

CONSUMER PERCEPTION TOWARDS THE USAGE OF ARTIFICIAL INTELLIGENCE IN ONLINE SHOPPING: A STUDY WITH SPECIAL REFERENCE TO CHENNAI CITY

By

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ABSTRACT

Rapid technological advancement has significantly altered how consumers purchase. A portion of the substantial growth in worldwide e-commerce volume can be attributed to the recent COVID-19 pandemic, which has expedited the development of electronic commerce. Many online marketers integrate Artificial Intelligence (AI) in their retail locations to enhance the consumer experience, boost loyalty, and increase satisfaction. Yet, there is a shortage of research examining how consumers embrace and utilize AI-powered web stores. The study adopted TAM as a notional background. This research investigates consumer acceptability and confidence in AI in online retail. Overall, 379 respondents were compiled for this research through an online survey conducted in Chennai. To analyze data, the structural equation modeling (SEM) was used. It was determined that the prevalent TAM was an appropriate theoretical framework for examining consumer acceptance of AI in online purchasing. The study established that the trust factor significantly influences PU, PEU, and the attitude of consumers in the study region. The study also found that perceived usefulness significantly affects behavioral intentions. Furthermore, the perspective greatly influences behavioral preferences for online purchases among the consumers in the study area.

KEYWORDS: Consumer, Artificial Intelligence, Online Shopping, AI-Powered Web Shops, Behavioral Intention

INTRODUCTION

The swift advancement of digital technology has significantly transformed the landscape of online purchasing (**Xiong Y, 2022**). While operating in a highly competitive global economy, retail businesses must place a premium on profitability and productivity. Marketers must act swiftly and effectively to ensure achievement and maintain a competitive advantage. It motivates online marketers to incorporate new business technologies and developments. With the assistance of artificial intelligence (AI), retailers can increase profits and streamline operations. Online marketers benefit from AI in various ways, including advanced operational efficiencies and productivity. AI executes business choices more rapidly by utilizing the outputs of cognitive innovations. AI prevents errors and "human error" if appropriately configured and employs insight to forecast customer preferences to deliver a more customized experience. In the contemporary marketplace, survival is contingent upon retailers who use innovation and state-of-the-art technologies. The business models of conventional retailers are encountering competition from new entrants who offer superior customer service and value. The utilization of AI in online commerce has witnessed a surge in recent years, owing to AI's efficacy in enhancing sales efficiency and catering to the ever-evolving needs of consumers.

Emerging marketing strategies, bolstered by cutting-edge technologies such as AI systems, incite a deluge of novel marketing techniques to efficiently engage the intended audience and provide improved customer experiences (**Pusztahelyi, 2020**). The use of AI in online purchasing enables customer-centric search and a new level of personalization, thereby enhancing the efficiency of the sales process, according to **Asling (2017)**. Information technology has transformed the characteristics of business-to-customer relationships (**Rust and Huang, 2014**). However, any technology-driven transformation is based on Trust (**Pricewaterhouse Coopers, 2018**). Additional research is required to determine how consumers perceive and embrace the use of AI in online stores and the degree of Trust they place in such systems.

Additionally, they must understand the most effective ways to utilize AI to increase online spending and purchase frequency, given the recent escalation in the significance of time and cost efficiency in browsing. Online purchasing provides a convenient means for consumers to acquire

desired products. Limited attention has been devoted thus far by researchers to the issue of consumer acceptability and Trust in artificial intelligence in the realm of online retail. Based on the TAM, this study aims to fill this research gap and proposes an integrated theoretical framework of consumers' perception of AI-powered online shopping in the study area.

REVIEW OF LITERATURE

Sivathanu et al. (2023) provide the influencers of customers' online purchasing intent subsequent to viewing deep fake videos generated by artificial intelligence. Media saturation, information manipulation strategies, personalization, and perceived Trust are these antecedents. Customer's intention to purchase online is adversely affected by perceived deception, whereas cognitive load has no discernible impact. In addition, the manipulation strategies employed by the managers to create AI-based deep false videos are clarified.

Ersoy, A. B. (2022) provides recommendations for the most effective Artificial Intelligence tools for retail and corporate decision-makers. Utilization of AI tools in India's online retail sector is the focus of this study.

