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An Analytical Study of Consumer Perception of AI-Driven Personalisation in Digital Marketing

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Abstract: *The emergence of Artificial Intelligence (AI) has greatly changed the manner in which companies comprehend and engage with consumers. AI-based personalization helps businesses to analyze consumer data, forecast preferences and deliver personalized offers, products, services, recommendations, promotions and many more. This paper seeks to investigate consumer perception of AI based personalization and examines socio-economic factors that affect consumers' perception and evaluation of personalized offerings. 120 sample online consumers from Ernakulam District of Kerala were chosen by applying convenience sampling. Primary data was gathered through a structured survey among consumers and appropriate statistical tool i.e. multiple regression analysis has been used for analysis of the gathered data. The findings help to gain an understanding of consumers' perceptions and response to AI personalization being used increasingly in marketing activities. In marketing, AI-driven personalisation supports a variety of activities, including customised email communication, targeted digital advertising, product recommendations, and personalised promotional content. By analysing consumer characteristics and behavioural information, marketers can develop communications that are more closely aligned with specific consumer interests and preferences. Consequently, AI-driven personalisation has become an important component of contemporary digital marketing, while consumer trust, privacy, transparency, and perceived relevance remain critical factors in determining how consumers respond to personalised interactions.*

Keywords: Artificial intelligence, Consumer, Forecast, Promotions, Personalisation.

I. INTRODUCTION

AI-driven personalization is an application of artificial intelligence technologies to personalize messages, recommendations, services and digital experiences for customers, based on their personal traits and preferences. With the help of analyzing consumer data and behavioral patterns, personalized experiences can be achieved by AI systems. This kind of personalization allows organizations to build a better experience for customers and increase interaction with them. The constant development of AI technologies, especially the generation of AI, opened new possibilities for marketing. Current AI systems are able to generate and provide customized content and recommendations with almost no time delay, allowing companies to quickly react to the behavior of customers. All of this contributes to the rise of omnichannel hyperpersonalization, where consumers receive the same personalized experience across multiple channels depending on their interactions and preferences. The constantly increasing capabilities of AI-driven personalization affect the expectations of consumers as well. People increasingly expect relevant recommendations and personalized experience according to their personal needs. According to industry research, consumers become more interested in AI-assisted shopping and personalized interactions. It has been reported that consumers also tend to expect business organisations to offer personalised content, which may lead to dissatisfaction from the consumer's side when such interactions do not meet their particular demands. Thus, personalisation became an essential aspect of business strategy for improving relations between a business and its consumers, engagement and performance in general. The usage of artificial intelligence for personalisation is now widespread in various industries in order to offer relevant recommendations and context-based experience to consumers. It can be applied not only to individual consumers who browse websites but also to corporate customers, employees and other users who interact with business organisations through different digital channels. By using different types of data, AI systems allow to make tailored content and services available and to control personalisation in relation to various segments of consumers. In e-commerce, AI-powered personalisation is used in order to analyze browsing habits, purchase history, search and interests of a consumer. Thus, AI systems can offer particular products which can be interesting for a particular consumer.

This kind of technology can also be useful for personalised emails, advertising and other communication channels. In marketing, AI-driven personalisation supports a variety of activities, including customised email communication, targeted digital advertising, product recommendations, and personalised promotional content. By analysing consumer characteristics and behavioural information, marketers can develop communications that are more closely aligned with specific consumer interests and preferences. Consequently, AI-driven personalisation has become an important component of contemporary digital marketing, while consumer trust, privacy, transparency, and perceived relevance remain critical factors in determining how consumers respond to personalised interactions.

A. Significance of the study

There are AI powered tools that could interact with customers during different stages of the customer journey process. The use of such tools could start from personalizing interactions when consumers are searching for products and services online through personalized communication after the purchase process. In such ways, personalization through AI helps organizations deliver consistent and relevant experience to consumers at multiple points in the journey. Proper use of AI personalization has been found to help firms perform much better and generate revenues. According to a survey carried out by the IBM Institute for Business Value among top business leaders, companies that focused more on customer experience had the potential to grow revenues much faster compared to their peers. The survey also found that most of the leaders surveyed believed that personalization was an integral part of their customer experience strategy.

