



RESEARCH PAPER

Determining the Effect of Artificial Intelligence on online Buying Behavior of Consumers: A Case study of Retail Buyers in Karachi Sindh

¹Dr. Ghulam Murtaza Shah, ²Dr Ahmed Shafique Joyo and ³Noor Ahmed Memon*

1. Assistant professor, IBA, Badin Campus, University of Sindh, Pakistan.
2. Assistant Professor Department of Business Administration Shaheed Benazir Bhutto University Shaheed Benazirabad, Sindh, Pakistan
3. Lecturer at College Education and Literacy Department Sindh, Pakistan

***Corresponding Author:** noor_memon12@hotmail.com

ABSTRACT

The main objective of this research is to analyze the effect of AI Personalization, Chatbots effectiveness and Predictive analysis on buying decision of online buyers. Increasing uses of AI technologies facilitate online retailers to improve personalized buying experiences, innovate selling practices, improve customer service and enhance customer satisfactions. This research includes four hundred online buyers from Karachi and survey questionnaire used to collect primary data. Data analysis show T statistics, significant p value and positive beta results are statistically significant which show all three hypotheses are accepted. This research study concluded that AI Personalization, Chatbots effectiveness and Predictive Analysis, significantly influence the purchase decision of online buyers. Future researchers can use many other technologies of Artificial Intelligence as well as online consumers can be selected from other metropolitan cities like Lahore, Quetta and Islamabad.

KEYWORDS Artificial Intelligence, AI Personalization, Chatbots effectiveness, Predictive Analysis Buyer Behavior

Introduction

In the third decade of twenty first century global landscape is witnessing transformative phase of Artificial Intelligence on different industries including online retail. Its application has significantly changed the way consumers take buying decisions, interacting with online retailers and made purchase decisions. Increasing uses of AI technologies facilitate online retailers to improve personalized buying experiences, innovate selling practices, improve customer service and enhance customer satisfactions. Different technologies in the domain of artificial intelligence like machine learning, natural language processing and computer vision has enabled online retailers to offer more modernized and personalized customer service. These emerging technologies retrieve excess data chunks which help to analyze buying preferences, can recommend different products to online buyers and optimize pricing strategies. Taking advantage of these limelight AI tools, online retailers have meaningful customer insight to know buyer preferences, tailor marketing messages, making effective pricing decisions and deliver products to ultimate consumers in desirable ways (Bhagat et al., 2022). Latest tools of Artificial Intelligence have reformed ways to engage customers in online buying processes. For Instance, AI powered chatbots assist online buyers by providing them real time assistance, asking their preferences, recommending them different products and answering their queries. These generative AI chatbots engage customers in seamless online platform which enhances customer satisfactions and climbing up on customers' ladder of loyalty (Jain & Khurana, 2022). In addition, AI enabled social media tools also engaged customers in disseminating relevant information to online buyers in personalized ways which help them in taking buying decisions and solve their problems in effective manner (Das et al., 2022). Retailers enable to track down buyer preferences and interest in a particular product category which will help in managing different loyalty programs with loyal customers, also known as evangelists (Bedi et al., 2022). This is pertinent for all

sellers to know their current and potential customers in competitive online market for delivering quality customer service and maximize customer satisfactions. AI technologies help online retailers to respond rapidly rising online customer demands in personalized and customized ways. Anticipating customer needs is important for seller to respond customers on right time with adequate available offer. As customers engage online in searching different brands, stay connected on few sites and reviewing all updates on different product and service offers which direct retailers to know needs and wants of consumers, analyzing their identifying patterns and anticipate future needs. AI technologies help retailers to know their customers well and formulate effective strategies to respond their target online buyers (Musa, 2020). AI tools also help to know impulse buying behavior which further explains the time and moment customer is looking for impulse purchases, it suggests online retailers to modify their selling strategies on need basis. As AI technologies also enable online retailers for effective inventory management practices. Research findings further reveal that effective AI driven strategies result in impulse buying particularly in fashion retail sector (Jain & Gandhi, 2021). Discussing benefits of integrating AI with retail outlet, it has some shortcomings as well. Sharing consumers data increase risk of privacy issues and biases in data algorithms. These issues must be discussed to win the trust of online buyers. It is the responsibility of online retailers to take appropriate measures for ensuring ethical and appropriate uses of AI technologies which will not have any negative effect on the perception and buying behavior of online consumers (Tiutiu & Dabija, 2023). It is of paramount importance that growing interest of consumers in using AI technologies and significant effect of these technologies on buying behavior of consumers require extensive future research on developing ethical guidelines and protecting potential scope of AI technologies in different industries. Many AI technologies are in use with reference to online consumers in retail outlet but the present study intends to discuss the effect of AI Personalization, Chatbots effectiveness and Social Media Engagement on the purchase intention of online buyers.

