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The Influence of AI Personalization on Purchase Intention in Online Shopping in Pakistan

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Abstract
This paper considers the effect of AI-based personalization on customer purchase intention in the online shopping process, where consumer trust, and privacy concern are the mediating and moderating variables respectively. The research design was quantitative and cross-sectional and data were obtained in Pakistan which comprised 119 online shoppers via a structured questionnaire. The proposed relationships were tested by using correlation, regression, mediation and moderation tests. The results shows that consumer trust and purchase intention have a strong positive impact due to AI-personalization. Consumer trust is also a predictor of purchase intention with a significant level and mediator of the effects of personalization and purchase intention. The level of privacy concern, however, does not have a significant moderating effect between the level of personalization and consumer trust. The paper brings out that one of the key processes in which personalization affects consumer behavior is trust and privacy concern seems to play a minor moderation role in the current situation. These results add to the AI-based consumer behavior literature in the new markets and provide practical advice to the e-commerce platforms aiming at enhancing personalization based on the transparent, reliable and trust-establishing practices.

Keywords: AI-personalization; consumer trust; purchase intention; privacy concern; e-commerce; Pakistan.

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1. Introduction

The expansion of Electronic Commerce has a profound influenced on the search and evaluation process of alternatives and purchase decisions by consumers especially in developing countries where digital usage is on the rise. The rise in internet accessibility and growth of online payment systems have stimulated consumers to move towards online shopping instead of traditional. With the rise in competition among digital market players, e-commerce companies are increasingly using solutions based on data to gain a better insight into customer preferences and enhance the online shopping experience. The personalization of the site based on AI and the use of consumer data, algorithms, and predictive analytics is among the most significant advances in this field that offers product suggestions, targeted advertisements and customized content. The personalization of information through AI can help decrease information overload, as it will offer consumers with more relevant options that are more likely to be more beneficial. By matching the preferences of the consumers with the recommendations, users can also find the platform useful, responsive, and simple to use. Such perceptions can enhance the involvement and prompt buying conduct. Nonetheless, the impact of personalization does not necessarily occur automatically since the online shopping decisions require psychological factors to be taken into consideration, including trust. The consumers are not able to touch and feel goods or to communicate directly with the sellers; therefore, they depend on the platform in terms of delivering correct information, securing transactions, and managing their personal data.

Trust is thus a key factor in transforming personalized online experiences to purchase intention. Consumers tend to follow individualized suggestions more when they think that the platform is reliable, secure and transparent. Meanwhile, personalization presupposes the gathering and processing of personal information, and it may lead to privacy issues. Personalization can lead to lack of trust instead of enhancing it in case the consumers feel that the data collection is ambiguous, overbearing or intrusive. This is of particular concern to Pakistan, where the adoption of e-commerce is increasing, and consumers may not be as aware of privacy protection and data practices. Thus, this paper discusses the impact of AI-Personalization on consumer trust and intent to buy as well as evaluates the mediating effect of trust and moderating effect of privacy concern.

This paper is informed by a combined model whereby AI-based personalization is considered to be the independent variable, consumer trust as the mediator, purchase intention as the dependent variable and privacy concern as the moderator. This design enhances the reasoning of the hypothesis by connecting the questions of the research, the literature review, hypotheses, and the statistical tests in a single model.

Artificial Intelligence is rapidly transforming the digital commerce landscape and radically changing the way businesses interact with their customers throughout the online buying journey. AI tools can help ecommerce platforms study extensive customer information, anticipate customer requirements, and make individualized product recommendations that boost the effectiveness of shopping and customer satisfaction. These smart systems not only optimize marketing strategies but also enrich customer engagement, delivering personalized and timely suggestions. Organizations

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are increasingly utilizing AI-based decision support and recommendation systems, and comprehending their impact on consumer trust and buying habits is now crucial for crafting sustainable and competitive e-commerce strategies, as per Libai et al. (2020), Verhoef et al. (2021), and Venkatesh (2022).

