization influences the objective experience of playful customers.

Tileagă and Opreșan (2021) focused their study on personalization as a key element for creating better customer experiences. The main finding from their study was that adopting personalised processes, together with a good relationship between the company and its customers, helps to create greater consumer satisfaction, which is a major reason why companies should continue to improve the services they offer. In their work, Lindecrantz et al. (2020) looked at personalising the customer experience to drive differentiation in the retail sector. Their study started by pointing out that today's customers expect a personalised shopping experience. When retailers are able to offer highly personalised customer experiences through the use of proprietary data, they make such a strategy difficult for their competitors to imitate. They concluded by stating that, when executed well, personalised service experiences enable businesses not only to differentiate themselves but also to gain a sustainable competitive advantage. It was also shown in their study that personalised experiences drive both top-line growth and customer loyalty. In view of the above, it is hypothesised that:

H4: *Personalization does not yield significant influence on customer experience.*

2.9. Personalization and Customer Loyalty

Although emphasis has been placed on the service sector, the influence of personalization on customer loyalty is an area of research that has drawn significant attention over the years. The work of Martínez-González and Álvarez-Albelo (2021) focused on the influence of website personalization and the first impression of loyalty of young customers towards tourism websites. A number of findings were made in the study, and one of them is that site personalization significantly influences consumers' first impressions, which leads to increased repurchase and retention intentions among young consumers. Similarly, Tyrväinen et al. (2020) focused on personalization and hedonic motivation in relation to their influence on customer experience and loyalty in omnichannel retail. It was revealed in their study that there is a positive relationship between personalization and hedonic motivation, and this influences

emotional and cognitive customer experience components. Additionally, it was revealed that this positive influence on customer experience leads to a positive influence on customer loyalty.

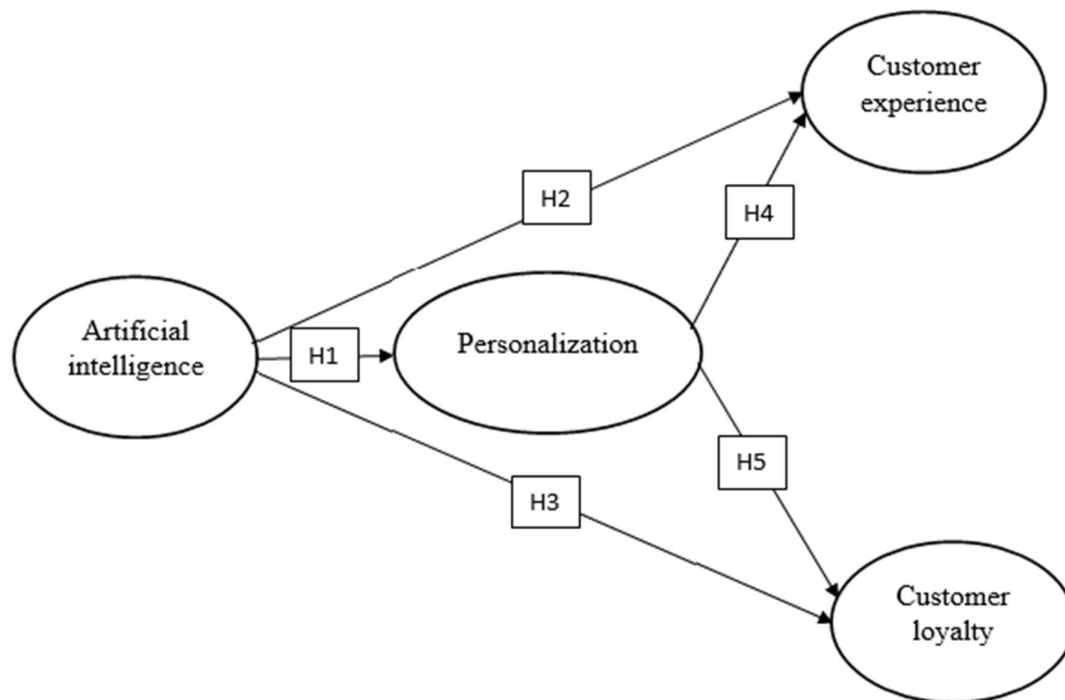
Lee and Kim (2022) were more constructive in their study by focusing on answering the question of how special customers are to the company through a quantitative analysis of customer responses to individualised promotions and exclusive notifications. Findings from their study indicate a positive response of customers to individualization and exclusivity, which ultimately yields an improvement in customer loyalty. However, the effect of this individualization is reduced with an increase in customer loyalty as customers move from loyal customers to extremely local customers, but the effect of exclusivity remains the same. In an earlier study, Ball et al. (2009) focused on the influence of service personalization on customer loyalty. Findings reveal that service personalization has a significant positive influence on customer loyalty. However, it was also found that the effect isn't all that direct, as personalization functions through improved trust and service satisfaction. In view of the above, it is hypothesised that:

