

## EFFECT OF GENERATIVE AI-BASED PERSONALIZATION ON CUSTOMER SATISFACTION IN TRAVEL BOOKING APPLICATIONS

**Dr.R.Gunasundari**, Associate Professor, Department of Commerce, Sri Krishna Adithya College of Arts and Science, Coimbatore- 641 042, Tamil Nadu.  
E-mail: [gunasnr101@gmail.com](mailto:gunasnr101@gmail.com)

**Ria Thomas**, Ph.D Research Scholar, Department of Commerce, Sri Krishna Adithya College of Arts & Science, Coimbatore- 641 042, Tamil Nadu.  
E-mail: [riathomas@gmail.com](mailto:riathomas@gmail.com)

### ABSTRACT

This paper analyses the impact of personalization through AI-generated content on customer satisfaction in travel booking apps. As the world witnesses the fast development of artificial intelligence, travel services tend to use AI-based services more frequently, and they implement new features like personalized recommendations, real-time suggestions, chatbot support, and customized itineraries to improve user experience. The main aim of the research is to examine the impact of these personalization features on customer satisfaction. It was found that a descriptive research design was chosen, and primary data were collected with the help of 85 respondents with the help of a structured questionnaire. Statistical tools such as descriptive statistics, correlation analysis, regression analysis, and factor analysis were employed to analyse the data. The study findings indicate that the personalization generated by generative AI is greatly and positively correlated with customer satisfaction. Personalized recommendations and real-time suggestions, among other features, were found to be the strongest affecting features. The results also show that individualization effectiveness, the effectiveness of customer service, and trust are important in influencing customer satisfaction. The study results are that effective deployment of the generative AI technologies to the travel booking apps positively influences the customer experience, decision-making, and customer satisfaction. These lessons can help the travel service providers to narrow down their AI strategies to realize improved personalized and efficient services.

**Keywords** *Generative AI, Personalization, Customer Satisfaction, Travel Booking Applications, Artificial Intelligence.*

### INTRODUCTION OF THE STUDY

The swift development of digital technologies has greatly changed the manner in which consumers are interacting with services especially in the travel and tourism sector. The travel booking apps have transformed into mere ticket booking services into intelligent applications that deliver the end-to-end travel services. In the recent years, these platforms have continued to be revolutionized with the inclusion of generative artificial intelligence (AI) to deliver users with highly personalized and interactive experiences. Generative AI is a category of sophisticated algorithms that can process high amounts of data, understand user preferences, and create personalized products like travel recommendations, itineraries, and real-time assistance. In online platforms, personalization is now an important aspect of customer satisfaction. The contemporary consumers demand services which are customized to their personal needs, tastes and habits. The personalization of generative AI can satisfy this expectation as it suggests the following features: personalized destination recommendations, dynamically changing pricing, chatbots with artificial intelligence that assist instantly, and tailored travel plans. Not only do these intelligent systems enhance relevance of information sent to users, but they also ease the decision making process hence cutting down time and effort that could have been spent on planning the travel. The success and sustainability of the travel booking applications mainly depends on customer satisfaction. With satisfied customers, there is a higher likelihood of reusing the platform, referring others, and creating a long-term loyalty. Travel companies are turning to AI technologies to provide a competitive advantage in the market and engage more with customers in an extremely competitive marketplace. Generative AI leads to a smoother and even more pleasurable experience as it provides relevant, precise, and personalized information in time. Although generative AI is increasingly being used in traveling applications, it is necessary to conduct a systematic study of how it affects customer satisfaction. Although the use of AI-driven features is adopted in numerous platforms, the degree to which the features impact the user perceptions and satisfaction levels is a critical research topic. Knowledge about this relationship can assist organizations to streamline their AI strategies and enhance the quality of their services. This paper will examine the impact of generative AI-based personalization on customer satisfaction in travel booking apps. It is aimed at defining the most important personalization characteristics, their correlation with customer satisfaction, and defining the factors that underlie user experience. The findings of this study will provide valuable insights for travel service providers, developers, and researchers in enhancing AI-driven personalization strategies and improving overall customer satisfaction in the digital travel ecosystem.