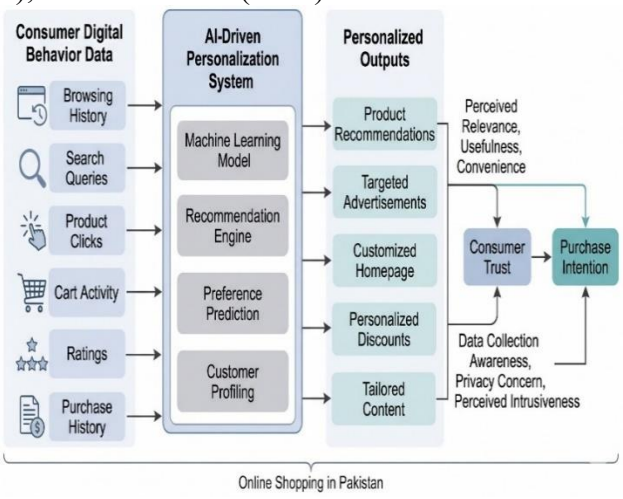


Figure 1, Conceptual overview of AI-Driven personalization in online shopping

1.1 Research Questions

- What is the impact of AI-based personalization on consumer trust of online shopping websites in Pakistan?
- How does personalization based on AI influence the purchase intention in online shopping among customers?
- What is the role of consumer trust in the mediating relationship between personalization caused by AI and purchase intention?
- What are the privacy implications related to consumer trust of AI-based personalized online shopping systems?
- Are privacy issues moderation the impact of personalization by AI on consumer trust of online shopping in Pakistan?

2. Literature Review

The high growth of e-commerce has altered the consumer behavior as online shopping has become easier, more convenient and efficient. Artificial intelligence is becoming more popular among companies that are trying to enhance customer experience and the effectiveness of marketing in this environment (Huang and Rust, 2018; Mariani, Perez-Vega, and Wirtz, 2021; Dwivedi et al., 2021).

AI-based personalization is the application of machine learning, data analytics, and automated decision-making systems to personalize recommendations, advertisements, search engine results and platform content to consumers (Puntoni et al., 2020). Personalization might increase perceived usefulness and perceived ease of use which are important factors of technology acceptance through better relevance and less search effort (Ajzen, 1991; Pavlou, 2003).

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AI has transformed personalization in the online retail space by enabling eCommerce platforms to understand customer preferences, based on their browsing habits, purchase history, and interactions with the website, and make personalized product suggestions. AI-driven recommendations continuously evolve and adapt, building on consumers' data to offer even more personalized and relevant shopping experiences. This adaptive capability increases customer engagement, raises perceived usefulness and raise the chances of customers buying decisions. Personalized recommendations are a valuable competitive advantage for online retailers as AI technologies advance (Davenport et al., 2020; Shankar et al., 2021).

Online shopping particularly demands consumer trust due to the uncertainty surrounding quality of products, security of payment, reliability of the seller and use of the data. Trust is a perception of competence, honesty, security and ability of a platform to deliver on promises (Gefen, Karahanna, and Straub, 2003; Kim, Ferrin, and Rao, 2008).

In case personalization is precise and helpful, it can be perceived as the sign that the platform can comprehend their needs and help them to make decisions. Consequently, the trust and purchasing intention can be enhanced by AI-based personalization. Trust also offers a theory to explain the possibility of personalization indirectly affecting purchase behavior as opposed to having a direct impact.

Explannable Artificial Intelligence (XAI) has been shown to have an impact on consumer trust in recent studies. AI-powered recommendations that are explicitly labeled as such with clear explanations help build trust among consumers.Clearly identifying AI-generated recommendations with explanations increases consumer trust. Explainability helps to desegregate uncertainty around automated decision-making and boosts trust in personalized services. Hence, the consumer trust in recommendations would increase with transparent AI systems leading to higher satisfaction and purchase intentions (Rai, 2020; Shin, 2021).

Meanwhile, the aspect of personalization may lead to privacy issues since its implementation requires collecting, storing and analyzing personal data. According to Privacy Calculus Theory, the consumers will consider the cost of personalized services in relation to the exposure of information to risk (Malhotra, Kim, and Agarwal, 2004). As AI becomes increasingly prevalent in e-commerce, questions have been raised about its fairness, accountability, and responsible use of data. Consumers want companies to be responsible with their personal data, maintain privacy and not make inappropriate recommendations. Consumer trust is fostered, and customer-to-online-platform relationships are reinforced, by ethical AI practices like transparent data governance and responsible algorithm design. The practices are now vital for consumer trusting digital environments powered by AI (Jobin et al., 2019; Dwivedi et al., 2023).

As long as consumers see personalization as transparent and helpful, they might not be opposed to the use of the data and proceed to use the platform. Trust can be lost when it seems to be intrusive or not well explained. This individualizes and privacy trade-off that is very pertinent in the emerging markets like Pakistan where online trade is growing but privacy awareness, regulation awareness and platform responsibility may not be consistent with developed economies.

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Literature also demonstrates that the success of the personalization is not only influenced by the technical accuracy of the recommendations but also on how consumer's process personalized information as they go through the decision-making process. Tam and Ho (2006) believe that web personalization can focus on pertinent alternatives and minimize the mental effort needed to consider alternatives. This can be applied to the e-commerce context whereby AI-driven recommendations could result in a higher purchase intent when it assists a consumer to make comparisons between the products and when it makes him/her feel that the platform understands his/her preferences. Nonetheless, personalization is not necessarily viewed as the positive thing merely because it is precisely calculated algorithmically.