Nagy, S., & Hajdú, N. (2021) The researchers noted that Trust emerged as a significant determinant in shaping consumer perspectives regarding artificial intelligence. As the second most influential factor in attitudes and behavioral intention, perceived utility was deemed more crucial than perceived ease of use.

Suresh, A., & Rani, N. J. (2020) established a significant relationship was observed between the techniques factors, but none was found between the usage factors. Voice-activated search, virtual personal assistants, and real-time product targeting are the most influential aspects of AI in e-commerce.

Giri et al. (2019) stated that Utilizing Artificial Intelligence generates variables that have a direct influence on the formulation of marketing strategies. Consequently, it is evident that Artificial Intelligence is an instrument that, with prudent implementation, has the potential to facilitate an extensive array of operations for the organization.

Singh, S., & Srivastava, S. (2018) showed that perceived usefulness and perceived risk were the top two significant predictors of online purchase intention for Indian consumers. Based on multi-group moderation analysis findings, the study recommended that e-commerce companies develop strategies that are specific to each product, given that distinct product attributes necessitate supplementary channel functionalities to augment the online purchasing experience.

OBJECTIVES OF THE STUDY

The present research's core objective is to measure the consumer perception of using artificial intelligence in online shopping through the Technology Acceptance Model in Chennai City.

HYPOTHESIS OF THE STUDY

1. Trust in AI significantly influences the perceived usefulness of online purchases among the consumers in the study region.
2. The Trust in AI significantly influences the perceived ease of use of online purchases among the consumers in the study region.
3. Perceived ease of use of AI significantly influences the perceived usefulness of online purchases among the consumers in the study region.
4. The perceived usefulness of AI significantly influences the attitude toward online purchases of consumers.
5. Perceived ease of use of AI significantly influences the attitude of online consumers.
6. Attitude significantly influences the Behavior intentions of online purchase consumers.
7. The perceived usefulness of AI significantly influences the behavioral intentions of consumers' online purchases.

RESEARCH METHODOLOGY

The present research proposed to measure the consumer perception of using artificial intelligence in online shopping through the Technology Acceptance Model in Chennai city. The study used both primary and secondary data. The secondary data accumulated from the previous publications related to the role of AI in online purchases in India and overseas. The preliminary data accrued from the consumers who purchase the products through an online platform in Chennai city. The study used five constructs: Trust, PU, PEU, attitude, and behavioral intentions. The data accumulated through the online mode. An online survey in Google Forms was conducted to collect data from customers. The data collection period is from April 2023 to September 2023. The study used a Technology acceptance model. The study used a Convenience sampling method was used to reach the maximum number of respondents. Data was migrated from Google Forms to MS Excel, SPSS 24, and AMOS and was checked for coding accuracy. The database was complete

and contained no missing data. Descriptive statistical analyses were done in SPSS. AMOS was employed to test the hypotheses and the theoretical model by structural equation modeling (SEM)

RESULTS AND DISCUSSIONS

Table 1
Demographic Profile of Consumers

Gender	Frequency	Percentage
Male	211	55.7
Female	168	44.3
Total	379	100.0
Age		
< 25 Years	114	30.1
25-35 Years	109	28.8
36-45 Years	104	27.4
> 45 Years	52	13.7
Total	379	100.0
Marital status		
Married	212	55.9
Single	167	44.1
Total	379	100.0
Educational Qualification		
Up to HSC	25	6.6
Under Graduate	134	35.4
Post Graduate	141	37.2
Professional	79	20.8
Total	379	100.0
Occupation		
Salaried	149	39.3
Business	121	31.9
Self-employed	23	6.1
Professional	86	22.7
Total	379	100.0
Monthly Income		
Up to Rs.25,000	111	29.3
Rs.25,001 - Rs.50,000	119	31.4
Rs.50,001 - Rs.75,000	102	26.9
>Rs.75,000	47	12.4
Total	379	100.0
Nature of family		
Nuclear Family	287	75.7
Joint Family	92	24.3
Total	379	100.0

