

AI Hallucinations in Personalized Marketing: Effects on Consumer Trust, Purchase Intention and Post-Purchase Behavior

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Abstract:

Artificial Intelligence (AI) has been increasingly used in personalized marketing to provide appropriate recommendations and information to consumers. However, there is growing concern that an AI hallucination can affect the consumer responses and the experiences. Therefore, this study focuses on the effect of AI hallucination on trust and purchase intention, post-purchase behavior, and the differences in consumer perceptions of an AI hallucinations based on age. This study has adopted a quantitative research design, and the data were collected from 230 participants using a five-point Likert scale questionnaire. In this study, Pearson Correlation, Regression Analysis and One-Way ANOVA were performed. The study revealed that there was a strong correlation between AI hallucinations and consumer trust and purchase intention. Moreover, AI-generated recommendations that mislead consumers and AI-generated inaccurate information significantly affected consumer post-purchase behaviors. Besides that, there was a significant difference in consumer perceptions of AI hallucinations based on age. This study provides important insights into the effects of personalized marketing driven by AI hallucinations and highlights the significance of being transparent and accurate with consumers.

Keywords: AI Hallucinations, Personalized Marketing, Consumer Trust, Purchase Intention, Post-Purchase Behavior.

INTRODUCTION

Artificial Intelligence (AI) has transformed personalized marketing by enabling organizations to analyse consumer preferences and deliver tailored recommendations, advertisements and product information. AI-driven personalization can improve the relevance and convenience of marketing communication and influence consumer decision-making.

However, the increasing use of AI also creates the risk of AI hallucinations, where AI systems generate inaccurate, misleading or fabricated information that may appear credible. In personalized marketing, such inaccuracies can occur through misleading product recommendations, incorrect product information or

inappropriate personalized content. These issues may affect consumers' trust in AI-generated information and their willingness to purchase products or services.

The effects may continue beyond the purchase decision. When consumers experience inaccurate or misleading AI-generated information, it may contribute to dissatisfaction, reduced repurchase intention and changes in future buying behaviour. Therefore, examining AI hallucinations is important not only from the perspective of consumer trust and purchase intention but also from the perspective of post-purchase behavior.

Although previous studies have examined AI-enabled personalization and consumer responses, comparatively limited attention has been given to the effects of AI hallucinations in personalized marketing. Hence, this study examines the relationship between AI hallucinations and consumer trust and purchase intention, their effect on post-purchase behavior, and whether consumer perceptions differ across age groups.

RESEARCH OBJECTIVE

1. To examine the relationship between AI hallucinations and Consumer Trust and Purchase Intention in personalized marketing.
2. To analyse the effect of AI-generated misleading recommendations and inaccurate AI-generated content on consumers post-purchase behavior.
3. To examine whether consumer perceptions of AI hallucinations in personalised marketing differ across age groups.

REVIEW OF LITERATURE

1. Davenport et al. (2020) examined that how an impact of an artificial intelligence on the modern marketing by improving an interaction of consumers, personalisation and the decision making processes. They discovered that by using of an artificial intelligence, an organisations can analyse the large amount of the consumer data and thus it generate the personalised recommendations and also the marketing communication. By using of an artificial intelligence, the effectiveness, the prediction and the consumer engagement in the marketing will becomes easier.
2. Puntoni et al. (2021) studied consumers experiences with an AI technology from an experiential point of view. It was discovered that the influence of an AI on the experiences of consumers is related to personalisation, automation and prediction. The reactions of consumers will be based on how consumers perceive the trustworthiness, intelligence, emotional aspect and personalisation of the technology.
3. Dawar et al. (2022) explored that the determining factors for the willingness of the consumers to adopt to the AI-powered chatbot in an India. The study is found that perceived usefulness, ease of use, reliability and the responsiveness had a positive effect on the trust. Trust was one of the factors as considered while determining the consumer willingness to interact with an AI-powered chatbot.
4. Febriani et al. (2022) focused on a impact the influence of an artificial intelligence and the digital marketing on a consumers purchase intention with a perceived value as an intermediary variable. The

research results revealed that an AI-based personalised marketing can create a higher perceived value for the consumers and positively affect their decisions about purchasing a product or a service. Personalisation is an important factor of convenience, information and faster decision making.