H₅: *Personalization does not yield significant influence on customer loyalty.*

2.10. Conceptual framework

Figure 1 illustrates the conceptual framework adopted for this study. The study tests the influence of artificial intelligence on customer experience and loyalty through the mediating role of personalization.

Figure 1. Conceptual Framework



3. Research Method

This study utilised a cross-sectional research design and was conducted in Nigeria through an online survey. The aim was to collect responses from various regions across the country. To ensure the study's integrity, the survey was hosted on Google Forms with an IP blocker restricting access to only Nigerian IP addresses. This measure aimed to minimise bias from participants outside of Nigeria. To gather a larger number of responses, the survey was promoted through multiple social media and online platforms. The data collection employed a structured questionnaire, a commonly used instrument in consumer research. The questionnaire consisted of written items, and respondents were expected to provide written responses by selecting the option that best represented their views. The questionnaire was divided into two sections: the first section focused on variables relevant to the study, while the second section gathered information about the participants' demographics. The data in the second section were mainly dichotomous, while Likert's rating scale was used for the data in the first section, with respondents choosing a number between 1 and 5. The scale represented different levels of agreement, ranging from "totally disagree" to "totally agree." To ensure the sample size was appropriate, references to previous related studies were considered, following Cochran's (1977) recommendation. A total of 1271 responses were collected, and the data were analysed using AMOS-SEM software, as described in the results section. The original dataset can be accessed on Kaggle via the provided link (<https://doi.org/10.34740/KAGGLE/DSV/4972216>).

4. Results

4.1. Data Visualization

A total of 636 responses that met the validity criteria were collected for this. These responses represent 100% of valid submissions. The reason behind this figure is the online nature of the survey, which included a feature that prevented incomplete questionnaires from being submitted. To successfully submit their questionnaire, respondents were required to answer all the questions. Consequently, only fully completed questionnaires were allowed for submission, and there were no instances of incomplete questionnaires.

4.2. Demographic Variables

The examination of the demographic variables, as presented in Table 1, reveals several noteworthy findings. Firstly, the majority of respondents are males, accounting for 64.2% of the total, followed by females at 34.8%. Regarding age distribution, the largest proportion falls within the 31-40 years age group, constituting 44% of the respondents. Respondents above 50 years old represent 21.1%, while those aged between 20-30 years comprise 19.8% of the sample. Additionally, individuals aged 41-50 years account for 12.6%, whereas those below 20 years make up the smallest group at 2.5%.

In terms of ethnicity, the survey results indicate that the majority of respondents are of Igbo ethnicity, comprising 49% of the sample. The Middle Belt ethnic group represents 22.2% of respondents, followed by the Yoruba group at 13.5%. The category labelled "Others" constitutes 9% of the respondents, while the Hausa/Fulani group makes up 6.3% of the sample. To ensure respondents possess personal experience with Artificial Intelligence, they were asked if they had ever shopped online before. The analysis reveals that the majority (95.6%) responded affirmatively, indicating that they have previous experience with hypermarkets. Only a small percentage (4.4%) answered negatively, stating they had not shopped in a

hypermarket before. Thus, the majority of respondents have prior exposure to hypermarkets, making them suitable participants for this study.

