

THE IMPACT OF AI-DRIVEN PERSONALIZATION ON CUSTOMER LOYALTY

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ABSTRACT

In today's digital landscape, artificial intelligence (AI) has emerged as a powerful tool for enhancing customer experiences through personalized interactions. This study investigates the effects of AI-driven personalization on customer loyalty and satisfaction. By leveraging advanced algorithms, brands are able to deliver tailored content, product recommendations, and targeted communications, which have the potential to foster deeper emotional connections with customers. Drawing from the theories of relationship marketing and customer engagement, this research explores how AI personalization influences both attitudinal and behavioral loyalty, as well as overall satisfaction. Through a quantitative analysis, we examine customer perceptions of AI-driven personalization across multiple touchpoints and its impact on long-term brand loyalty. The findings reveal that while AI personalization can significantly enhance satisfaction and attitudinal loyalty, its impact on behavioral loyalty remains complex and context-dependent. This study contributes to the literature by providing insights into how brands can strategically implement AI technologies to build sustainable customer relationships in an increasingly competitive market.

Keywords: AI Personalization, Customer Loyalty, Customer Satisfaction, Relationship Marketing.

INTRODUCTION

In the digital age, companies face increased competition and rising consumer expectations. Artificial intelligence (AI) has emerged as a major strategic lever to meet these challenges by revolutionizing how brands interact with their customers. By enabling large-scale personalization, AI transforms traditional marketing into a hyper-targeted approach, aiming to deliver unique and tailored customer experiences (Ha, & Im, 2012). The concept of AI-driven marketing personalization has become central to companies' strategies for enhancing the customer experience and strengthening loyalty. By leveraging big data and advanced algorithms, AI enables a level of personalization that goes far beyond the capabilities of traditional methods, offering a dynamic and real-time approach. (Cowls & Floridi, 2018).

AI-facilitated marketing personalization allows companies to better understand customer preferences and behaviors by analyzing massive volumes of data. Through the use of advanced algorithms and predictive models, brands can not only recommend relevant products or services but also anticipate consumers' needs before they are even expressed (Xu & al, 2011). This ability to offer tailored experiences has become a crucial factor for standing out in a competitive market.

This research aims to explore the impact of artificial intelligence on marketing personalization, with a focus on its role in enhancing the customer experience and increasing loyalty. By examining how brands utilize AI to create personalized customer experiences, we seek to understand the mechanisms through which personalization influences customer

satisfaction and loyalty. Ultimately, this study aims to provide valuable insights into the use of AI to transform customer-brand interactions and to offer practical recommendations for optimizing loyalty strategies in a constantly evolving digital environment. These theoretical insights lead us to propose the following research question :

How do Brands use AI to Enhance the Customer Experience and Increase Loyalty?

LITERATURE REVIEW

AI Personalization: Perception and Quality

Personalization is a key lever for enhancing the customer experience (Peppers & Rogers, 1993). In the context of AI, this personalization relies on algorithms capable of processing vast amounts of data, including user preferences, purchasing behaviors, and even social media interactions (Davenport & Ronanki, 2018). AI can identify hidden patterns in customer behavior, enabling brands to offer real-time tailored offers, thereby increasing the relevance of each interaction with the customer. The work of Rust and Huang (2014) demonstrated that integrating AI into marketing transforms the customer experience by making it more seamless and personalized. They emphasize that AI improves the efficiency of marketing campaigns by automating personalization while reducing operational costs. Indeed, brands like Amazon and Netflix use AI to provide highly relevant product and content recommendations to each user, thus creating increased engagement (Gomez-Uribe & Hunt, 2016).

However, the quality of AI-driven personalization is strongly conditioned by data privacy perceptions (Aguirre, et al. 2015). Personalization based on personal data can raise concerns about privacy and security, which may hinder consumer acceptance of these technologies. Research by Acquisti, et al. (2015) showed that while consumers appreciate personalized services, they are often concerned about how their personal data is used, which can affect their trust in the brand. Another crucial factor for the quality of AI-driven personalization is customer acceptance of the technology. Davis (1989), through his Technology Acceptance Model (TAM), showed that technology acceptance largely depends on perceived usefulness and ease of use. In the context of AI, Huang & Rust (2021) explored how the acceptance of AI in customer-brand interactions influences perceptions of personalization. They found that when consumers understand and appreciate the role of AI in enhancing their experience, they are more likely to adopt these technologies and remain loyal to the brand.

