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# Impact of AI-Personalization on Customer Purchase Decisions in E-Commerce

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**Abstract:**

**Purpose:** This study examines the impact of AI-personalization on consumer purchase decisions in e-commerce. It explores how the Level of AI-personalization, Perceived Relevance of AI- personalized recommendations, and Consumer Satisfaction influence purchasing behaviour.

**Methodology:** A quantitative research approach was employed, collecting survey data from 152 respondents. Correlation and regression analyses were conducted to assess the significance of relationships between AI-personalization and consumer behaviour.

**Results:** The findings indicate statistically significant positive correlations between AI- personalization (r = 0.467), Perceived Relevance (r = 0.601), and Consumer Satisfaction (r = 0.641) with Consumer Purchase Decisions. Regression analysis confirmed that AI-personalization explains between 61.8% and 72.4% of the variance in consumer behaviour.

**Conclusion:** AI-personalization enhances consumer satisfaction, increases perceived relevance, and positively influences purchasing behaviour. Businesses can leverage AI-driven personalization strategies to boost engagement and sales. Future research should explore broader demographics and ethical concerns in AI-personalization.

**Key Words:** AI-personalization, consumer purchase decisions, e-commerce, perceived relevance, consumer satisfaction.

## 1.Introduction

The rapid advancements in artificial intelligence (AI) have significantly transformed the e- commerce industry, presenting a dual-edged sword of opportunities and challenges for both businesses and consumers [1][2]. AI technologies, like as machine learning (ML) and deep learning (DL), are at the vanguard of this transition, allowing for more process automation, better customer experiences, and more tailored marketing tactics. AI's role in automating e-commerce procedures is critical. By analysing massive volumes of transaction data and client browsing histories, it improves efficiency and customer happiness. For example, AI-powered solutions like chatbots and virtual assistants offer 24/7 customer care, dramatically enhancing user engagement [3]. Furthermore, predictive analytics enables ecommerce systems to anticipate customer behavior, resulting in improved inventory management and advertising methods. This automation not only lowers operating expenses, but also improves the whole purchasing experience by making it more tailored and efficient.

The personalization capabilities of AI are particularly noteworthy. By leveraging algorithms that analyze user data, businesses can tailor recommendations and marketing messages to individual preferences [4]. This degree of customisation is critical in today's competitive market, since it has a direct impact on customer behavior & brand loyalty. For example, AI systems may dynamically modify pricing and promotions depending on real-time customer data, hence increasing conversion rates. AI integration in customer relationship management improves tailored interactions and fosters stronger ties between businesses and customers [5]. However, the growth of artificial intelligence in e-commerce is not without obstacles. Furthermore, the

dependence on AI technology needs constant updates and enhancements to algorithms to stay up with changing market dynamics including customer expectations [6]. Businesses must navigate these challenges while leveraging AI to maintain a competitive edge in the rapidly evolving e-commerce landscape.

AI-driven customization has had a significant influence on customer behaviour in the e-commerce sector, radically changing the online buying experience and affecting future industry trends. AI technology, notably via the application of machine learning algorithms, allow e-commerce platforms to analyse huge datasets, resulting in highly customized shopping experiences that cater to specific consumer preferences and habits [7]. One of the most important ways AI-driven customization influences customer behavior is via personalized product suggestions. Using data analytics, e-commerce enterprises may forecast customer preferences and recommend items that match their interests, increasing the possibility of purchase [8]. This capability not only increases conversion rates but also fosters a sense of loyalty among consumers, as they feel understood and valued by the brand [9]. As an instance, platforms such as Amazon and Netflix make use of complex algorithms to evaluate user activity and deliver personalized suggestions. This results in a huge increase in user engagement & satisfaction.