5. Ji et al. (2023) conducted an extensive review on hallucinations within natural language generation systems. Hallucination in AI was described as factually inaccurate or false information created by AI even though the information seems credible. The researchers categorised hallucinations into various forms and provided the reasons and issues involved in hallucination. The results showed that hallucination decreases the credibility of an AI systems and affects users trust and decision making process.
6. Raji et al. (2024) investigated how consumer behavior in the e-commerce sector is affected by an AI-based personalisation. As to deliver recommendations and deliver marketing information to customers, the researchers note that an AI assesses consumer preferences, search history and buying behavior. The personalisation increases the purchase process, consumer satisfaction and convenience. The authors emphasise that consumer buying behavior will greatly depend on recommendation engines and predictive analytics of an AI.
7. Kaate et al. (2025), explored the reactions of users to an AI-generated personas under the conditions of hallucinations and unanswerable questions were studied. It turned out that users often keep on trusting to AI-generated answers in case of inaccuracies in the case the information seems to be credible and useful. An AI-generated personas usually provide users with an impression of reliability.
8. Sipos (2025) the effects of an AI based personalisation on consumer trust, consumer satisfaction and purchase intention in digital marketing were explored. As per the research findings, an AI based recommendations may be helpful in building consumer trust by providing customised services. Both consumer trust and the consumer satisfaction have been found to be positively correlated with purchase intention. The significance of an AI based personalisation in establishing strong customer relationships has been discovered in the research.

RESEARCH GAP

The previous studies related to an AI-assisted personalised marketing have mainly concentrated on the positive impacts of an artificial intelligence. These include personalisation, customer engagement, trust and the purchase intention. Recent research on AI hallucinations, misinformation and an ethical issues with generative AI technology have focused on these issues from a technological perspective or how such issues may affect the trust. Very little is known empirically about how an AI hallucinations in personalised marketing affect consumer trust, purchase intention and the post purchase behavior at once. Therefore, this study is to fill the gap by examining the effects of AI hallucinations in personalized marketing on the consumer responses. Further, limited attention has been given to whether consumer perceptions of AI hallucinations differ across age groups. Therefore, the present study addresses these gaps by examining the relationship between AI hallucinations, consumer trust and purchase intention, their effect on post-purchase behavior, and differences in perceptions across age groups.

HYPOTHESES

H01: There is no significant relationship between AI hallucinations and Consumer Trust and Purchase Intention in personalized marketing.

H11: There is a significant relationship between AI hallucinations and Consumer Trust in personalized marketing.

H02: There is no significant effect of AI-generated misleading recommendations and inaccurate AI-generated content on consumer Post-Purchase Behavior.

H12: There is a significant effect of AI-generated misleading recommendations and inaccurate AI-generated content on consumer Post-Purchase Behavior.

H03: There is no significant difference in consumer perceptions of AI hallucinations in personalized marketing across selected demographic variables.

H13: There is a significant difference in consumer perceptions of AI hallucinations in personalized marketing across age groups.

RESEARCH METHODOLOGY

Research Design: Quantitative

Nature of Data: Primary

Sample and Data Collection: The data were collected 230 respondents and selected through convenience sampling from BTM Layout, South Bengaluru. And Primary data were collected through using a structured questionnaire based on 5-point Likert Scale

Data Analysis: Frequency and percentage were used to present the demographic profile of respondents. Pearson Correlation was used to examine the relationship between AI hallucinations, consumer trust and purchase intention. Regression Analysis was used to analyse the effect of AI-generated misleading recommendations and inaccurate AI-generated content on post-purchase behavior. One-Way ANOVA was used to examine differences in consumer perceptions of AI hallucinations across selected demographic variables.