Aguirre et al. (2015) demonstrate that consumer information collection and communication has an impact on whether personalization is perceived as helpful or intrusive. Thus, AI-based personalization can be considered a socio-technical phenomenon where relevance of recommendations, perceived usefulness, and cues related to trust collaborate to elicit consumer reactions. This is in line with the current study emphasis on consumer trust as a process linking consumer personalized online experiences and purchase intention.

The privacy aspect of this association is also significant since personalization may impose a demand on consumers to reveal or enable platforms to deduce the preferences based on the browsing, search, and purchase information. According to Awad and Krishnan (2006), this tension is referred to as the personalization-privacy paradox because when consumers are able to see how services are customized to them, they might appreciate them but when they do not have transparency or control over such processes, they resist profiling. Likewise, Xu et al. (2011) demonstrate that issues of privacy are capable of affecting the way consumers judge personalized marketing, especially when the collection of the data is less apparent or when the surveillance is beyond the anticipated limits of the service. This balance is significant in the case of new markets of e-commerce like it is in the case of Pakistan since their consumers might desire convenience and at the same time they are not sure of how their data are stored, shared or secured by the platforms. Previous literature indicates that the perceived vulnerability can be minimized by transparency, data use that is permission-based, and well-explained personalization can be facilitated and supported by trust. In such a way, privacy concern is a theoretically most relevant risk factor, as well as a condition, which can influence the impacts of AI-driven personalization on consumer trust, either enhancing or diminishing it. This justifies its role as a moderator in the proposed model and clarifies the need to test the impact of this moderator empirically instead of presuming the impact.

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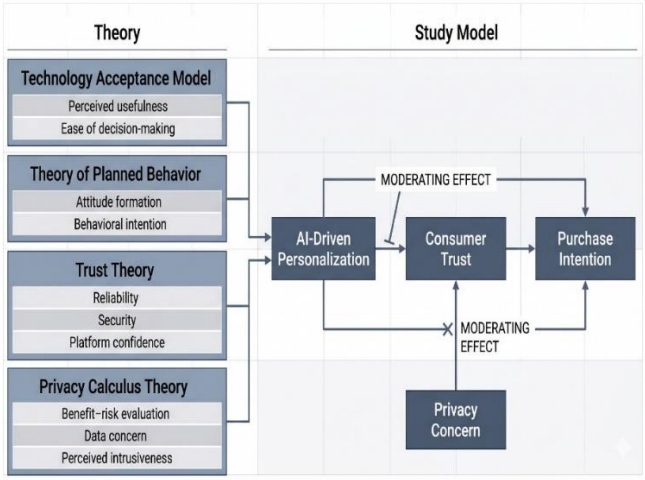


Figure 2, Theoretical foundation of the proposed Research Model

2.1 Research Gap

Even though previous studies have looked at the issues of personalization, trust and online purchase intention, there are a number of gaps that exist. To begin with, a lot of the literature has concentrated on general personalization as opposed to AI-driven personalization which entails the use of algorithms to make decisions and is not necessarily transparent to consumers. Second, most past research has often focused on the direct influence of personalization on purchase intention and there has been less focus on the psychological process through which personalization influences purchase intention. Consumer trust is placed in the middle of the mediation in this study as the factor that elucidates the behavioral-influencing nature of personalization. Third, the issue of privacy concern is only theoretically significant but does not work out empirically. Personalized recommendations might be helpful to the consumers, whereas the same recommendations might be perceived as intrusive to the consumers. This implies that privacy issue might undermine the connection between AI-based personalization and trust, but the impact might not be similar in different settings. Fourth, the empirical data on Pakistan is scarce, and e-commerce in this country remains in the early stages, and consumer attitudes to AI-based personalization might not be the same as in more controlled and technologically advanced settings. This paper fills these gaps by experimenting on an integrated model whereby, the AI-based personalization predicts consumer trust and purchase intention, consumer trust mediates the personalization and purchase intention relationship, and privacy concern moderates the personalization and trust relationship. This model offers a more specific set of explanation of how the use of AI-facilitated personalization influences online consumer behavior in Pakistan. The research advances the body of literature on online consumer behavior, trust development, and privacy issues in new e-commerce markets by focusing on the advantages and disadvantages of the AI-based personalization. The key contribution of the research is that it would be the first study to examine direct, mediating and moderating relationships in a single model. This assists in explaining not just the relationship between the AI-driven personalization and purchase intention, but

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how trust facilitates the transmission of this relationship, and whether the issue of privacy concern alters one of the significant directions in the model.