Table 1 highlights the demographic profile of consumers. The total number of respondents was 379, of which 211(55.7%) were male and 168(44.3%) were females. In connection with the age group of consumers, the majority, 175(30.1%), were in the age group of <25 years. Followed by 109(28.4%) in the age group of 25-35 years, 104(27.4%) in the group of 36-45 years, and 52(13.7%) in the age group of above 45 years. Regarding educational qualification of respondents, 141(37.2%) of respondents were post graduates, 134(35.4%) respondents were under- graduates, 79(20.8%) respondents were professionals and 25(6.6%) respondents were up to HSC. Occupations wise, 149(39.3%) of respondents were salaried, 121(31.9%) respondents were business and 86(22.7%) of the respondents were professionals. Regarding the monthly income of the consumer's concern, the majority, 119(31.4%) of the respondents were in the income group of Rs.25,001 - Rs.50,000, 111(29.3%) of the respondents were in the income group of up to Rs.25,000, 102(26.9%) were in the income group Rs.50,001 - Rs.75,000. Regarding the family type of consumers, the majority, 75.7% of the consumer's family type, is nuclear, and 24.3% are joint family.

STRUCTURAL EQUATION MODELLING

The present research proposed to measure the consumer perception of the usage of artificial intelligence in online shopping through the Technology Acceptance Model in Chennai city. In this regard, the study used path analysis to measure the relationship among the constructs of the study. Path analysis, which is a subset of SEM and a precursor to it, is a technique for identifying and evaluating the impacts of a collection of variables on a particular outcome through a network of causal pathways. The study used five constructs, namely Trust, PU, PEU, attitude, and behavioral intentions. The results are discussed in the following segments.

Table 2
Model fit measures

Measure	Estimate	Threshold	Interpretation
CMIN	2.9	--	--
DF	2	--	--
CMIN/DF	1.45	Between 1 and 3	Excellent
CFI	0.996	>0.95	Excellent
SRMR	0.026	<0.08	Excellent
RMSEA	0.034	<0.06	Excellent
PClose	0.512	>0.05	Excellent

The statistics pertaining to the model fit are presented in Table 2. The goodness-of-fit indices of the structural model have a good fit with the following index values: $\chi^2/df = 1.45$, CFI = 0.996, SRMR=0.026, RMSEA = 0.034 and Pclose=0.512

Table 3
Hypothesis Results

Endogenous variable		Exogenous variables	Estimate	SE.	t	P	Decision
PEU	<---	Trust	.298	.047	6.388	<0.001**	H1 supported
PU	<---	Trust	.295	.040	7.437	<0.001**	H2 supported
PU	<---	PEU	.187	.041	4.522	<0.001**	H3 supported
Attitude	<---	PU	.157	.061	2.591	0.010**	H4 supported
Attitude	<---	PEU	.113	.050	2.251	0.024*	H5 supported
Attitude	<---	Trust	.213	.050	4.271	<0.001**	H6 supported
BI	<---	Attitude	.107	.053	2.027	0.043*	H7 supported
BI	<---	PU	.282	.059	4.757	<0.001**	H7 supported

Note: PEU: Perceived ease of use, PU: Perceived usefulness, and BI: Behavioral Intentions

In connection with the H1, the computed t & p-value for the relationship between Trust and perceived ease of use is 6.388 & <0.001. The p-value is <0.001, statistically significant at a 1% level. The study inferred that the proposed hypothesis was significantly supported based on the results. However, the study concluded that Trust significantly influences perceived ease of use. It suggests that the more we trust in Artificial Intelligence during the online shopping journey, the more likely it is that consumers consider AI-powered apps and online shops valuable. Besides, a higher level of Trust forms a more positive attitude toward shopping through online platforms.

In connection with the H2, the computed t & p-value for the relationship between Trust and perceived usefulness is 7.437 & <0.001. The p-value is <0.001, statistically significant at a 1% level. Based on the results, the study inferred that the proposed hypothesis was significantly supported. However, the study concluded that Trust greatly influences perceived usefulness. Furthermore, in this study, customer satisfaction and faith have positively impacted perceived effectiveness and ease of use towards online purchases.

Regarding H3, the computed t & p-value for the relationship between perceived usefulness and perceived ease of use is 4.522 & <0.001. The p-value is <0.001, statistically significant at a 1% level. The study inferred that the proposed hypothesis was significantly supported based on

the results. However, the study concluded that the perceived ease of use dramatically influences perceived usefulness. Furthermore, perceived usefulness affects perceived enjoyment and intention to online purchases.