Furthermore, AI-driven customization goes beyond just product suggestions. It includes dynamic pricing methods that change in real-time depending on customer behaviour, market trends, including competitor price [10]. This versatility enables organizations to adjust their pricing patterns, keeping them competitive while increasing profit margins. Such tactics have been demonstrated to increase consumer trust and desire to buy, since consumers think they are obtaining fair rates adapted to their unique circumstances [11]. The ramifications of AI-driven customisation extend beyond instant sales to long-term customer connections. Businesses may increase brand loyalty and drive repeat purchases by providing a more interesting and customized shopping experience. This is especially significant in an age when customers have a plethora of alternatives at their disposal and holding their attention becomes more difficult. According to research, customized marketing efforts may significantly enhance customer retention rates, since customers are more inclined to return to firms that know and cater to their specific requirements [12].

### 1.1 Aim & Objectives

**Aim:** The aim of this study is to examine the impact of AI-personalization on consumer purchase decisions in e-commerce. It explores how the level of AI-personalization, perceived relevance of AI-generated recommendations, and consumer satisfaction with personalized experiences influence purchasing behaviour, providing insights for enhancing AI-driven customer engagement and conversion rates.

**Objectives**

- To evaluate the impact of the level of AI-personalization on consumer purchase decisions in e-commerce.
- To assess the influence of perceived relevance of AI-personalized recommendations on consumer purchase decisions in e-commerce.
- To analyze the effect of consumer satisfaction with AI-personalized experiences on their purchase decisions in e-commerce.

### 1.2 Hypotheses

**H1:** There is a significant positive relationship between the level of AI-personalization and consumer purchase decisions in e-commerce.

**H2:** Perceived relevance of AI-personalized recommendations significantly influences consumer purchase decisions in e-commerce.

**H3:** Consumer satisfaction with AI-personalized experiences positively affects consumer purchase decisions in e-commerce.

**Conceptual Framework**

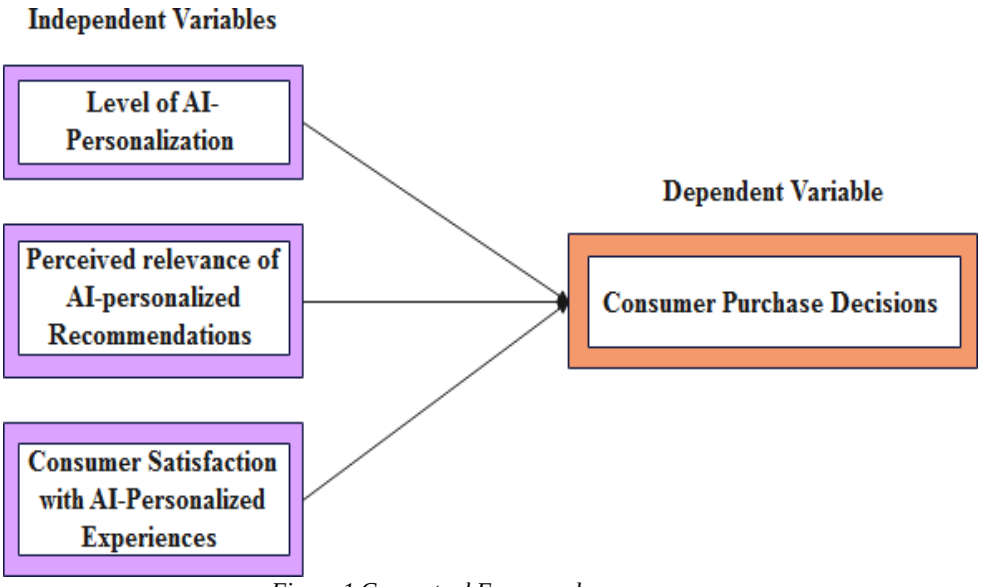


*Figure 1 Conceptual Framework*

## 2.Literature Review

The advent of Artificial Intelligence (AI) has transmogrified the marketing landscape, particularly in the realm of personalization. AI-driven personalization in marketing refers to the use of machine learning algorithms and data analytics to tailor marketing messages, product recommendations, and customer experiences to individual consumers. This critical literature review examines the impact of AI-driven personalization on purchase behavior, synthesizing findings from recent studies and identifying gaps in current research. The foundation of AI-driven personalization lies in its ability to process vast amounts of consumer data to generate insights and predict behaviors.