With the advent of conversational AI and large language models, customer interactions in e-commerce have changed significantly. AI-powered virtual assistants and chatbots offer a more personalized product recommendation and answer customer queries, and assist in making purchases using natural language conversations. AI systems enhance customer engagement and provide interactive shopping experiences. But, to build consumer trust and acceptance of conversational AI technologies, the researchers stress the need for transparency, accuracy and responsible AI governance (Kaplan & Haenlein, 2020; Dwivedi et al., 2023).

3. Materials and Methods

3.1 Research Design

The current study follows the quantitative research design to investigate the connections between AI-based personalization, customer trust, intended purchase, and privacy issue. The quantitative design was believed to be suitable since the study measures the abstract constructs with the help of survey items and the hypotheses are tested with the help of statistical analysis. This research has a cross-sectional design, i.e., data were taken at a single time. The design is appropriate to establish the relationship between variables, although causal statements are to be viewed with certain reservations as the data do not follow the time.

3.2 Population and Sampling

The target population was made up of people in Pakistan that had previously been exposed to using e-commerce sites to shop online. There was not sufficient time and resources to conduct a probability sampling procedure so a non-probability convenience sampling technique was adopted. One hundred and twenty responses were obtained and after filtering out the incomplete and unusable responses 119 valid responses were kept to be analyzed. Though convenience sampling proved to be convenient in accessing online shoppers, this method might be restricted in terms of generalizability of the results to the broader population of Pakistani e-commerce users.

3.3 Variables and Measurement

The research will involve four main constructs namely: AI-driven personalization, consumer trust, purchase intention, and privacy concern. Adapted items of existing studies were used to measure all constructs to contribute to the content validity. The personalization based on AI was quantified using the perceived relevance, usefulness, and accuracy of recommendations. Consumer trust reflected the trust that respondents had in the platforms based on reliability, security, honesty and capability of safeguarding transactions. Purchase intention was used to gauge the probability of making purchases based on recommendation or to make additional purchases by use of online mediums. Privacy issue portrayed the concerns of the users regarding the collection, storage and sharing of data as well as potential abuse of data. Each of the items was rated on a Likert scale of five points with strongly disagree to strongly agree as the possible answers. The questionnaire was a structured questionnaire which was given to online shoppers to gather data. Screenings of responses were done before analysis to be complete and usable. Data were summarized using descriptive statistics,

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reliability was checked using Cronbach alpha, association among variables was checked using Pearson correlation, direct effects were checked using regression analysis and indirect role of consumer trust was checked using mediation analysis and moderation analysis was checked using the personalization and trust relationship. This was done in a voluntary manner and the information given by respondents was analyzed in aggregate to preserve confidentiality.

Table 1: Constructs and their roles in the Study

Construct	Role in the model	Meaning in this study
AI-driven personalization	Independent variable	Perceived relevance and usefulness of personalized recommendations, advertisements, and customized content.
Consumer trust	Mediating variable	Consumer confidence in platform reliability, security, and honesty.
Purchase intention	Dependent variable	Likelihood of purchasing recommended products through online shopping platforms.
Privacy concern	Moderating variable	Consumer concern about data collection, storage, and possible misuse.

3.4 Hypotheses Development and Conceptual Framework

H1: There is a positive impact of AI-driven personalization on consumer trust.
H2: The personalization through AI affects the purchase intention positively.
H3: Purchase intention is related positively to consumer trust.
H4: The mediating consumer trust between purchase intention and AI-driven personalization relates to consumer trust.
H5: The relationship between AI-driven personalization and consumer trust moderates' privacy concern, i.e., the stronger the privacy concern is, the weaker the relationship between AI-driven and personalization.

The proposed hypothesis model thus suggests that AI-based personalization positively affects the purchase intention in a direct as well as indirect manner, via consumer trust. The issue of privacy is likely to undermine the personalization and trust relationship since an increased level of concern about the use of data could decrease the level of trust towards AI-based recommendations.

Conceptual framework in textual form, the conceptual framework has three relationships: purchase intention is directly predicted by AI-driven personalization, consumer trust is predicted by AI-driven personalization, and purchase intention is predicted by consumer trust. The mediation path indicates how personalization can enhance purchase intention by trust and th e moderation path to determine whether the privacy concern can alter the strength of personalization-trust relationship.