B. Problem Identification

However, along with implementing AI-based personalization, companies should pay more attention to transparency, data privacy, and responsible use of consumer data. As AI algorithms depend on the huge amount of consumer data for personalized recommendations and offers, customers can be worried about how the process of collection, analysis, storage, and sharing of their personal and behavioral data takes place. Insufficient transparency may provoke questions related to the nature and extent of data usage and decrease consumer trust. Moreover, consumers can be worried about the possible distortion of personalized recommendations, promotions or AI-based information. Sometimes, it is difficult for consumers to comprehend the way the AI-based system makes recommendations or offers. Also, the use of AI in pricing may provoke concerns about price discrimination and price rises because consumers can be treated differently and offered various prices or offers depending on their individual features, browsing habits, purchase history or other factors.

C. Aim of the Study

The study aimed to know the consumer perception of AI-driven personalisation in digital marketing.

II. LITERATURE REVIEW

Hoang et al. (2023) examined the personalisation–privacy paradox and found that consumers balance the benefits of personalised services against privacy risks, with trust and perceived control influencing their willingness to share personal information. Canhoto et al. (2024) studied AI-enabled personalisation in retail and found that consumers valued relevant and customised experiences, while privacy, surveillance, and loss of control remained important concerns. Athaide et al. (2024) examined personalised smart-device experiences and reported that convenience and perceived value encouraged adoption, whereas privacy concerns and reduced consumer control could negatively affect acceptance. Jain et al. (2024) reviewed AI and consumer behaviour research and identified trust, perceived usefulness, engagement, and technology acceptance as important factors shaping consumer responses to AI-enabled applications.

III. METHODOLOGY

The study was carried out among the 120 sample online consumers residing in Ernakulam District of Kerala. Since the study revolved around consumers having previous experience in online shopping and digital platforms, consumers who could be approached and were ready to participate in the study were considered the respondents. Convenience sampling technique, which is a non-probability sampling technique, was used to select the respondents in this study. Primary data were gathered by directly approaching the online consumers through the use of a questionnaire. The questionnaire was distributed to the respondents online, facilitating the process of gathering data from consumers having experience in digital platforms and online purchases. Respondents were aware of the reason for conducting the study, and the data obtained was only for academic and research purpose.

The responses received were checked for their completeness and consistency prior to any statistical analysis. The data collected through the primary data collection process was coded, classified, and analyzed statistically. Multiple regression analysis was used to analyze the impact of selected independent variables on consumer perception of AI-based personalization.

IV. RESULTS AND DISCUSSIONS

Table 1
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.528 ^a	.279	.212	17.529

The regression model of current study produced an R value of 0.528 and there is a moderate relationship between the independent variables and consumer perception. The R² value of 0.279 indicates that 27.9% of the variation in consumer perception of AI-driven personalisation is explained by the ten independent variables included in the model. The adjusted R² value of 0.212 indicates that, after adjusting for the number of predictors, approximately 21.2% of the variation in perception is explained by the model. The remaining variation may be attributed to other factors not included in the present model.