Literature Review

AI Personalization and Purchase decision of online buyers

AI Personalization is one of the important tools which study consumer choices and preferences made online or through social media interactions. It explains consumer data based on browsing history, findings of consumers related to particular brands and their feedback on social media platforms. (Bhagat et al., 2022) discussed the importance of AI personalization in process of online buying which help consumers find products based on their choice and preferences. Personalized product messages are sent to consumers who had shown willingness and interest in particular brands, asked for product features or pricing and its availability etc. These customized marketing messages help buyers and sellers to understand one another and seller has great opportunity to offer the product and communicate information to buyer which was actually needed. (Mussa, 2020) discussed the importance of AI Personalization in five main steps of buyer; need recognition, information search, evaluation of alternatives, purchase decision and post purchase behavior. Each stage in this five steps journey of buying is significant in online purchase intention and AI personalization helps in predicting and examining buying behavior on this online buying platform. AI generated personalization uses technologies in the domain of artificial intelligence to promote products, services and experiences to online buyers. Product or service information promoted or communicated to target customers based on their past behavior, preferences and buying experiences and social media interactions (Nkomo & Zulu, 2019). This concept is widely used in various sectors such as entertainment, healthcare products, and other E-Commerce businesses which support online sellers to deliver more personalized and customized marketing services which can enhance customer satisfaction and increases customer loyalty. (Osei and Adjie, 2022) stated that AI generated Personalization is the application of machine learning algorithms and data analytics to deliver customized messages, product and service recommendations which is based on buyers' past purchases, preferences and real time interactions. This

pattern facilitates online sellers to optimize their message delivery, content and timing as well as careful product recommendations to targeted buyers.

Considering above discussion, H1 is developed as;

H1 AI Personalization has positive and significant effect on purchase intention of buyers in online retail.

Chatbots effectiveness and purchase decision of online buyers

Chatbots is an automated AI generated program that communicate with customers like humans. Growing number of online buyers require round the clock services whenever and wherever needed. Chatbots work unlike humans as they are part of the system, update themselves with required learning and have infinite memory (Wirtz, et al., 2018). Interactions made with online buyers provide good opportunity to deliver more customized offer, it is further described in new and emerging field termed as conversational marketing. Online marketers use conversation as a motivating tool to motivate online buyer in taking buying decision. The further extension of conversational marketing is termed as conversational e-commerce in retail sphere which uses conversation as a relationship tool between online buyer and seller (Brusch & Rappel, 2019). The process of the buyer starts from need recognition and chatbots are used as communication agents on behalf the seller. The conversation can be made any time as chatbots will be available round the clock to respond customer queries and help them until purchase decision (Hoyer et al., 2020).

In today's digital environment real time interaction creates experiential microenvironment in which values of customer empowerment and functionality can act as stimulus for purchase decisions (Chiu et al., 2014). Chatbots in the luxury fashion retail brand reveals that it is more interactive and entertaining for the online buyers as well as utilitarian in application like personalization and customization of marketing messages and product offers. More than interaction and customer engagement, chatbots cover different areas widely discussed as touchpoints of online buyers which can help online marketers to design product accordingly, add features and benefits which meet and exceed expectations of customers and promote product on channels that customer prefers online. This gigantic support of chatbots create a feasibility of purchases as conversation in virtual environment sketch the need of buyer right from need recognition to purchase decision and post purchase behavior. Online marketers have great opportunity to incorporate features in the product, innovate offers and take pricing decisions with due and adequate customer consideration at each stage of the consumer buying process (Chung et al., 2020).