[13] Kumar et al. (2019) suggested that customization may increase consumer engagement and loyalty, possibly leading to increased purchasing behaviour. In their research of 1,000 online buyers, they discovered that tailored product suggestions increased click-through rates by 35% and conversion rates by 28%. These results highlight the potential for AI-driven customization to favourably affect customer behaviour. Trust emerged as an important aspect in the interaction between AI-driven customisation and customer behaviour. [14] Möhlmann and Henfridsson (2019) suggested that confidence in AI systems is essential for their acceptability and efficacy in marketing settings. Their qualitative research of 50 customers who interacted with AI-powered chatbots found that perceived justice, accountability, and openness were important predictors of trust. These findings align with those of Puntoni et al. (2021) [15], who emphasize the value of explainable AI in fostering customer confidence. Both studies do, however, recognize the difficulty of striking a balance between the need for openness and the intricacy of AI algorithms, pointing to a crucial subject for further study. Another important subject in the literature is how AI-driven customization affects privacy concerns, which in turn affect trust and purchasing behaviour.

[16] Martin and Murphy (2017) argued that customers who want individualized experiences but are also worried about data privacy are experiencing a privacy conundrum as a result of customization. Privacy concerns and desire to disclose personal information were shown to be significantly correlated negatively ($r = -0.32$, $p < 0.001$) in a meta-analysis of 51 studies on personalization and privacy. For marketers looking to use AI-driven customization tactics, this contradiction presents a challenge. For instance, [17] Kang and Kim (2020) discovered that in e- commerce contexts, Purchase Behaviour was favourably impacted by the perceived utility and usability of AI-powered recommendation systems ($\beta = 0.43$ and $\beta = 0.38$, respectively, $p < 0.001$). Their study was limited to a certain group of people (South Korean millennials), however, which emphasizes the need for more unique samples in further studies.

The literature also explores the effect of AI-driven personalization on consumer emotions and their subsequent effect on purchase behavior. [18] Pappas et al. (2017) contend that positive experiences like excitement and delight may be evoked by customization, and that this can result in a rise in purchase behaviour. They found that the association between customization and purchase behaviour was mediated by positive emotions in their structural equation modelling research of 548 online buyers (indirect effect = 0.21, $p < 0.01$). However, [19] Luo et al. (2019) Be advised that excessive customisation may cause unpleasant feelings like annoyance and rage, which might harm brand impressions and lower purchase behaviour. These contradictory results point to the necessity for more thorough investigation into the psychological effects of AI-powered customisation. An area of growing concern in the literature is the ethical ramifications of AI-driven customization.

[20] Susser et al. (2019) contend that personalised marketing enabled by AI has the potential to be deceptive, casting doubt on consumer autonomy and informed decision-making. Their conceptual paper advocates for a rethinking of marketing ethics in the era of AI, arguing that old conceptions of consumer choice may need to be reassessed. This perspective is echoed by [21] Zuboff (2019), who issues a warning about the possibility of "surveillance capitalism" made possible by AI- powered customisation. Although these criticisms bring up important ethical issues, empirical studies investigating the long-term social effects of AI-driven personalisation in marketing are conspicuously lacking.

The research on AI-driven personalisation in marketing shows a complicated interaction between technology, consumer psychology, and corporate strategy. Personalisation seems to increase customer trust and buying behaviour, however privacy, transparency, and moral problems are key. Future research should build more complete models that account for AI-driven personalization's diverse effects. Cross-cultural research may reveal how social norms and values affect AI-driven personalisation responses. As AI technology advances, research will help marketers use personalisation techniques ethically and effectively.