Customer Satisfaction

Customer satisfaction is a fundamental concept in marketing and customer relationship management, and it has taken on a new dimension with the rise of artificial intelligence (AI). By offering personalized experiences, AI enables companies to better meet consumer needs, which directly influences their satisfaction. This development builds on academic research to analyze how AI-driven personalization enhances customer satisfaction through various mechanisms.

Customer satisfaction can be defined as a customer's evaluation of the performance of a product or service in relation to their expectations (Oliver, 1997). High satisfaction is associated with loyalty, repurchase intentions, and improved customer retention (Anderson & Srinivasan, 2003). In the context of AI, satisfaction is influenced by AI's ability to deliver tailored experiences that meet consumers' specific needs. Peppers and Rogers (1993) introduced the idea

of individualized marketing, asserting that companies can maximize customer satisfaction by personalizing their interactions and offers. With AI, this personalization becomes more sophisticated, as intelligent systems can analyze vast amounts of data to anticipate consumer needs and adjust offerings accordingly.

AI Personalization and Satisfaction

Personalization is an important lever for increasing customer satisfaction, particularly because it allows companies to better meet individual consumer expectations (Kaptein & Parvinen, 2015). Companies that use AI to personalize their customer experiences can enhance the relevance of their communications and offerings, leading to higher levels of satisfaction. Davenport and Ronanki (2018) emphasize that AI enables companies to deliver personalized services on an unprecedented scale by analyzing customer behaviors and adjusting interactions in real time. For instance, product recommendation systems like those used by Amazon and Netflix leverage AI algorithms to suggest products or content based on users' browsing and purchase histories. This increases satisfaction by offering relevant options that align with users' individual preferences.

In a study on personalized recommendation systems, Schafer, Konstan, and Riedl (2001) showed that these AI-based systems significantly improve customer satisfaction by reducing friction in the decision-making process. By providing recommendations that match users' specific tastes, AI systems facilitate the shopping experience and contribute to greater satisfaction. Based on this, we propose the following hypotheses:

H1: The perception of AI-based personalization has a positive effect on customer satisfaction.

H2: The quality of AI-based personalization has a positive effect on customer satisfaction.

Customer Loyalty: Key Concepts and Dimensions

The concept of customer loyalty is essential in customer relationship management and marketing strategy. Loyalty reflects a lasting attachment between customers and a brand or company and is often linked to repeat purchasing behaviors and a positive attitude toward the brand.

Customer loyalty is commonly divided into two main dimensions: behavioral loyalty and attitudinal loyalty (Dick & Basu, 1994). Behavioral loyalty refers to a customer's repeated purchasing behaviors, while attitudinal loyalty reflects emotional engagement and attachment to the brand. Jacoby and Chestnut (1978) emphasized that loyalty involves more than just repeated purchasing; it also includes a psychological and emotional aspect.

AI Personalization and Loyalty

AI-driven personalization influences customer loyalty. By offering a tailored experience, AI can strengthen attitudinal loyalty, meaning the emotional attachment customers feel toward the brand (Lemon & Verhoef, 2016). At the same time, it can boost behavioral loyalty by encouraging repeat purchases through relevant recommendations or personalized offers (Schafer, Konstan & Riedl, 2001). Kaptein & Parvinen (2015) demonstrated that dynamic personalization via AI not only improves the immediate customer experience but also increases the likelihood of

repeat purchases, thereby enhancing long-term loyalty. Their study reveals that customers who benefit from continuous personalization develop a deeper attachment to the brand, as they perceive a service that consistently meets their individual needs.

Loyalty depends on a brand's ability to influence recurring purchasing decisions. AI personalization, by recommending products or services tailored to customer preferences, promotes this loyalty. Adomavicius and Tuzhilin (2005) explain that personalized recommendation systems, using purchase history and browsing behaviors, offer products that closely align with customer preferences. This reduces cognitive load and the time spent searching for products, which encourages more frequent purchases and strengthens behavioral engagement with the brand. Furthermore, Kaptein and Parvinen (2015) showed that AI-driven dynamic personalization not only improves customer conversion rates but also fosters long-term loyalty. When customers perceive that their preferences are consistently understood and addressed, they are more likely to remain loyal to the brand Figure 1.