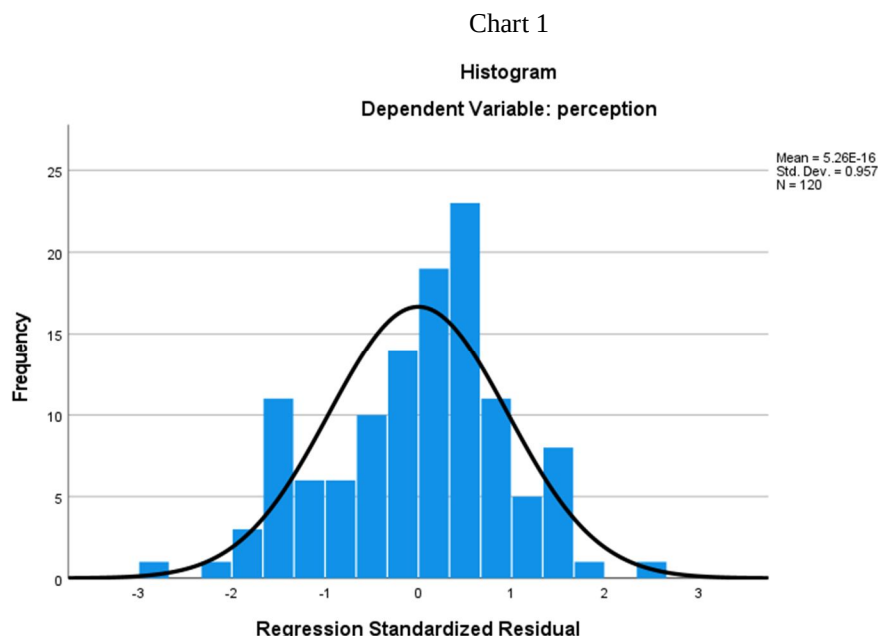
Table 2
Coefficients

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	123.276	11.613		10.615	.000
Age	-3.753	1.874	-.172	-2.003	.048
Occupation	2.323	3.394	.089	.684	.495
Gender	-13.541	4.180	-.343	-3.239	.002
Forms of personalisation experienced	1.920	1.060	.162	1.811	.073
Family size	.440	1.899	.021	.231	.817
Income level	-7.996	2.151	-.319	-3.717	.000
Type of online shopping platform	-2.272	1.544	-.130	-1.471	.144
Educational level	2.497	1.472	.152	1.697	.093
Frequency of online shopping	1.515	2.302	.084	.658	.512
Type of product impressed	-4.698	3.085	-.237	-1.523	.131

Regression equation of the analysis is revealed below.

Perception = 123.276 – 3.753(Age) + 2.323(Occupation) – 13.541(Gender) + 1.920(Forms of Personalisation) + 0.440(Family Size) – 7.996(Income Level) – 2.272(Online Shopping Platform) + 2.497(Educational Level) + 1.515(Frequency of Online Shopping) – 4.698(Type of Product Impressed).

The regression analysis demonstrates that the model as a whole is statistically significant and explains 27.9% of the variation in consumer perception of AI-driven personalisation. Among the variables examined, age, gender, and income level have significant individual associations with consumer perception, whereas occupation, personalisation experience, family size, online shopping platform, education, shopping frequency, and type of product impressed do not show significant individual effects at the 5% level.



The histogram of regression standardized residuals indicates that the residuals are approximately normally distributed around zero and closely follow the superimposed normal curve. The mean of the standardized residuals is approximately zero, with a standard deviation of 0.957 for 120 observations. The observed distribution does not show any substantial deviation from normality. Hence, the normality assumption of the multiple regression model is considered reasonably satisfied.

Table 3

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12936.526	10	1293.653	4.210	.000 ^b
	Residual	33490.774	109	307.255		
	Total	46427.300	119			

The ANOVA results show that the regression model is statistically significant ($F = 4.210$, $p < 0.001$). Since the significance value is less than 0.05, the null hypothesis that all regression coefficients are simultaneously equal to zero is rejected. Thus, the selected independent variables, taken together, have a significant relationship with consumer perception of AI-driven personalisation.