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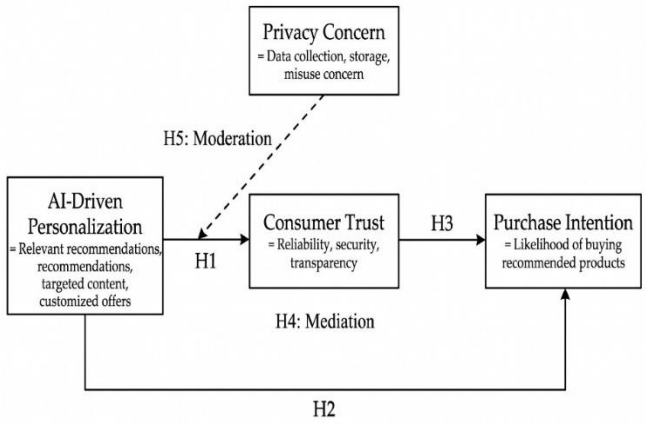


Figure 3, Proposed conceptual model of the study

3.5 Data Analysis Procedure

With the help of the five stages of analysis, the analysis was conducted. To begin with, the mean, standard deviation, minimum and maximum values of all constructs were summarized using the descriptive statistics. Secondly, internal consistency was measured with the help of Cronbach alpha. Third, the direction and strength of the relationships between the variables were investigated with the help of Pearson correlation analysis. Fourth, the direct effects as put forward in H1, H2 and H3 were tested through the use of the linear regression analysis. Lastly, the role of consumer trust as an indirect and privacy concern as a conditional role were tested with the help of mediation and moderation analysis.

4. Results

Since the research employs the cross-sectional survey method, the statistical results can only be used to show that there are relations between variables and not necessarily the certainty that the variables cause each other.

4.1 Descriptive Statistics and Reliability Analysis

The descriptive statistics indicate that the respondents indicated that they had moderate average scores on all the study constructs. The mean of AI-driven personalization was 2.46, consumer trust was 2.50, purchase intention was 2.65 and the mean of privacy concern was 2.68. These values indicate that there were no extremely high or extremely low values on personalization, trust, purchase intention, and privacy concern reported by the respondents. Reliability test was used to confirm that all the measurement scales had a reasonable internal consistency with Cronbach alpha values exceeding the recommended value of 0.70. This shows that the measures of each construct were reliable and could be analyzed using other statistics in the future.

Table 2: Descriptive Statistics of Study Constructs

Construct	Mean (M)	Std. Deviation (SD)	Minimum	Maximum
AI-driven personalization	2.46	0.87	1.00	5.00
Consumer trust	2.50	0.99	1.00	5.00
Purchase intention	2.65	0.95	1.00	5.00

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Privacy concern	2.68	1.13	1.00	5.00

Table 2 reports the reliability coefficients for all constructs. Each Cronbach's alpha value exceeds 0.70, confirming that the measurement scales are internally reliable.

Table 3: Reliability Analysis

Construct	Cronbach's Alpha (α)
AI-driven personalization	0.832
Consumer trust	0.787
Purchase intention	0.776
Privacy concern	0.770

These results indicate that the constructs are reliable and appropriate for correlation, regression, mediation, and moderation analyses.

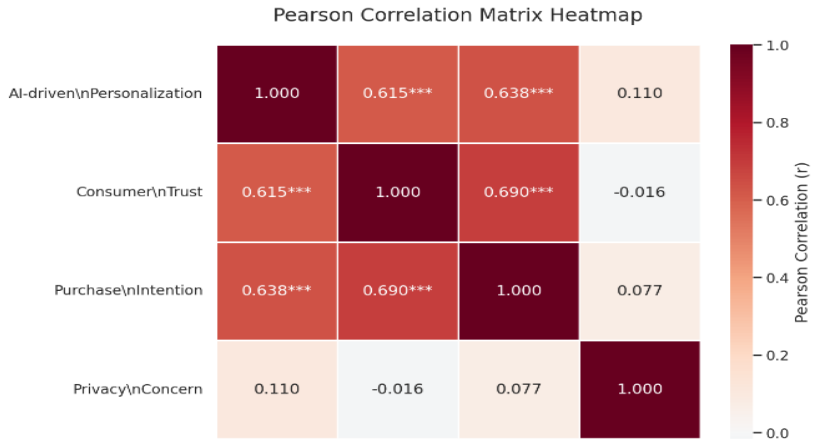
4.2 Correlation Analysis

The outcomes of Pearson correlation show that AI-based personalization has a positive correlation with consumer trust and purchase intention. Purchase intention has also a positive relationship with consumer trust. Conversely, the privacy concern is weakly correlated with the other variables and does not have any significant markers of the correlation in the correlation matrix. The results offer some initial evidence on the anticipated positivity of the correlations between personalization, trust, and purchase intention, and indicate that the privacy concern might not be directly correlated to a significant degree in this sample.