Statistical Tool Used: Pearson Correlation, Regression analysis and One-Way ANOVA

Correlation Analysis – Consumer Trust and Purchase Intention

Table of Consumer Trust

	<i>18. AI-generated content often appears convincing even when the information may not be completely accurate.</i>	<i>19. Discovering inaccurate AI-generated information reduces my trust in brands.</i>
18. AI-generated content often appears convincing even when the information may not be completely accurate.	1	

19. Discovering inaccurate AI-generated information reduces my trust in brands.	0.39161585	1
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Data Source: 5-point Likert Scale Questionnaire

Interpretation:

The correlation result indicates a significant positive relationship between AI hallucinations and the consumer trust ($r = 0.3916$, $p < 0.001$). The result shows that the relationship between the two variables is statistically significant at the 5% level. The positive correlation indicates that the changes in AI hallucination perceptions are associated with the changes in consumer trust in an AI-generated information. This suggests that the presence and perception of AI hallucinations are relevant to consumers trust in personalized marketing. Therefore, H_{01} is rejected with respect to consumer trust.

Table of Purchase Intention

	17. AI-generated product descriptions occasionally provide inaccurate information.	24. Reliable AI-generated recommendations increase my willingness to buy products or services.
17. AI-generated product descriptions occasionally provide inaccurate information.	1	
24. Reliable AI-generated recommendations increase my willingness to buy products or services.	0.342106982	1

Data Source: 5-point Likert Scale Questionnaire

Interpretation:

The correlation result indicates a significant positive relationship between of AI hallucinations and the purchase intention ($r = 0.3421$, $p < 0.001$). The result confirms that the relationship between the two variables is statistically significant. The positive correlation indicates that a AI hallucination perceptions are associated with consumers purchase intention towards AI-personalised products and services. This suggests that the accuracy and reliability of an AI-generated personalized information are relevant to consumers purchase-related responses. Therefore, H_{01} is rejected with respect to purchase intention.

Regression Analysis – Post-Purchase Behavior

SUMMARY OUTPUT							
Regression Statistics							

Multiple R	0.432867 326							
R Square	0.187374 122							
Adjusted R Square	0.180214 423							
Standard Error	0.875620 017							
Observations	230							
ANOVA								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	2	40.13064 897	20.065 32	26.170 67	0.00			
Residual	227	174.0432 641	0.7667 1					
Total	229	214.1739 13						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	1.784415 991	0.272455 867	6.5493 76	0.00	1.247550 011	2.321281 971	1.2475 5	2.3212 82
16. AI-generated recommendations sometimes contain exaggerated or misleading information.	0.163520 081	0.071198 217	2.2966 88	0.0225 48	0.023226 164	0.303813 997	0.0232 26	0.3038 14
18. AI-generated content often appears convincing	0.346564 93	0.071101 601	4.8742 21	0.00	0.206461 392	0.486668 468	0.2064 61	0.4866 68

even when the information may not be completely accurate.								
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Interpretation:

The regression analysis shows that the AI-generated misleading recommendations and an inaccurate of an AI-generated content have a significant effect on consumers post-purchase behavior. The model is statistically significant ($F = 26.171$, $p < 0.001$) and explains 18.7% of the variation in post-purchase behavior ($R^2 = 0.187$). Both misleading recommendations ($\beta = 0.164$, $p = 0.023$) and inaccurate AI-generated content ($\beta = 0.347$, $p < 0.001$) have significant effects. Therefore, H_02 is rejected.