Regarding H4, the computed t & p-value for the relationship between perceived usefulness and attitude of online purchases is 2.591 & <0.001. The p-value is <0.001, statistically significant at a 1% level. The study inferred that the proposed hypothesis was significantly supported based on the results. However, the study concluded that perceived usefulness greatly influences the attitude of consumers' online purchases.

With respect to H5, the calculated t-value and p-value for the relationship between attitude toward online purchases and perceived simplicity of use are 2.251 and 0.024, respectively. The p-value is <0.05, statistically significant at the 5% level. The study inferred that the proposed hypothesis was significantly supported based on the results. However, the study concluded that perceived ease of use substantially influences the attitude of consumers' online purchases.

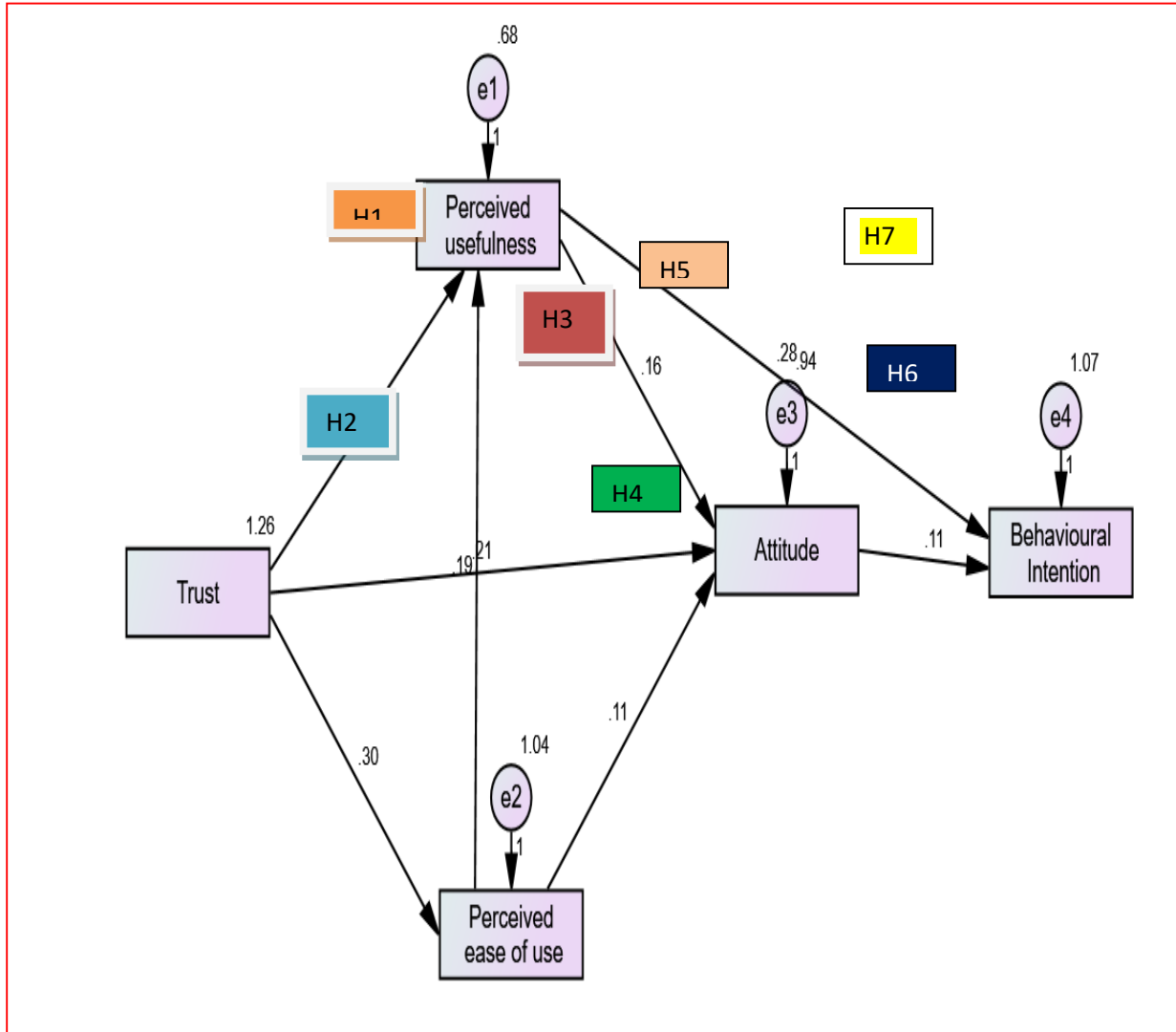
Regarding H6, the computed t & p-value for the relationship between Trust and attitude of online purchases is 4.271 & <0.001. The p-value is <0.01, statistically significant at a 1% level. The study inferred that the proposed hypothesis was significantly supported based on the results. However, the study concluded that Trust in online purchases significantly influences the attitude of consumers.