Considering above discussion, H2 is developed as;

H2 Chatbots Effectiveness has positive and significant effect on purchase decision of online buyers

Predictive analysis and Purchase decision of online buyers

Research studies found that AI technologies significantly improves the accuracy of predicting consumer buyer behavior which increase conversion rate of online buyers, i-e from potential to long term customers. In this context, (Xiong, 2022) found that predictive analysis helps online retailers to know preferences of buyers, proper stocking of finished goods or inventory management and better supply chain. This prevents the online sellers from uncertain conditions like understocking and excessive cost overstocking of finished goods. Predictive analysis also helps in knowing impulse buying as real time data examines the time and moment at which customer make spontaneous purchases. This AI technology enable online marketers to know willingness of the buyer in particular brand, his effort for collecting product information, asking for pricing options and confirming timely delivery. These overall actions keep online seller alert and proactive in responding online buyer which is possible via predictive analysis. The broader implications of AI technologies help

in developing effective functional strategies by which online buyers will not only be targeted in proper way but better product recommendations can also be given to help buyers in purchase decision. All these technologies provide a detailed picture of consumer behavior which keeps changing overtime. As online consumers seem to be diversified in culture and different in many social aspects, predictive analysis properly segment each category or class. This broader perspective of online buyers provides real time data to online marketers which result in effective promotion and communication of product or service messages to new, current and potential customers. Predictive analysis also helps online marketers in executing loyalty programs, sellers who experience impulse buying practices require incentives to be given to online buyers in the form of coupons, discounts on product bundle purchasing, sweepstakes and different vouchers which also motivate the buyers to stay loyal with the particular brand. It works like marketing information system which provides accurate and relevant information about new, current and potential customers as well as how to meet and exceed their expectations with the product or service offer they demanded and shown intent to purchase it in near future (Mussa, 2020).

Citing above discussion. H3 is developed as;

H3 Predictive analysis has positive and significant effect on the purchase decision of online buyers in retail outlet.

Consumer Buyer Behavior

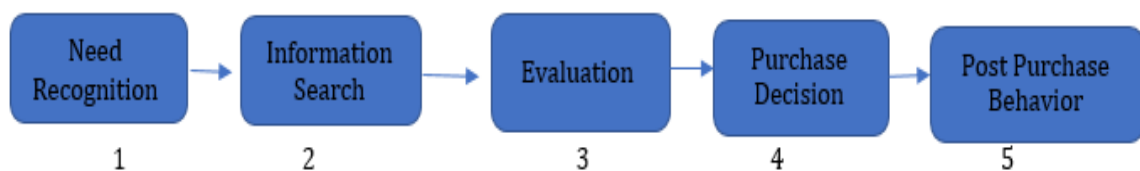


Figure 1. Five stage buying decision process model, Source: Comegys, et al., 2006.

It is pertinent for marketers to understand consumer buying decision process, each stage gives important information about the customer. Buying decision process provides important information to the marketer to know behavior of customer at each stage. The five stage process is sequential in nature from need recognition to purchase decision even after purchases the consumer shows post purchase behavior which is a feedback for marketer after consumer uses the product (Comegys et al., 2006).

Need Recognition

At the first stage of buying process in which buyer identifies the difference between desired state and actual state. It can be caused by internal stimuli i-e hunger or thirst need or external stimuli i-e advertising or promotion through online or offline marketing communications. Along with external and internal stimulus there are many factors based on demographic information, i-e Age, Gender, Occupation, Education and Marital status etc. In addition, psychological factors like motivation also influences need recognition. Perception shows sensory impression of the buyer which further describes what does he see himself and in his surroundings? Therefore, it depends on the need and perception of consumer because sometimes he may replace the product for his need, sometimes he can purchase broken or used product too. Repeat purchases may increase sale of a particular brand rather than variety seeking buying behavior in which consumer show low involvement but having significant perceived differences among brands (Comegys et al., 2006).