Table 4: Pearson Correlation Matrix

Variables	1	2	3	4
1. AI-driven personalization	1	0.615***	0.638***	0.110
2. Consumer trust	0.615***	1	0.690***	-0.016
3. Purchase intention	0.638***	0.690***	1	0.077
4. Privacy concern	0.110	-0.016	0.077	1

Figure 4, Pearson Correlation Matrix Heat map



4.3 Hypothesis Testing

H1: Effect of AI-driven personalization on consumer trust

Table 4: Regression Results for H1

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Model	Predictor	Outcome	B	T	p	R^2
Linear Regression	AI-driven personalization	Consumer trust	0.699	8.44	< .001	0.379

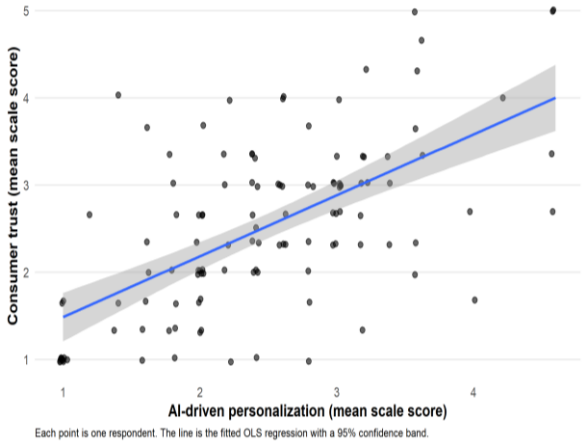


Figure 5, AI personalization predicts consumer trust

H1 is supported because AI-driven personalization has a positive and statistically significant effect on consumer trust. The coefficient (b = 0.699) indicates that higher perceived personalization is associated with higher levels of trust. The model explains 37.9% of the variance in consumer trust (R^2 = 0.379), and the effect is statistically significant (p < .001).

H2: Effect of AI-driven personalization on purchase intention

Table 5: Regression Results for H2

Model	Predictor	Outcome	B	t	p	R^2
Linear Regression	AI-driven personalization	Purchase intention	0.698	8.95	< .001	0.407

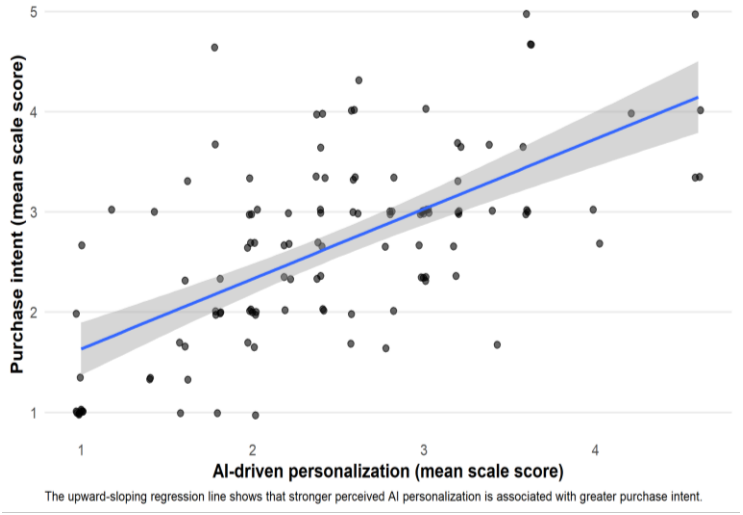


Figure6, AI personalization predicts purchase intent

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H2 is supported because AI-driven personalization has a positive and statistically significant effect on purchase intention. The coefficient (b = 0.698) indicates that higher perceived personalization is associated with higher purchase intention. The model explains 40.7% of the variance in purchase intention ($R^2 = 0.407$), and the relationship is statistically significant ($p < .001$).

H3: Effect of consumer trust on purchase intention

Table 6: Regression Results for H3

Model	Predictor	Outcome	B	T	p	R^2
Linear Regression	**Consumer trust**	**Purchase intention**	**0.665**	**10.30**	**< .001**	**0.476**