Table 1. Demographic Variables

		Frequency	Percent %	Cumulative percent %
Gender	Male	408	64.2	64.2
	Female	228	35.8	100
Age	Below 20 years old	16	2.5	2.5
	20-30 years old	126	19.8	22.3
	31-40 years old	280	44.0	66.4
	41-50 years old	80	12.6	78.9
	Above 50 years old	134	21.1	100.0
Ethnicity	Hausa/Fulani	40	.6.3	.6.3
	Igbo	312	49.0	55.3
	Yoruba	86	13.5	68.8
	Middle-Belt	141	22.2	91
	Others	57	9.0	100.0
Have you ever shopped	Yes	608	95.6	95.6
Online before?	No	28	4.4	100.0
How often do you shop online?	Never	22	3.5	3.5
	Seldom	174	27.4	30.8
	At least once per year	346	54.4	85.2
	At least once per month	94	14.8	100.0
Do you prefer buying products from a certain company (like Jumia, Konga, etc.) online?	Yes	398	62.6	62.6
	No	238	37.4	100.0

4.3. Assessment of Measurement Models

As mentioned earlier in the methodology section, the researcher evaluated the reliability and validity of the data before conducting the structural model assessment. Reliability refers to the consistency with which the measurement scale represents the construct being measured (Leong et al., 2011). In this study, several tests were employed to assess convergent validity, including Composite Reliability (CR), Cronbach's Alpha, Squared Shared Variance (ASV), factor loadings, Maximum Shared Variance (MSV), and Average Variance Extracted (AVE). These tests are documented in Table 2.

The results presented in the table indicate that both Composite Reliability and Cronbach's Alpha values exceed 0.7, indicating good reliability for all constructs utilized in this study (Sekaran & Bougie, 2016). Additionally, the AVE value surpasses 0.5, suggesting convergent validity of the gathered data (Hair Jr et al., 2016; Hulland, 1999). Wang and Shah (2023) state that both ASV and MSV values should be lower than the AVE to establish validity. Upon

reviewing Table 2, it becomes evident that the ASV and MSV values are all lower than those of the AVE. Therefore, the convergent validity of the data is confirmed.

Table 2. Convergent Validity

	Factor loading	Crombach α	CR	AVE	ASV	MSV
AI1	0.754	0.93	0.91	0.58	0.41	0.50
AI2	0.758					
AI3	0.768					
AI4	0.721					
PER1	0.818	0.83	0.81	0.68	0.51	0.60
PER2	0.823					
PER3	0.727					
PER4	0.758					
IS1	0.875	0.92	0.88	0.71	0.66	0.53
IS2	0.837					
IS3	0.864					
EOA1	0.837					
EOA2	0.967	0.91	0.91	0.77	0.73	0.64
EOA3	0.780					
PD1	0.663					
PD2	0.652					
PD3	0.789	0.84	0.756	0.51	0.47	0.46
PP1	0.824					
PP2	0.665					
PP3	0.685					

Moving forward, the researchers also evaluated the discriminant validity using the conventional approach outlined by Fornell and Larcker (1981) and cross-loading. According to Fornell and Larcker (1981), for discriminant validity to be established, the square roots of the Average Variance Extracted (AVE) values for each construct should be greater than the correlation values between that construct and other constructs. This assessment is presented in Table 3, where the first value in each column is larger than the other values in the same column. As a result, the loaded data demonstrates discriminant validity.

Table 3. Discriminant Validity -Fornell and Larcker criterion results

	COI	IS	EOA	PD	PPD
COI	0.761577				
IS	0.745	0.842615			
EOA	0.617	0.551	0.877496		
PD	0.58	0.801	0.552	0.714143	
PPD	0.544	0.868	0.648	0.665	0.714143

The goodness of fit was assessed using several measures: TLI (Tucker-Lewis Index), CFI (Comparative Fit Index), and RMSEA (Root Mean Square Error of Approximation). In order to be considered a good fit, the TLI and CFI values should exceed 0.90, which is indeed the

case in this study. Similarly, for RMSEA, the value should be lower than 0.10, which is also satisfied according to the results presented in Table 4. Consequently, based on the findings from Table 6, it can be concluded that the model demonstrates a good fit.