Information Search

After need recognition through one or multiple factors discussed in first stage, the consumer shows willingness to collect product or service information through different personal and professional sources. In personal sources he might collect information from

family and friends which is one of the reliable sources of collecting information. Another possibility is commercial sources like direct communication of salesperson or through indirect communication like advertising in published or broadcast media. Many times, consumers collect information from their past purchases which seem to be self-experienced source of information. Information search is also possible through diverse sources like Alba and Hutchinson report found that experts in a particular product category are able to search information more efficiently but they collect very less amount of information as they already been well known about the product features and specification. As the consumers opt online search so it is important to differentiate between expert in online search and expert in particular product knowledge. Both can be differentiated like expert and mediocre in product knowledge, expert looks for very less amount of information available online however expert in online search will rely on his way to collect information available online (Comegys et al., 2006).

Evaluation of Alternatives

Consumers tend to set cut off values to evaluate alternatives. If the reliability of the product features is equal to or greater than cut off values, the consumer finds that alternate more suitable than others. Vice versa if reliability is relatively lower than minimum expectations or a purchase set in consumer mind, that alternate is unlikely to be considered even. Consumers do not take their buying decision solely on available information but it depends on how easy the process of information is? A brand that is conveniently identified with its physical or tangible features is perpetually positioned but a brand that easily comes into mind of the buyer is conceptually positioned. Research studies further elaborated that conceptually positioned product has maximum chances of being finalized for purchase decision (Comegys et al., 2006).

Purchase Decision

After evaluation stage the consumer has ranked items in his choice set for the final purchase. But the rank may be changed may be due to influence of family and friends or some other factors. In addition, the rank might be changed due to some uncertain events happen like sudden rise in price of the product or stockout situations. In online buying consumer usually takes purchase decision alone as no any influence from any family member seems influencing the buyer. Along with the buying decision there are many sub-decisions that a consumer is also required to take, i-e time of the buying and product availability, mode of payment, quantity to be purchased, offered price and point of sale information. Considering all these steps from need recognition to purchase decision, sometimes consumer ignore all these stages and opt for impulse buying which may arouse of emotions. Ultimately at the forth stage consumer finally purchased the product (Comegys et al., 2006).

Post-Purchase Behavior

After purchase decision the process of purchase continues in the form of post-purchase behavior. The consumer might show his post-purchase behavior in two forms; customer satisfaction and customer actions. The repurchase intention of the buyer shows product performance meets or exceeds his expectations however actions might be taken in the form of forwarding complaints, returning the product or might be some issues in one or two functional parts of the product. The end point of satisfaction is loyalty and loyalty sets brand preference and brand preference positively results in repurchase intention of the buyer (Comegys et al., 2006).

Material and Methods

This research is quantitative in nature which describes the relationship between independent and dependent variables using numerical data. As the method is survey research method therefore survey questionnaire is used to collect primary data (Bryman, 2015). This study investigates the quantitative relationship between AI personalization,

Chatbot effectiveness and Predictive analysis with consumer buyer behavior. This research includes four hundred online buyers from Karachi, the metropolitan city of Pakistan. Two hundred fifty were males and one hundred fifty were females. Their age group is between twenty to forty five years. Frequency of online shopping varies in sample, 30% participants did 11-15 times online shopping, 25% participants did 16-20 times, 35% participants did 6-10 times and remaining 10% did up to 5 times. This research intends to use closed ended questionnaire for collecting primary data. The questionnaire used five points Likert Scale to collect primary data. (Bryman, 2015) discussed that in survey research method the researchers used survey questionnaire which is closed ended and used to collect primary quantitative data. Almost four hundred questionnaires were distributed using snow ball sampling method as it was much difficult to target each respondent in online survey. All four hundred questionnaires were collected and data was analyzed using SPSS and Smart PLS-3.

Results and Discussion

Table 1
Descriptive statistics Analysis

S#	Variables	Mean	Standard Deviation
1	AI Personalization	4.15	0.88
2	Chatbots Effectiveness	4.35	0.75
3	Predictive Analysis	4.50	0.87
4	Purchase decision	4.40	0.60

In table 1 the mean value of AI personalization is 4.15 and standard deviation 0.88 indicates that majority of respondents agreed that AI personalization positively affect their online buying decision. The mean value of chatbots effectiveness is 4.35 and standard deviation 0.75 confirms majority of respondents acknowledge that Chatbots effectiveness positively influences their online buying decision. Likewise, Predictive analysis mean value 4.50 and standard deviation value 0.87 indicate majority views of predictive analysis also influence on their buying decisions.