## 3. Research Methodology

### 3.1 Research Design

This study adopts a quantitative research design to investigate the impact of AI-personalization on consumer purchase decisions in e-commerce. The study explores the role of three key factors: (i) the level of AI-personalization, (ii) the perceived relevance of AI-generated recommendations, and (iii) consumer satisfaction with AI-personalized experiences, in shaping purchasing behaviour. The structured approach ensures objective data collection and statistical validation to derive meaningful insights for enhancing AI-driven consumer engagement and conversion rates.

A random sampling technique was employed to select a sample of 152 respondents from diverse demographic profiles.

A structured questionnaire was developed based on well-established constructs in AI-personalization and consumer behaviour research. The questionnaire utilized a 5- point Likert scale (ranging from 1 = Strongly Disagree to 5 = Strongly Agree) to capture participants' perceptions and experiences effectively. Data collection was conducted through both online and face-to-face surveys to maximize response rates and ensure broad representation.

### 3.2. Measurement and Instrument Validation

To ensure the validity and reliability of the measurement instruments, the study conducted goodness-of-fit indices and reliability tests, including Cronbach's alpha, to assess internal consistency. All questionnaire items were derived from prior validated research studies, with necessary modifications to align with the context of AI-personalization in e-commerce.

### 3.3. Data Analysis

The collected data were analysed using statistical techniques, including descriptive analysis, correlation analysis, and regression modelling, to examine the relationships between AI- personalization factors and consumer purchase decisions.

## 4. Analysis & Interpretation

### 4.1 Demographic variables

Demographic variables refer to specific characteristics or attributes of individuals or groups in a population that are typically used for categorization, analysis, or profiling. These characteristics are often related to the social and personal characteristics of individuals and can include factors such as age, gender, monthly income, education level, Occupation, Online shopping frequency and Experience with AI-Personalized Recommendations.

**Table 1 Demographic profile of respondents**

| Frequency | | | Percent |
|---|---|---|---|
| What is your age? | Below 20 years | 6 | 3.9 |
| | 20-30 years | 18 | 11.8 |
| | 30-40 years | 64 | 42.2 |
| | 40-50 years | 28 | 18.4 |
| | 50-60 years | 27 | 17.8 |
| | Above 60 years | 9 | 5.9 |
| | Total | 152 | 100.0 |
| What is your gender? | Male | 73 | 48.0 |
| | Female | 79 | 52.0 |
| | Total | 152 | 100.0 |
| What is your level of education? | High school or Below | 31 | 20.4 |
| | Diploma | 37 | 24.4 |
| | Bachelor's degree | 23 | 15.1 |
| | Master's degree | 28 | 18.4 |
| | Doctorate or Higher | 33 | 21.7 |
| | Total | 152 | 100.0 |
| | Self-employed | 40 | 26.3 |

| | | | |
|---|---|---|---|
| | Private sector Employee | 35 | 23.0 |
| What is your Occupation? | Government Employee | 46 | 30.3 |
| | Business owner | 31 | 20.4 |
| | Total | 152 | 100.0 |
| What is your monthly income range? | Below 20,000 | 23 | 15.1 |
| | 21,000 - 30,000 | 31 | 20.4 |
| | 31,000 - 40,000 | 37 | 24.3 |
| | 41,000 - 50,000 | 34 | 22.4 |
| | Above 50,000 | 27 | 17.8 |
| | Total | 152 | 100.0 |
| Frequency of Online Shopping | Rarely (once every few months) | 27 | 17.8 |
| | Occasionally (once a month) | 41 | 27.0 |
| | Frequently (2–3 times a month) | 50 | 32.9 |
| | Very frequently (weekly or more) | 34 | 22.3 |
| | Total | 152 | 100.0 |