Table 4. Model Goodness of Fit

Selected indices	Result	Acceptable level of fit
TLI	0.903	TLI > 0.90
CFI	0.901	CFI > 0.90
RMSEA	0.003	RMSEA < 0.05 good; 0.05 to 0.10 acceptable

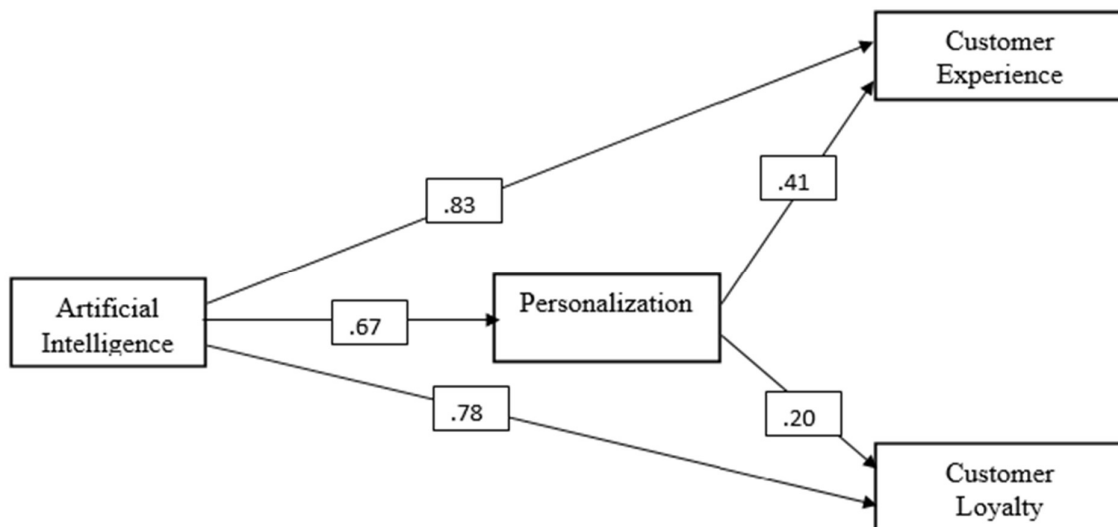
Considering the preceding discussions, the collected data in this study can be proceeded with for further analysis. This decision is supported by the established valid convergent and discriminant validity of the data, as well as the model's suitability as indicated by a good fit. Therefore, subsequent analysis regarding the stated hypotheses is presented and discussed in the following sections.

4.4. Test of Hypothesis

Figure 1 and Table 5 document the path analysis for latent variables. Figure 1 shows that Artificial Intelligence has a positive relationship with Customer Experience (0.83), Customer Loyalty (0.78), and personalization (0.67). Going further, the beta and significant values in Table 5 show that this relationship is statistically significant (<0.001). This rejects hypotheses 1–4 in the null forms.

The mediating effect is documented in Table 6, the direct effect of Artificial Intelligence on Customer Experience and Customer Loyalty is significant ($p < 0.05$) for all variables loaded (See Table 5). Additionally, the indirect effect, through the mediating role of personalisation, is significant ($p < 0.05$) for both Customer Experience (0.41) and Customer Loyalty (0.20). Thus, hypothesis 4 and 5 are rejected in their null forms and full mediating effect is confirmed for personalization.