ANOVA RESULT

Anova: Single Factor						
SUMMARY						
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
2. Age	230	546	2.373913	0.593203		
16. AI-generated recommendations sometimes contain exaggerated or misleading information.	230	868	3.773913	0.865692		
ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	225.4	1	225.4	309.001	0.00	3.861842
Within Groups	334.087	458	0.729448			
Total	559.487	459				

Interpretation:

The One-Way ANOVA result shows a significant difference in consumer perceptions of AI hallucinations across age groups ($F = 309.001$, $p < 0.001$). Since the p-value is less than 0.05, the null hypothesis is

rejected. This indicates that consumer perceptions of AI-generated misleading recommendations differ significantly across age groups.

FINDINGS

- This study found that there is a significant relationship between AI hallucination and Consumer Trust whereas, $r = 0.392$ ($p < 0.001$).
- There is also a significant relationship between AI hallucination and Purchase Intention, with $r = 0.342$ ($p < 0.001$).
- The regression analysis shows that an AI-generated misleading recommendations and inaccurate AI-generated content is significantly effect the consumer post purchase behavior. The model was able to explain 18.7% of variance in the dependent variable ($R^2 = 0.187$, $p < 0.001$).
- Both an AI-generated misleading recommendations ($\beta = 0.164$, $p = 0.023$) and an inaccurate AI-generated content ($\beta = 0.347$, $p < 0.001$) were significant predictors of post-purchase behavior.
- The One-Way ANOVA showed that the differences in consumer perceptions of artificial intelligence hallucinations were significant across age groups ($F = 309.001$, $p < 0.001$).
- Overall, the results of this study is to suggest that an AI hallucinations that significantly effect consumer trust and purchase intentions, change post-purchase behavior, and differ in various age groups.

CONCLUSION

This study concludes that the influence of an AI hallucinations on personalized marketing has a moderate positive correlation with consumer trust and purchase intention and also has a significant influence of Post-Purchase Behavior. The results has shown that the perception of an AI hallucinations will differ significantly across age groups. This study highlights and suggests that there should be need for prioritizing accuracy, transparency and reliability in the utilizing of AI for personalized Marketing. This study also highlights of the need to ensure the accuracy and the relevance of all an AI-generated recommendations and the content to the consumers. By reducing the possibility of an AI hallucination and an increasing the level of the trust in the accuracy of an information provided by an AI and the companies will be able to avoid the consumer dissatisfaction and enhance the quality of their personalization. This way, it will be possible for an organizations to deliver more value to their customers and also offer a higher level of personalized marketing solutions based on artificial intelligence.

LIMITATIONS

1. This research was carried out among only 230 respondents in BTM layout, South Bengaluru, therefore because of limiting the population under study
2. This study utilized a convenience sampling technique which is inherently biased.
3. This study is depended on self-reported responses, that which may be influenced by the respondents of individual perceptions and understanding.

4. This study was narrowed down to the role of hallucination in artificial intelligence on personalized marketing. Other variables that may trigger trust, buying behaviour and post-purchase response were overlooked in the study.
5. The study was conducted within a certain timeframe which will effect consumers perception of an Artificial Intelligence and the personalization which limits applicability of the results in the future.

SUGGESTIONS

- Implement AI verification and validation mechanisms to ensure that information that is disseminated through personalization is not deceptive, inaccurate or fabricated.
- Ensure that there is a transparency in personalization by providing disclosure of the use of an AI in marketing and also ensuring that the information provided is reliable and not misleading.
- Ensure that there are audits on AI recommendations and contents including correction of any inaccuracies, recommendations and inconsistencies.
- Develop responsible AI guidelines for marketing to ensure that recommendations and contents are reliable, ethical and of relevance to the consumers.
- Conduct consumer feedback on the recommendations and marketing contents to determine the effectiveness and the reliability based on consumer response and experience.
- Provide the measures for consumers to report any AI-generated information that is incorrect or misleading. This will enable the organisation to detect the hallucination and address the issue promptly to enhance the consumer experience.
- Constantly update and refine the systems based on the information which is provided by consumers and other relevant data. This can help in minimising the occurrence of the hallucinations and also ensure that recommendations are appropriate and are dependable.

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