The above table 1 shows the descriptive statistics related to demographic variables. In this study, 152 respondents are participated in the survey, out of it 73 (48.0%) are male respondents and 79 (52.0%) are female respondent's most of our respondents are females. The respondents age groups vary from below 20 years to above 60 years, out of 152 respondents 64 (42.2%) are 30-40 years respondents, 28 (18.4%) are 40-50 years, 27 (17.8%) are 50-60 years, 18 (11.8%) are 20-30 years, 9 (5.9%) are above 60 years and 6 (3.9%) respondents are below 20 years age group. Regarding respondent's education qualification, out of 152, 37 (24.4%) are from diploma background, 33 (21.7%) are from doctorate or higher education background, 31 (20.4%) are from high school or below background, 28 (18.4%) respondents have master's degree and 23 (15.1%) respondents' educational qualification have bachelor's degree.

The respondents occupations like this, out of 152 respondents 46 (30.3%) are government employee, 40 (26.3%) are self-employed, 35 (23.0%) are private sector employee and 31 (20.4%) respondents are business owners and their monthly incomes are 37 (24.3%) respondents earning 30,000 to 50,000 per month, 34 (22.4%) respondents earning 41,000-50,000 per month, 31 (20.4%) earn 21,000 – 30,000 per month, 27 (17.8%) earn above 50,000 and 23 (15.1%) or the respondents earn below 20,000 per month.

The frequency of online shopping of the respondents are 50 (32.9%) respondents do shopping Frequently (2–3 times a month), 41 (27.0%) respondents do shopping Occasionally (once a month), 34 (22.3%) respondents do shopping Very frequently (weekly or more), and 27 (17.8%) respondents do shopping Rarely (once every few months).

**4.2 Reliability test**

Reliability assessment was performed to examine the internal consistency of the items of the variables. The selection of Cronbach's alpha, a commonly used statistic in social science research, was made for this specific objective. Within the field of social science research, a reliability coefficient that exceeds 0.7 is generally considered to be adequate.

**Table 2 Reliability test results**

| Variables | Items | Mean | Cronbach's alpha |
|---|---|---|---|
| **Level of AI-personalization** | 4 | 3.398 | .721 |
| **Perceived Relevance of AI-personalized recommendations** | 4 | 3.531 | .706 |
| **Consumer Satisfaction with AI-personalized experiences** | 5 | 4.070 | .892 |
| **Consumer Purchase Decisions** | 7 | 3.498 | .710 |

According to the data shown in table 2, the results show that all the variables (Level of AI- personalization, Perceived Relevance of AI-personalized recommendations, Consumer Satisfaction with AI-personalized experiences and Consumer Purchase Decisions) exhibited a high level of reliability. More precisely, the alpha values varied between 0.72 and 0.895.

### 4.3 Descriptive Statistics

The descriptive statistics include minimum, maximum, mean and standard deviation of the variables are presented in below table 3.

**Table 3 Descriptive Statistics of the variables**

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Level of AI-Personalization | 152 | 1.50 | 4.75 | 3.3980 | .73318 |
| Perceived Relevance of AI-personalized recommendations | 152 | 1.75 | 5.00 | 3.5313 | .70612 |
| Consumer Satisfaction with AI- personalized Experiences | 152 | 1.00 | 5.00 | 4.0697 | .80141 |
| Consumer Purchase Decisions | 152 | 1.71 | 5.00 | 3.4981 | .67907 |

The study conducted for 152 respondents to identify the impact of AI-personalization on consumer purchase decisions in e-commerce. The variable Level of AI-personalization obtained the mean value of 3.3980 with a standard deviation of 0.73318, Perceived Relevance of AI-personalized recommendations obtained mean value 3.5313 with standard deviation 0.70612, Consumer Satisfaction with AI-personalized experiences obtained mean value 4.0697 with standard deviation 0.80141 and the variable Consumer Purchase Decisions obtained mean value 3.4981 and standard deviation 0.67907.

### 4.4 Hypothesis Testing

**H1:** There is no significant positive relationship between the Level of AI-personalization and Consumer Purchase Decisions in e-commerce.