Regarding H7, the computed t & p-value for the relationship between attitude and behavioral intentions of online purchases is 2.027 & <0.05. The p-value is <0.05, statistically significant at a 1% level. The study inferred that the proposed hypothesis was significantly supported based on the results. However, the study concluded that consumers' attitudes greatly influence behavioral intentions. It suggests that if shopping requires much mental effort and seems complicated in AI-powered online purchases and apps, consumers tend to form stronger negative attitudes towards them and trust them less, which will result in weaker consumer intention to visit such online platforms.

Regarding H8, the computed t & p-value for the relationship between perceived usefulness and BI of online purchases is 4.757 & <0.001. The p-value is <0.01, statistically significant at a 1% level. The study inferred that the proposed hypothesis was significantly supported based on the results. However, the study concluded that a consumer's perceived usefulness greatly influences behavioral intentions. In the nested model, perceived usefulness had the highest total

effect on behavioral intention. Therefore, AI-powered online purchases and apps are advised to increase perceived benefit to succeed by enabling customers to maximize purchase effectiveness to grab the best deals, i.e., the ideal product with the highest utility.

Figure 1
Consumers Perception of the Use of Artificial Intelligence in Online Shopping in the Study Area



CONCLUSION

The study proposed measuring the consumer perception of using artificial intelligence in online shopping in Chennai city. Several aspects of consumer acceptance of the use of AI in online purchasing are expanded by this study. The extensively employed technology acceptance model (TAM) was applicable to the study of consumer acceptability of AI in online retail. The path analysis verified, as anticipated, that consumers' behavioral intention to utilize AI-powered web shops and applications is primarily influenced by attitudes, faith, perceived usefulness, and perceived simplicity of employment. Additionally, the study's findings indicate that consumer acceptance of AI in online purchasing is predicated on Trust. Consumers are more likely to perceive an AI-powered website or application negatively and as less useful if they lack confidence in it; this will lead to a decline in online traffic. Furthermore, in order to optimize purchasing efficiency, AI is anticipated to reduce the time required to locate products with the highest value and provide customized recommendations to online consumers so they can acquire the best deals. It is not remarkable that a positive perception of AI-powered e-commerce results in an increased frequency of online visits to these digital retailers. In light of the significant positive impact that the recent COVID-19 crisis has had on e-commerce, it is anticipated that the use of AI in online purchasing will increase. Bloomberg (2020) states that pandemic lockdowns impact both consumer behavior and the advancement of artificial intelligence in a dual manner. Creating an individual customer journey to satisfy customers' needs and deliver a more meaningful online purchasing encounter is more crucial than ever in the current era. These endeavors may find AI to be an exceptionally useful instrument, as demonstrated by the research results presented in this article. There are numerous practical implementations for this research. Webmasters and online marketing executives would benefit from knowledge regarding the manner in which customers adjust to emerging technologies, such as the implementation of AI in the context of e-commerce. Additionally, scholars and researchers who are interested in modifying it gain advantages from the TAM in online shopping. Those who are intrigued by the role of Trust in online consumer decision-making will also find this study useful. Overall, the study concluded that the trust factor significantly influences PU, PEU, and the attitude of consumers in the study region. The study also found that perceived usefulness significantly affects behavioral intentions. Furthermore, the

perspective greatly influences behavioral preferences for online purchases among the consumers in the study area.

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