H₃: *The perception of AI-based personalization has a positive effect on customer loyalty.*

H₄: *The quality of AI-based personalization has a positive effect on customer loyalty.*

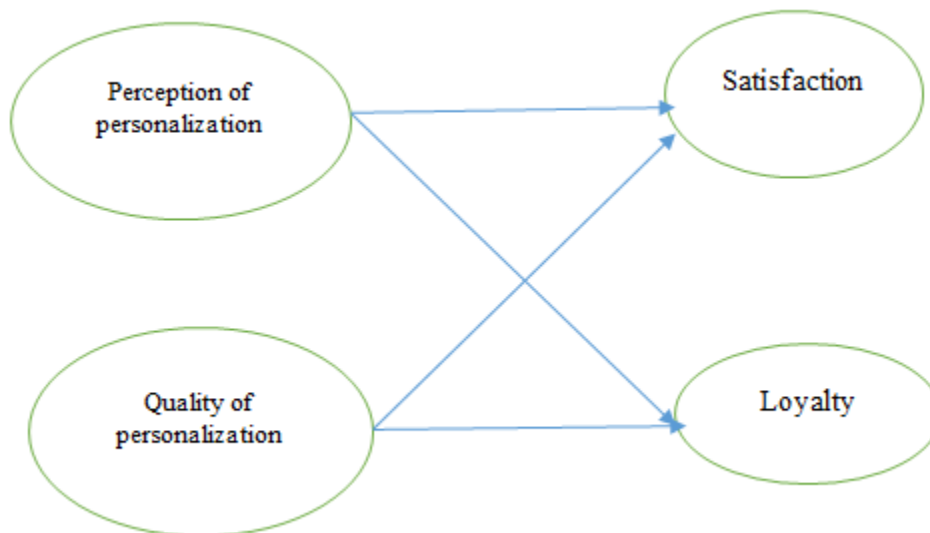


FIGURE 1
CONCEPTUEL MODEL

METHODOLOGY

To test the hypotheses of our research, we selected the Tunisian telecommunications company Ooredoo as the subject of this study. This choice is based on the fact that Ooredoo holds a leading position in the telecommunications industry, operating in several international markets with a significant presence in the Middle East, North Africa, and Asia. Additionally, Ooredoo has demonstrated a strong commitment to technological innovation, including the integration of AI-based solutions to enhance its services. This advanced adoption of technology provides an ideal framework to examine how AI-driven personalization is implemented and what

effects it has on customer loyalty. Analyzing Ooredoo's specific initiatives in AI-based personalization allows us to identify best practices and opportunities for improvement.

The data collection tool used for gathering responses was a questionnaire. The structure of the questionnaire, the types of questions, and their coherence were critical elements in its development. For data collection, we opted to administer our questionnaire online via the social network Facebook and through private messages sent directly to community members. These consumers actively follow the brands on social media, are influenced by online content, and have an experience with Ooredoo. To ensure that the questions were well understood by respondents, we conducted a pre-test with 8 individuals. This pre-test indicated that all questions were perfectly understandable, allowing us to proceed with the formal data collection from 80 participants, of whom 55 % were men and 45% were women.

Selection of Measurement Scales for the Model

The measurement scales chosen were recommended by various studies, and we have adopted them for our work. These are 7-point Likert scales (1 = Not at all personalized, 7 = Very personalized). To measure the perception of personalization, we adopted the scale proposed by Sundar et al. (2015). For the quality of personalization, we used the scale developed by Vesel and Zabkar (2010). For loyalty, we referred to the scale developed by Chaudhuri and Holbrook (2001). To measure satisfaction, we employed the scale presented by Fornell et al. (1996). The scales were selected based on their psychometric properties. According to their authors, all the chosen scales are reliable, valid, and have confirmed stability through previous research.

Measurement Scales & Reliability and Validity Measurement

The reliability of the measurement scales ranged from 0.881 to 0.911, indicating acceptable values. Thus, all scales are unidimensional and explain more than 50% of the variance. These measurements are presented in Table 1.

Measurement scales	Structure	Explained variance	Reliability	KMO test
Perception of personalization	One unidimensional	82,677	0,881	0,752
Quality of personalization	One unidimensional	84,562	0,890	0,700
Loyalty	One unidimensional	88,971	0,884	0,801
Satisfaction	One unidimensional	80,360	0,911	0,819

We also conducted confirmatory analyses (using AMOS 20 software) to ensure the reliability and validity of our measurement scales through indices such as Jöreskog's rho to verify internal consistency and convergent validity rho. Once the reliability and validity of the measurement scales were confirmed, we assessed the overall model fit to ensure the discriminant

validity of each construct. The results confirm that all the measurement instruments we used, on one hand, exhibit a high level of reliability with Jöreskog's rho values exceeding 0.911, and on the other hand, demonstrate strong construct validity with Fornell and Larcker's convergent validity rho values exceeding 0.819 for all measurement scales, proving good convergent validity. Regarding discriminant validity, it is well confirmed since all squared high correlation coefficients are below the average variance extracted for each construct.