For this hypothesis testing, we have considered Regression. A statistical technique used in research to determine the relation between two variables or to know the impact of independent variable on dependent variable.

**Table 4 Correlation between Consumer Purchase Decisions and Level of AI-personalization**

| | | **Consumer Purchase Decisions** | **Level of AI-personalization** |
|---|---|---|---|
| **Pearson Correlation** | **Consumer Purchase Decisions** | 1.000 | .467 |
| | **Level of AI-personalization** | .467 | 1.000 |

| | | | |
|---|---|---|---|
| **Sig. (1-tailed)** | **Consumer Purchase Decisions** | . | .000 |
| | **Level of AI personalization** | .000 | . |
| **N** | **Consumer Purchase Decisions** | 152 | 152 |
| | **Level of AI-personalization** | 152 | 152 |

The above table 4 displays the correlation between Consumer Purchase Decisions and Level of AI-personalization. From the table it is observable that the Pearson correlation value obtained is 0.467 and the significance value is less than 0.05. The obtained correlation value is less than 0.5, it indicates that there is a weak positive correlation, and the significance value is less than 0.05, it says that the relation between Consumer Purchase Decisions and Level of AI-personalization is statistically significant. So, we can conclude that there is a significant positive relation between both variables.

**Table 5 Association between Level of AI-Personalization and Consumer Purchase Decisions**

| Model | | Unstandardized Coefficients | | R (Pearson correlation) | R Square | T | Sig. |
|---|---|---|---|---|---|---|---|
| | | B | Std. Error | | | | |
| 1 | (Constant) | 2.028 | .232 | .467 | .618 | 8.726 | .000 |
| | Level of AI-Personalization | .433 | .067 | | | 6.469 | .000 |

a. Dependent Variable: Consumer Purchase Decisions

R is the Pearson correlation coefficient, which describes the strength and direction of a linear relationship between Dependent and independent variables. The R-value of 0.467 from the above table says that there is a positive correlation between the variables. The $R^2$ value is used to measure the goodness of fit of a model, and it gives the percentage of the total variation in the dependent variable that is explained by the independent variable. The $R^2$ value is 0.618, shows that 61.8% changes in Consumer Purchase, and is explained by independent variables Level of AI- personalization. 38.2% is captured by error term, so we can clearly conclude that the model has a good fit.

The obtained coefficient value is .433, shows that a unit increase in Level of AI-personalization, on the average, there is an increment in Consumer Purchase Decisions. The obtained t-value is 6.469, which is greater than 2 and the P-value is less than 0.05, so we can conclude that there is a significant positive impact of Level of AI-personalization on Consumer Purchase Decisions. The statistical analysis reveals that there is a significant association between these two variables, with a p-value of less than 0.01. So, the null hypotheses "There is no significant positive relationship between the Level of AI-personalization and Consumer Purchase Decisions in e-commerce" is rejected and the alternative hypothesis "There is a significant positive relationship between the Level of AI-personalization and Consumer Purchase Decisions in e-commerce" is accepted.

**H2:** Perceived relevance of AI-personalized recommendations does not significantly influence consumer purchase decisions in e-commerce.

For this hypothesis testing, we have considered Regression. A statistical technique used in research to determine the relation between two variables or to know the impact of independent variable on dependent variable.

**Table 6 Correlation between Consumer Purchase Decisions and Perceived Relevance of AI-personalized recommendations**

| | | Consumer Purchase Decisions | Perceived Relevance of AI-personalized Recommendations |
|---|---|---|---|
| Pearson Correlati On | Consumer Purchase Decisions | 1.000 | .601 |
| | Perceived Relevance of AI-personalized recommendations | .601 | 1.000 |
| Sig. (1-tailed) | Consumer Purchase Decisions | . | .000 |
| | Perceived Relevance of AI-personalized recommendations | .000 | . |

| | | | |
|---|---|---|---|
| N | Consumer Purchase Decisions | 152 | 152 |
| | Perceived Relevance of AI-personalized recommendations | 152 | 152 |

The above table 5 displays the correlation between Consumer Purchase Decisions and Perceived Relevance of AI-personalized recommendations. From the table it is observable that the Pearson correlation value obtained is 0.601 and the significance value is less than 0.05. The obtained correlation value is less than 0.5, it indicates that there is a strong positive correlation, and the significance value is less than 0.05, it says that the relation between Consumer Purchase Decisions and Perceived Relevance of AI-personalized recommendations is statistically significant. So, we can conclude that there is a significant positive relation between both variables.