Table 2
Construct Validity and Composite Reliability Analysis

S#	Variables	Cronbach Alpha	Composite Reliability	Average Variance Extracted
1	AI Personalization	0.756	0.898	0.778
2	Chatbots Effectiveness	0.745	0.850	0.688
3	Predictive Analysis	0.701	0.775	0.645
4	Purchase decision	0.865	0.884	0.647

Table 2 shows results of the construct validity and reliability analysis. Data is said to be valid if its Average Variance Extracted (AVE) value is >0.50 (Bryman, 2015). In above table, first independent variable, i-e AI Personalization AVE value is $0.778 > 0.50$, Second independent variable i-e Chatbots effectiveness value is $0.688 > 0.50$, third independent variable i-e Predictive Analysis AVE value is $0.645 > 0.50$. All three independent variables AVE value is significant and data is valid. Last Dependent variable, Purchase decision AVE value is $0.647 > 0.50$ which is also valid. Table 2 shows reliability analysis of all three explanatory variables and one explained variable. Data is said to be reliable if its internal consistency value is >0.70 (Bryman, 2015). In above table, AI Personalization reliability value is $0.898 > 0.70$ means good internal consistency is found. Chatbots effectiveness value is $0.850 > 0.70$ indicated good internal consistency and Predictive Analysis value is $0.775 > 0.70$ means average internal consistency and last Purchase decision value is $0.884 > 0.70$ indicates good internal consistency. All values show composite reliability values >0.70 , so data is reliable.

Table 3
Discriminant Validity Analysis using Fornell Larcker Criterion

Constructs	NFI	FI	EMPM	EMPC
AI Personalization	0.812			
Chatbots effectiveness	0.677	0.795		
Predictive Analysis	0.692	0.644	0.825	
Purchase Decision	0.599	0.579	0.655	0.770

In discriminant validity analysis the variance of each construct is supposed to be greater than respective rows and columns then it will be considered as statistically different from other constructs. This step confirms the proposed research is not having the problem of multicollinearity (Bryman, 2015). AI personalization variance is $0.812 >$ values in respective row and columns. Chatbots effectiveness variance is 0.795 , Predictive analysis is 0.825 and Purchase decision variance is $0.770 >$ values in each construct respective rows and columns. The data is said to be statistically varied which show discriminant validity in the data (Hamid et al, 2017).

Table 4
Model Fitness Standardized Root Mean Square Residual (SRMS), Normed Fit Index and R Squared using SEM Analysis

Fit Summary	Saturated Model	Estimated Model
Standardized Root Mean Square Residual (SRMR)	0.075	0.075
Normed Fit Index	0.935	0.935
R Squared: 0.752		

In above table Standardized Root Mean Square Residual (SRMR) value is $0.075 > 0.070$ and Normed Fit Index (NFI) value is $0.935 > 0.90$ means the model is statistically significant. The R squared value is 0.752 , means 75% effect in the purchase decision explained by AI Personalization, Chatbots effectiveness and Predictive Analysis.

Table 5
Hypotheses Results

Hypotheses	Beta	T Statistics	P-Values	Accepted/Rejected
AI Personalization->Purchase Decision (H1)	0.364	11.058	0.000	Accepted
Chatbots Effect -> Purchase Decision (H2)	0.310	8.788	0.000	Accepted
Predictive Analys -> Purchase Decision	0.510	14.821	0.000	Accepted

Table 5 show values which result the test of proposed hypotheses accepted/rejected.