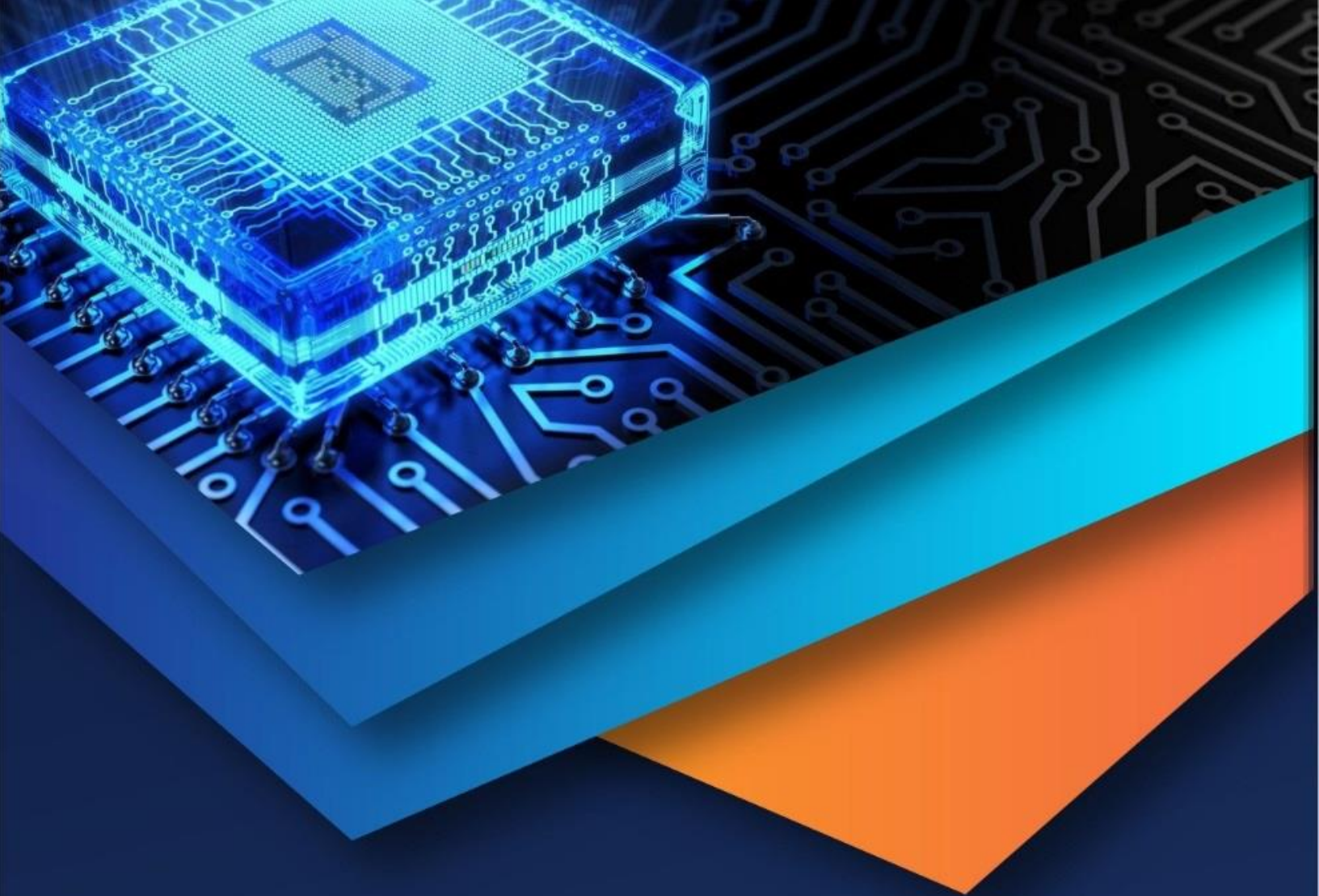
V. RECOMMENDATIONS AND CONCLUSION

Personalization using AI has emerged as a crucial aspect of online consumer interaction as it allows organizations to give personalized offers, recommendations, content, and shopping experience to customers. The current study analyzed the consumer perception of AI personalization in terms of online consumers from Ernakulam district in Kerala state. The results from multiple regression analysis reveal that the independent variables taken into consideration have a significant relationship with consumer perception, which explains 27.9% variation in perception, and adjusted explanatory ability of 21.2%. The age, gender, and income level are found to be significant at the 5% level, while occupation, form of personalization used, family size, type of online shopping website, education level, frequency of online shopping, and product type are not statistically significant at 5% level. It is further observed that the residual histogram shows that the regression residuals are normally distributed. Therefore, the study indicated that consumer perception of AI-driven personalisation is associated with selected consumer characteristics, while the effectiveness and acceptance of personalisation also depend on how consumers perceive its relevance, transparency, privacy and fairness. So, organisations should adopt a consumer-centric and responsible approach to AI-driven personalisation, balancing customised experiences with privacy protection, transparency, consumer control and fair practices.

This approach can contribute to more meaningful and trustworthy interactions between online consumers and AI-enabled platforms. Awareness programmes and clear communication can help consumers understand the benefits, limitations and privacy implications of AI-driven personalisation. Consumers should be given easy-to-use options to manage personalisation preferences, modify data-sharing settings and opt out of personalised recommendations where appropriate.

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