**Table 7 Association between Perceived relevance of AI-personalized recommendations and Consumer Purchase Decisions**

| Model | | Unstandardized Coefficients | | R (Pearson correlation) | R Square | t | Sig. |
|---|---|---|---|---|---|---|---|
| | | B | Std. Error | | | | |
| 1 | (Constant) | 2.478 | .270 | .601 | .724 | 9.190 | .000 |
| | Perceived relevance of AI-personalized recommendations | .289 | .075 | | | 3.855 | .000 |

a. Dependent Variable: Consumer Purchase Decisions

The R-value of 0.601 from the above table says that there is a positive correlation between the variables. The $R^2$ value is 0.724, shows that 72.4% changes in Consumer Purchase Decisions, and is explained by independent variables Perceived relevance of AI-personalized recommendations. 27.6% is captured by error term, so we can clearly conclude that the model has a good fit.

The obtained coefficient value is 0.289, shows that a unit increase in Perceived relevance of AI- personalized recommendations, on the average, there is an increment in Consumer Purchase Decisions. The obtained t-value is 3.855, which is greater than 2 and the P-value is less than 0.05, so we can conclude that there is a significant positive impact of Perceived relevance of AI- personalized recommendations on Consumer Purchase Decisions. The statistical analysis reveals that there is a significant association between these two variables, with a p-value of less than 0.01. So the null hypotheses "Perceived relevance of AI-personalized recommendations does not significantly influence consumer purchase decisions in e-commerce" is rejected and the alternative

hypothesis "Perceived relevance of AI-personalized recommendations significantly influences consumer purchase decisions in e-commerce" is accepted.

**H3:** Consumer satisfaction with AI-personalized experiences does not positively affects consumer purchase decisions in e-commerce.

For this hypothesis testing, we have considered Regression. A statistical technique used in research to determine the relation between two variables or to know the impact of independent variable on dependent variable.

**Table 8 Correlation between Consumer Purchase Decision and Consumer Satisfaction with AI-personalized experiences**

| | | **Consumer Purchase Decisions** | **Consumer Satisfaction with AI personalized experiences** |
|---|---|---|---|
| **Pearson Correlation** | Consumer Purchase Decisions | 1.000 | .641 |
| | Consumer Satisfaction with AI-personalized experiences | .641 | 1.000 |
| **Sig. (1-tailed)** | Consumer Purchase Decisions | . | .018 |
| | Consumer Satisfaction with AI personalized experiences | .018 | . |

| | | | |
|---|---|---|---|
| **N** | Consumer Purchase Decisions | 152 | 152 |
| | Consumer Satisfaction with AI personalized experiences | 152 | 152 |

The above table 8 displays the correlation between Consumer Purchase Decisions and Consumer Satisfaction with AI-personalized experiences. From the table it is observable that the Pearson correlation value obtained is 0.641 and the significance value is less than 0.05. The obtained correlation value is less than 0.5, it indicates that there is a strong positive correlation, and the significance value is less than 0.05, it says that the relation between Consumer Purchase Decisions and Consumer Satisfaction with AI-personalized experiences is statistically significant. So, we can conclude that there is a significant positive relation between both variables.