- H1 in the table narrated as; AI Personalization has positive and significant effect on the purchase decision of consumers. Its Beta 0.364 is positive, T statistics value is $11.058 > 2.00$ and P values $0.000 < 0.05$ indicates that AI personalization has positive and significant effect on purchase decision of consumers.
- H2 in the table is narrated as; Chatbots effectiveness has positive and significant effect on the purchase decision of consumers. Its Beta value 0.310 is positive, T Statistics value $8.788 > 2.00$ and P values $0.000 < 0.05$ is significant. Henceforth H2 is accepted.
- H3 in the table is narrated as; Predictive Analysis has positive and significant effect on purchase decision of consumers. Its Beta value 0.510 is positive, T statistics value $14.821 > 2.00$ and P value $0.000 < 0.05$ is statistically significant. It indicates that H3 is also accepted.

This research study explains AI technologies i-e AI Personalization, Chatbots Effectiveness and Predictive Analysis and their effect on online buyer behavior particularly purchase decision of the buyers. The Mean value of all four variables, three independent variables and one dependent variable values are > 4.00 indicate majority of the online buyers located in karachi city confirms the use of AI technologies will significantly

influence their buying decisions for the purchases made online. Construct validity and composite reliability results show data is not having any problem of lower internal consistency as values of all variables is >0.70 which reflect good internal consistency likewise validity is equally important before measuring effect of independent variables on dependent variable. So construct validity values of all four variables is >0.50 indicate that constructs or items of each variable included in this research is highly correlated with its respective variable confirms validity in the data. Later it was also important to check problem of multicollinearity in the explanatory variables and explained variable. Using Fornell Larcker criterion it is statistically determined that variance of each variable is statistically greater in respective rows and columns. Considering all data analysis tools, it is imperative to test model fitness. Using Fornell Larcker criterion and Normed Fit Index it was also determined that model is statistically significant. R squared change is also significant because its value is $>70\%$. Furthermore Beta value, T Statistics analysis and significant P value interpret all hypotheses are accepted and AI technologies have positive and significant effect on the consumer purchase decision and impact on buying behavior. The number of researchers also endorsed these results in their respective research studies undertaken in past. (Mussa, 2020), (Nkomo & Zulu, 2019) endorsed that AI Personalization has positive and significant effect on Purchase intention of online buyers. (Brusch & Rappel, 2019) endorsed that Chatbots effectiveness has significant effect on consumer buyer behavior. In addition, (Xiong, 2022) analysis revealed that predictive analysis help online sellers to have more personalized and customized marketing offers because it is based on the consumer's own preferences, choice set and intention he has shown online. It interprets AI technologies influence buying decision of online retail buyers in metropolitan city, Karachi, Pakistan.

Conclusion

In the digital age, AI technologies use and scope is widening day by day. Thousands of buyers are shifting their purchase places from physical to digital markets. This research study concluded that AI Personalization, Chatbots effectiveness and Predictive Analysis, three main tools of Artificial Intelligence, significantly influence the purchase decision of buyers. As consumer starts the buying process as prospect then ends transition with purchase decision and post-purchase behavior, AI technologies help them to identify their problem, giving them various product or service recommendations based on their choice, answer all queries and deliver them round the clock quality service even better than humans. Because AI technologies have more effective memories, designed as part of the system, engage online buyers in virtual environment with more reformed and result oriented real time interactions and pacify the process of buying a product which will maximize customer satisfactions and increase customer loyalty. Online retailers have great opportunity to attract buyers from distant locations which was not possible in physical markets, they have safe and secure payment systems as well as technology support in attracting prospects, maintaining profitable relationships and retaining them with effective selling and relationship strategies. This process help them to meet expectations of their new, current and potential customers as well as increase sale and maximize profitability. This research included three tools of AI technologies only i-e AI Personalization, Chatbots effectiveness and Predictive analysis. Future researchers can use many other technologies as well as consumers can be attracted from other metropolitan cities like Lahore, Quetta and Islamabad. Future Researchers can use other business portfolio to measure the behavior of online buyers except retail outlet. In addition security risk can also be addressed and the role of AI technologies in minimizing this risk for the convenience of online buyers. This research is a valuable guideline for all online sellers both individual and corporate. Individual online sellers can introduce their new offers, communicate product information to targeted buyers, optimize pricing decisions and deliver products based on the need and want of target buyers. Corporate sellers, like banking sector, particularly retail banking, know the way to manage their customers engaged or interact via online banking. Corporate sellers can implement more effective functional strategies to

attract and retain online buyers for their advances or different retail banking products. Like-wise education, health and other sectors too have good opportunity to streamline their service purchases for online buyers. Rapidly changing buying behavior and shifting attitude of customers to online markets create a dire need for all sellers to use AI technologies for their business growth and development. This will become a combined effort of all sellers to provide more resourceful online markets to diverse set of buyers which would be support for sustainable growth and survival of businesses in future.