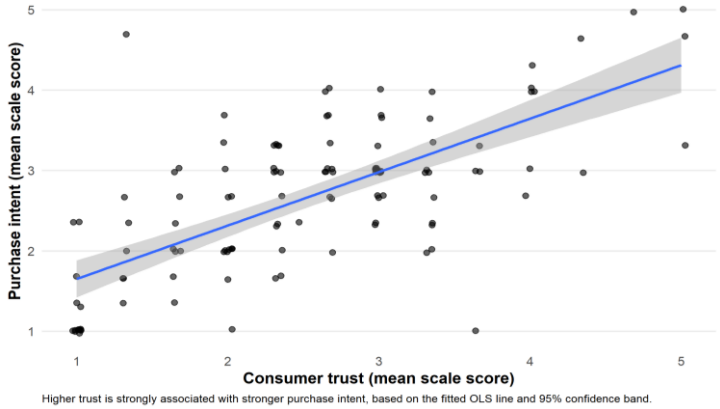


Figure 7, Consumer trust predicts purchase intent

H3 is supported because consumer trust has a positive and statistically significant effect on purchase intention. The coefficient (b = 0.665) indicates that higher trust is associated with higher purchase intention. The model explains 47.6% of the variance in purchase intention ($R^2 = 0.476$), suggesting that trust is the strongest predictor among the tested direct relationships.

H4: Mediating role of consumer trust between personalization and purchase intention

Table 7: Mediation Results for H4

Model	Predictor	Outcome	Effect	Estimate	95% CI	p
H4 mediation model	AI-driven personalization	Purchase intention	Direct effect (c′)	0.376	[0.198, 0.559]	< .001
H4 mediation model	AI-driven personalization	Purchase intention	Indirect effect	0.322	[0.178, 0.495]	< .001

H4 is supported because consumer trust partially mediates the relationship between AI-driven personalization and purchase intention. The indirect effect is statistically significant (b = 0.322, 95% CI [0.178, 0.495]) because the confidence interval does not include zero. The direct effect remains significant (b = 0.376, $p < .001$), indicating

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partial mediation. This means AI-driven personalization influences purchase intention both directly and indirectly through trust.

H5: Moderating role of privacy concern

Table 8: Moderation Results for H5

Predictor	Outcome	B	T	p
AI-driven personalization x Privacy concern	Consumer trust	-0.009	0.596	0.927

H5 is not supported because the interaction between AI-driven personalization and privacy concern is not statistically significant (b = -0.009, t = 0.596, p = .927). This indicates that privacy concern does not significantly change the strength of the relationship between AI-driven personalization and consumer trust in this sample. The near-zero coefficient suggests that the moderating effect is negligible. Simple slope patterns also show that the relationship between personalization and trust remains positive across low, average, and high levels of privacy concern.

This result should not be interpreted as evidence that privacy concern is unimportant. Rather, within this sample and model, privacy concern did not significantly alter the personalization-trust relationship.

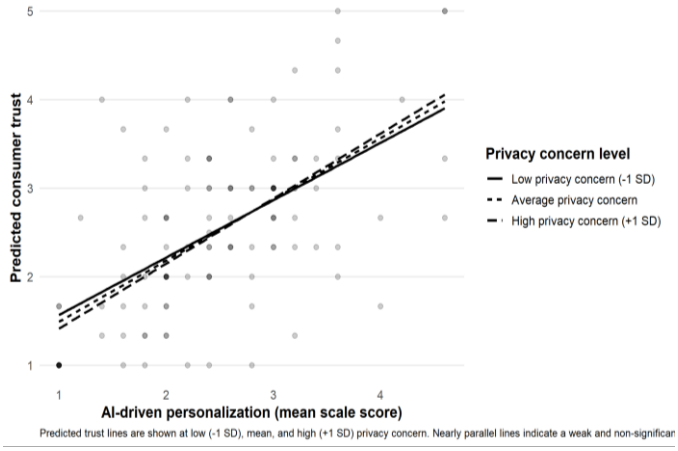


Figure 8, Privacy concern as a moderator

5. Discussion

This study aims to explore the effect of AI personalization on consumer trust, purchase intention, and privacy concern in the context of online shopping in Pakistan. The results reveal that AI personalization significantly improves customer trust, suggesting that personalized recommendations make consumers feel more confident online shopping platforms can deliver on their preferred items and that they are responsive. The results align with the hypothesis that personalized and personalized recommendations increase user trust in digital platforms and their positive shopping experiences, respectively.

The findings also show that consumer trust is the most important factor that influences the purchase intention, indicating that the factor of trust is one of the most crucial in online purchase decisions. Trust lowers perceived uncertainty and increases purchase behavior when it comes to online consumers, as they are unable to feel or talk face-to-face with the seller. Furthermore, the relationship between AI-powered personalization

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and the purchase intention is partially mediated by consumers' trust, indicating that personalization not only directly affects the purchase intention but also indirectly boosts consumers' trust into the platform.

The moderating effect of privacy concern was not found to be a significant factor. The results indicated that, for the sample of consumers studied, privacy concerns did not undermine the positive relationship between AI-driven personalization and consumer trust. A possible reason is that customers in Pakistan might be willing to sacrifice privacy to gain convenience, appropriate product suggestions and time efficiency. Additionally, it could be that privacy concern affects consumers not by directly impacting their trust in personalized recommendations but rather another way, such as by impacting their perceived risk or willingness to disclose their personal information. However, the results should be taken with a grain of salt as the study was a relatively small convenience sample and future studies with larger and more diverse samples could yield different results.