Figure 1: Path Analysis

**Table 5. Significance level for hypothesis 1-3**

Relationships			Estimate	Beta	S.E.	C.R.	P
CE	<---	AI	.831	.495	.041	20.322	0.000
CL	<---	AI	.781	.366	.040	14.019	0.000
PERS	<---	AI	.674	.459	.044	18.425	0.000

Table 6. Significance level for hypothesis 4-5

Relationship			Estimate	Beta	S.E.	C.R.	P
CE	<---	AI	.41	.541	.029	22.956	0.000
CL	<---	AI	.20	.039	.040	1.340	0.000

5. Discussion of Findings

From the onset, this study sought to assess the influence of artificial intelligence on customer experience and loyalty, as well as the mediating effect of personalization on this influence. To do so, a quantitative survey was conducted via a structured questionnaire, which was hosted online. Data analysis from the responses gathered reveals a number of findings. First, it was found that artificial intelligence yields a positive influence on customer experience (0.83, $p < 0.05$), and the implication is that an increase in the integration of artificial intelligence would result in an increase in overall customer experience. This is in line with existing studies (such as Hoyer et al., 2020; Pillai et al., 2020), where it has been revealed that artificial intelligence provides a futuristic experience for customers and improves the overall customer experience. Secondly, the relationship between artificial intelligence and customer loyalty was also assessed, with the finding revealing a positive and significant influence (0.78, $p < 0.05$). The implication is that an increase in the integration of artificial intelligence results in an increase in overall customer loyalty. This is understandable because artificial intelligence goes deep into the customers' information and presents products and services that are tailored to this information, giving them reasons to reuse the brand. This is in line with extant works (such as

Chen et al., 2023; Prentice et al., 2020), and it has also been discovered that artificial intelligence has a positive influence on customer loyalty through improved service satisfaction. The third hypothesis focused on the relationship between artificial intelligence and personalization. It was revealed in the finding that artificial intelligence has a positive and significant (0.67, $p < 0.05$) effect on personalization. The implication is that an increase in the integration of artificial intelligence will result in an increase in service personalization. This is in line with extant works (such as Anzén & Ekberg, 2020; Deng et al., 2019; Syam & Sharma, 2018) where it has been demonstrated that artificial intelligence enhances personalization. Moving further, the mediating effect of personalization on the relationship between artificial intelligence and customer experience and loyalty was also analysed. The findings indicate a significant full mediating effect on customer experience (0.41) and customer loyalty (0.20). Therefore, personalization has a full mediation effect, as the presence of personalization increases the influence of artificial intelligence on customer experience by 41% and also increases the influence of artificial intelligence on customer loyalty by 20%.

6. Limitations

Notwithstanding certain limitations, the value of this research should not be undermined. The first limitation is that since this study was based on self-reported measures for all the key variables, this increases the possibility of common method bias. However, to overcome this drawback, the scales used were previously validated. Secondly, while there are numerous variables for measuring customer loyalty and customer experience, this focus focused on these two concepts in a general sense, making it difficult to understand the influence of artificial intelligence on the individual variables. However, this was necessary to ensure coherence in the entire research process, as it would have amounted to a huge number of questions, leading to a possible decline in the intention of respondents to participate. Finally, the influence of personalization on products might be different from the influence on services, but this study combined both of them by focusing on personalization without specifying whether it is for products or services. However, this is necessary so that respondents can attend to the questions easily, and it is an area that needs to be addressed in future studies.

7. Conclusion

Based on the findings from this study, it is concluded that artificial intelligence yields a positive and significant influence on customers' experiences and loyalty, and this influence is fully mediated by personalization in a positive way. Thus, corporations that want to improve customer loyalty and experience will need to use artificial intelligence to personalise their product and service offerings. It is believed that by doing so, the products and services will be tailored to the needs and wants of the customers, leading to an improved experience and overall loyalty.

8. Direction for Future Studies

Based on the limitations highlighted above, it is recommended that future research focus on the individual variables used to measure customer experience and loyalty in order to better understand the influence of artificial intelligence on these variables as well as the mediating effect of personalization. Additionally, such studies should be specific as to the products or

services being studied, as this will help narrow down the application of the findings to product or service categories.

9. Acknowledgement

We acknowledge the support of the Marketing Department of the University of Nigeria, Enugu Campus (UNEC) and the Marketing Department of the Enugu State University of Science and Technology (ESUT), as they helped in developing the research outline, questionnaire validation, and overall integrity of the data gathered.

10. Conflict of Interest

The authors declare no conflict of interest.

11. Funding

The authors received no external funding for this research.

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