References

- Bedi, P., Bedi, P., & Singh, J. (2022). AI-driven personalization and consumer loyalty: A comprehensive study. *International Journal of Retail & Distribution Management*, *50*(3), 339–354.
- Bhagat, R., Chauhan, P., & Bhagat, N. (2022). Influence of AI on consumer purchase intentions through personalized recommendations. *Journal of Retailing and Consumer Services*, *64*, 102746.
- Brusch, I., & Rappel, N. (2019). Exploring the acceptance of instant shopping: An empirical analysis of the determinants of user intention. *Journal of Retail and Consumer Services*.
- Bryman, A. (2015). *Social Research Methods*. Oxford University Press.
- Chiu, C. M., Wang, E. T., Fang, Y. H., & Huang, H. Y. (2014). Understanding customers' repeat purchase intentions in B2C e-commerce: The roles of utilitarian value, hedonic value and perceived risk. *Information Systems Journal*, *24*(1), 85–114.
- Chung, M., Ko, E., Joung, H., & Kim, S. J. (2020). Chatbot e-service and customer satisfaction regarding luxury brands. *Journal of Business Research*, *117*, 587–595. <https://doi.org/10.1016/j.jbusres.2018.10.004>.
- Comegys, C., Hannula, M., Vaisanen, J. (2006). Longitudinal comparison of Finnish and US online shopping behavior among university students: The Five-Stage buying decision process, *Journal of Targeting, Measurement and Analysis for Marketing*, Vol 14, issue 4, pp-336-356.
- Das, G., Pradhan, S., & Chaudhury, S. (2022). Impact of AI and social media engagement on online buying behavior: A framework. *Journal of Business Research*, *139*, 339–348.
- Hoyer, W. D., Kroschke, M., Schmitt, B., Kraume, K., & Shankar, V. (2020). Transforming the customer experience through new technologies. *Journal of Interactive Marketing*, *51*, 57–71.
- Jain, R., & Khurana, A. (2022). Enhancing consumer experience with AI-powered chatbots in online retail. *Journal of Business Research*, *138*, 378–389.
- Jain, R., & Gandhi, A. (2021). The impact of AI on impulse buying behavior in fashion retail: An empirical study in India. *Journal of Fashion Marketing and Management*, *25*(4), 543–560.
- Mussa, M. H. (2020). The impact of Artificial Intelligence on Consumer Behaviors an Applied Study on the Online Retailing Sector in Egypt. *Journal of Shopping and Economics*, *10*(4), 128–145.
- Mussa, M. (2020). Predicting consumer purchase behavior using AI: A comprehensive analysis. *Journal of Retailing and Consumer Services*, *57*, 102224.
- Nkomo, L., & Zulu, P. (2019). Dynamic content personalization in African e-commerce: Strategies and challenges. *Journal of African E-Commerce Research*, *5*(2), 145-160.
- Osei, K., & Adjei, D. (2022). AI-driven personalization in African digital marketing: Opportunities and challenges. *Ghana Journal of Business and Technology*, *24*(2), 112-127.

- Tiutiu, A., & Dabija, D. C. (2023). Ethical considerations and customer-friendly technology in AI-driven social media engagements. *Technology in Society, 75*, 102190.
- Wirtz, J., Patterson, P. G., Kunz, W. H., Gruber, T., Lu, V. N., Paluch, S., & Martins, A. (2018). Brave new world: Service robots in the frontline. *Journal of Service Management, 29*(5), 907–931.
- Xiong, L. (2022). Impact of AI and the digital economy on consumer online shopping behavior. *Computers in Human Behavior, 130*, 107197.