Hypothesis Testing

The causal relationships between variables in the brand loyalty model were analyzed using structural equation modeling with AMOS 20. This method was chosen due to the complexity of the research model, which involves multiple independent and dependent variables (Roussel and al., 2002). Structural equation models provide gamma regression coefficients (γ) that help understand the relative weight of each variable in explaining brand loyalty formation.

The fit indices of the structural model are excellent. The GFI and AGFI are greater than 0.9 and the RMSEA is below 0.08. Incremental indices indicate a good quality of the model relative to the saturated model. Additionally, the parsimony indices are lower than those of the saturated model, indicating a parsimonious model. The final step of the results analysis involves evaluating the causal links between the different constructs of the model (testing the research hypotheses) (Roussel et al., 2002). We find that all structural coefficients are significant. Therefore, we can conclude that all hypotheses are validated. Specifically:

Hypotheses H1 : The perception of AI-based personalization has a positive effect on customer satisfaction and H2 : The quality of AI-based personalization has a positive effect on customer satisfaction have a significant positive effect on satisfaction ($\gamma=0.221$; $t=6.119$; $p=0.000$), ($\gamma=0.201$; $t=5.888$; $p=0.000$). These results align with findings by Bleier, and Eisenbeiss, (2015) on the importance of satisfaction for personalized online advertising

Hypotheses H3 : The perception of AI-based personalization has a positive effect on customer loyalty and H4 : The quality of AI-based personalization has a positive effect on customer loyalty have a significant positive effect on loyalty ($\gamma=0.201$; $t=6.119$; $p=0.000$), ($\gamma=0.242$; $t=5.106$; $p=0.000$). These results are consistent with several marketing studies, such as Huang & Rust (2021) in artificial intelligence in marketing.

DISCUSSION AND CONCLUSION

This study provides valuable insights into the impact of AI-driven personalization on customer loyalty, with significant implications for customer relationship management strategies. The results indicate that AI-driven personalization has a significant effect on customer loyalty. Quantitative analyses revealed that customers who receive personalized recommendations are more likely to repeat their purchases and maintain a positive attitude toward Ooredoo. Qualitative data complemented these findings by showing that personalization enhances customer satisfaction by more accurately meeting their needs and preferences. The results confirm the hypotheses that AI-driven personalization improves both customer satisfaction and loyalty. However, it also became evident that the perception of added value from personalization is crucial for reinforcing this loyalty. Personalization efforts have led to increased customer satisfaction, which aligns with the relationship marketing theory (Morgan & Hunt, 1994) and the perceived value theory (Zeithaml, 1988). Customers perceive personalization as added value that enhances their overall experience with Ooredoo. Nevertheless, it is important to balance

personalization with managing customer expectations to avoid information overload and privacy intrusion.

Managerial Implications

Managers at Ooredoo should continue to refine their personalization algorithms to ensure they effectively meet individual customer needs. This involves using customer data to create more accurate profiles and tailoring offers based on behaviors and preferences.

It is crucial to maintain full transparency regarding the collection and use of personal data. Customers should be informed about how their data is used for personalization and the measures taken to protect their privacy. This helps build trust and avoids perceptions of intrusion. Personalization strategies should be regularly evaluated and adjusted based on customer feedback and technological advancements. It is advisable to implement feedback mechanisms to gather customer opinions on the effectiveness of personalized recommendations. Additionally, training staff to understand the issues surrounding AI-driven personalization and its impact on customer loyalty is essential. A better understanding of personalization tools can maximize their effectiveness and provide high-quality customer service.

Future Research

Longitudinal studies could be conducted to observe the effects of AI-driven personalization on customer loyalty over a longer period. This would provide a better understanding of the long-term effects and durability of customer loyalty. Comparisons across different industries could be made to assess how AI-driven personalization influences loyalty in various contexts. This would offer insights into best practices and necessary adaptations for different types of services and products. Further studies could also examine customer-perceived limitations of AI-driven personalization, such as information overload or privacy concerns. This would help identify strategies to better manage these concerns.

Limitations of the Research

The study's results are based on the specific context of Ooredoo. The conclusions may not be directly applicable to other companies or industries due to differences in personalization practices, customer behaviors, and service offerings.

Additionally, the rapid evolution of AI technologies may render some conclusions outdated as new innovations emerge. It is important to view the results as relevant within the current technological context and to remain attentive to new trends.

Finally, the generalization of results to the broader telecommunications market may be limited, as customer needs and preferences can vary significantly depending on the region, market segment, and type of service.

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