6. Conclusion

This study aimed to explore the influence of personalization using AI on online purchase intention, with mediating role of consumer trust, and moderating role of privacy concern among the online shoppers in Pakistan. The findings show that personalization using AI has a positive impact on consumer trust and purchase intention, with consumer trust being an important partial mediator between personalization and purchase intention. However, there was no significant moderating effect of privacy concern on the relationship between AI-driven personalization and consumer trust in the sample studied. The study concludes that the trust of the consumer is the key driver of how AI for personalization influences online purchase behavior. For this reason, the key to e-commerce platforms is to not only use personalization as a recommendation system but as a strategy to foster a sense of trust and security in their customers by maintaining transparency, managing data securely, and giving customers control over their personal information. These practices can help boost consumer trust and promote ongoing interactions with online shopping sites. The results would be useful for understanding the consumer behavior in the emerging e-commerce market in Pakistan; however, they should be considered in the light of the limitations of the study, such as the convenience sampling and cross-sectional research design. However, the study adds to the literature on personalization with AI by offering real-world insights from an emerging market environment and offers practical advice for companies looking to adopt effective and secure AI-based personalization strategies.

6.1 Implications of the Findings

In theory, the results justify the combination of the effects of personalization and trust in predicting online purchase intention. As the supported mediation outcome demonstrates trust is not merely an outcome of AI-driven personalization but a process in which personalization correlates with purchase intention, as well. In practice, the results imply that online frameworks need to concentrate on the relevance of the personalized recommendations, its utility, and reliability. As purchase intention is all about trust, personalization must be implemented to enhance trust in the platform instead of just raising product exposure. The non-significant moderation finding also

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indicates that privacy concern did not undermine the relationship in this paper. Nevertheless, privacy concern remains to be considered in platforms since it is still within the framework of the study and the concern of consumers about their data collection, storage and potential misuse.

6.2 Limitations

Although this paper has provided useful insight, it has various limitations. To begin with, non-probability convenience sampling limits the external validity of the results since the sample might not represent completely all online consumers in Pakistan, and different population and socioeconomic groups. Second, cross-sectional research design does not allow evaluating the changes in consumer attitudes over time, so care should be taken when making causal interpretations. Third, the self-reported data in the study is based on self-report questionnaires, and there are possible bias in the response, social desirability, and recall errors. Fourth, the research has four primary variables namely, AI-based personalization, consumer trust, purchase intention, and privacy concern. Other significant aspects like perceived risk, digital literacy, reputation of the platform, user experience, transparency of the AI systems, and customer satisfaction were not part of this. In the future, bigger and more heterogeneous samples, the application of probability sampling methods, and longitudinal designs should be employed to enhance the generalizability and obtain a better idea of how the trust and purchase intention evolve with the further exposure to AI-based personalization. The qualitative or mixed-method approach (interview or focus groups) can also be employed in future research to obtain a better understanding of the way consumers understand personalization, privacy, and trust. Other variables include transparency in the platform, perceived risk, customer satisfaction, brand loyalty, and explain ability of AI and can be added to create a more detailed model. Other studies might also be done in terms of countries or industry-specific studies in a field like fashion, electronics, grocery retail or financial services to help understand how effects of personalization are differentiated by industries and culture.

6.3 Future Work

Future studies must test the proposed model with a larger and more representative sample of the emerging economy as well as other regions of Pakistan to have more generalizable results. To explore the trajectory of consumer trust and purchase intent over time, as they are exposed to the personalization suggestions provided by AI, it is recommended to use longitudinal studies. Future research could also involve other factors like perceived risk, algorithm transparency, explainable artificial intelligence (XAI), customer satisfaction, digital literacy, platform reputation, and perceived usefulness to understand consumer behaviour further in an AI-powered ecommerce sector.

Furthermore, comparative analyses of various e-commerce industries, such as fashion, electronics, grocery, health, and financial services, could offer insights into the effectiveness of AI in personalization, and help determine if there are differences by sector. Further research on cross-cultural studies between developed and developing countries could explore the role of cultural values, privacy laws, and technological readiness on consumer reactions to AI-driven personalization. In conclusion, further

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research could take a qualitative or mixed-methods perspective to delve deeper into consumers' perceptions of algorithmic fairness, transparency, ethical AI practices, and data privacy, complementing the quantitative results of the present study and helping to build trustworthy and responsible AI-driven personalization strategies.

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