**Table 9 Association between Consumer Satisfaction with AI-personalized experiences and Consumer Purchase Decisions**

| Model | | Unstandardized Coefficients | | R (Pearson correlation) | R Square | t | Sig. |
|---|---|---|---|---|---|---|---|
| | | B | Std. Error | | | | |
| 1 | (Constant) | 3.278 | .286 | .641 | .715 | 11.449 | .000 |
| | Consumer Satisfaction with AI-personalized experiences | .254 | .069 | | | 3.214 | .000 |

a. Dependent Variable: Consumer Purchase Decisions

The R-value of 0.641 from the above table says that there is a positive correlation between the variables. The $R^2$ value is 0.715, shows that 71.5% changes in Consumer Purchase, and is explained by independent variables Consumer Satisfaction with AI-personalized experiences. 28.5% is captured by error term, so we can clearly conclude that the model has a good fit.

The obtained coefficient value is 0.254, shows that a unit increase in Consumer Satisfaction with AI- personalized experiences, on the average, there is an increment in Consumer Purchase Decisions. The obtained t-value is 3.214, which is greater than 2 and the P-value is less than 0.05, so we can conclude that there is a significant positive impact of Consumer Satisfaction with AI-personalized experiences on Consumer Purchase Decisions. The statistical analysis reveals that there is a significant association between these two variables, with a p-value of less than 0.01. So, the null hypotheses "Consumer satisfaction with AI-personalized experiences does not positively affects consumer purchase decisions in e-commerce" is rejected and the alternative hypothesis "Consumer satisfaction with AI-personalized experiences does not positively affects consumer purchase decisions in e-commerce" is accepted.

## 5. Discussion and Conclusion

### 5.1 Discussion

The study's findings provide significant insights into the relationship between AI-personalization and consumer purchase decisions. Hypothesis 1 tested the correlation between the Level of AI- personalization and Consumer Purchase Decisions, revealing a weak but statistically significant positive correlation ($r = 0.467$, $p < 0.05$). Regression analysis showed that AI-personalization explained 61.8% of variations in Consumer Purchase Decisions ($R^2 = 0.618$, $p < 0.05$), confirming its impact.

Hypothesis 2 examined the Perceived Relevance of AI-personalized recommendations, demonstrating a strong positive correlation with Consumer Purchase Decisions ($r = 0.601$, $p < 0.05$). The regression model indicated that 72.4% of the variance was explained ($R^2 = 0.724$, $p < 0.05$), reinforcing its significant influence.

Lastly, Hypothesis 3 assessed Consumer Satisfaction with AI-personalized experiences, revealing a strong correlation ($r = 0.641$, $p < 0.05$) and an explanatory power of 71.5% ($R^2 = 0.715$, $p < 0.05$). These findings suggest that AI-personalization significantly enhances consumer satisfaction, influencing purchase decisions.

### 5.2 Conclusion

This study highlights the significant impact of AI-personalization on consumer purchase decisions in e-commerce. The findings indicate that AI-personalization enhances consumer satisfaction, increases perceived relevance, and positively influences purchasing behaviour. The correlation analysis confirmed statistically significant relationships between the Level of AI-personalization ($r = 0.467$), Perceived Relevance of AI-personalized recommendations ($r = 0.601$), and Consumer Satisfaction with AI-personalized experiences ($r = 0.641$) with Consumer Purchase Decisions. Regression results further established that AI-personalization explains a substantial portion of variations in consumer decisions, with $R^2$ values of 61.8%, 72.4%, and 71.5% for the respective variables. These findings suggest that businesses can leverage AI-driven personalization strategies to enhance consumer engagement and drive sales in e-commerce.

Despite the study's valuable insights, some limitations exist. The sample size of 152 respondents may not be representative of the broader population. Additionally, the study focuses on a specific market, limiting generalizability. Self-reported data may introduce bias, and external factors influencing consumer decisions were not examined. Future research can explore AI- personalization across diverse demographic groups and industries. Expanding the sample size and incorporating qualitative insights could provide deeper understanding. Additionally, investigating long-term consumer behaviour patterns and ethical concerns related to AI-personalization would further enrich the field.

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