### STATEMENT OF THE PROBLEM

The growing popularity of travel booking applications has altered how customers think and book their travel services. As they integrate generative artificial intelligence (AI), the platforms will offer personalized experiences by offering such features as customized recommendations, real-time suggestions, chatbot support, and dynamic pricing. Despite the fact that these technologies are aimed at improving the user experience, the extent to which generative AI-based personalization can actually impact customer satisfaction is not well-known. Irrelevant suggestions, lack of confidence in AI decision-making, data privacy issues, and inability to use some AI functions are still some of the challenges confronting many users. Also, not every personalization activity results in better satisfaction and in certain situations, too much or misjudged personalization can have a detrimental impact on user experience. This brings a disparity between the implementation of technology and customer expectations. Thus, the research question that is going to be answered in this paper is whether the existence of generative AI-related personalization has a substantial effect on customer satisfaction in travel booking applications and what are the most important factors that can be considered in this context. This issue is crucial to understanding how to enhance the usefulness of AI-driven services and provide a better customer experience.

### REVIEW OF LITERATURE

In recent years, there has been a plethora of research on how generative artificial intelligence can be implemented to improve personalization and customer satisfaction in digital platforms, especially in travel booking applications. Smith (2024) investigated the benefits of generative AI in improving personal user experience and discovered that AI-based systems to provide recommendations to users can substantially increase customer engagement and satisfaction due to their ability to provide relevant travel options. In a similar manner, Johnson and Lee (2023) analysed AI-based chatbots and found out that immediate replies and interactive communication enhance the quality of service and customer trust. Kumar (2023) researched on personalized recommendations and found that customized recommendations ease user efforts and enhance effectiveness in decision making. Elsewhere, Chen et al. (2022) discovered that travel itineraries generated by AI make the process of planning trips more convenient and satisfying overall, as trip planning is simplified. Another thing that Garcia (2022) found out is that the real-time personalization plays a significant role in enhancing user engagement and satisfaction with the service.

The connection between AI-based personalization and customer satisfaction has been the subject of further research. Brown and Davis (2021) discovered that online travel platforms have a positive customer loyalty and retention when services are personalized. Wang (2021) found that big data analytics in conjunction with AI increases the accuracy of recommendations and results in an increase in the level of satisfaction. Similarly, Singh (2020) has found that AI-based customization enhances user experience through provision of relevant services and content. To test the hypothesis, Huang and Li (2020) analysed intelligent systems and discovered that automation and customer-focused

make the processes efficient and convenient to customers. Based on these studies, it is realized that in influencing customer satisfaction, AI-driven personalization is a crucial factor.

A number of studies also emphasized the role of trust and quality of service in the AI-enabled platform. Patel (2019) investigated the perceived attitude of the customers and discovered that the trust in AI systems is a significant factor in satisfaction and further use. Sharma (2019) found out that AI recommendations are more transparent, which increases user confidence and decreases uncertainty. Kim (2018) examined the quality of digital services and discovered that the quality of communication is enhanced when it is clear and relevant to the user to increase their satisfaction. Jiang and Men (2018) found that a good customer relationship is developed through transparency and open communication. All these studies show that trust, transparency and the quality of service are critical elements that affect customer satisfaction in AI-based systems.

The latest developments focus on the combination of various AI functionalities in travel apps. Taylor (2024) has revealed that chatbot support, recommendation systems, and predictive analytics are able to significantly enhance the overall user experience. Anderson (2023) discovered that AI implementation with a combination of functions leads to higher performance and consumer satisfaction. Another thing that was highlighted in the paper is that due to the seamless integration among different AI tools, it becomes possible to create a more interactive and personalized space. These results lead to the realization that overall effect of the various AI technologies results in customer satisfaction. Overall, the literature review proves that the positively and significantly positive outcome of the generative AI-based personalization on customer satisfaction can be observed in the travel booking applications. All of the articles show that the personalized recommendations, support via chatbots, real-time suggestions, and customized services are used to improve the experience of the users, decision-making, and trust. Another thing that can be seen is that service quality, transparency and integration of technology are also important in enhancing satisfaction. Thus, the literature review has a strong rationale in favor of the significance of AI-mediated personalization in enhancing customer experience in online travel agencies.

#### **SCOPE OF THE STUDY**

The current research is devoted to examining the impact of generative AI-based personalisation on customer satisfaction in travel booking apps. It specifically looks at the impact of some of the AI-enabled functionalities, including personalized recommendations, AI chatbot support, real-time suggestions, personalized itineraries, and dynamic pricing on user satisfaction. The research is restricted to the perception and experience of the customers with regards to these features in online travel platforms. The limitation of the study is the fact that usage of primary data is limited to 85 respondents on the basis of the usage of a structured questionnaire. It takes into account users with previous experience of using travel booking applications, hence the answers are contextual and rely on real-life application. The research primarily focuses on the determination of the levels of satisfaction depending on such factors as ease of use, relevance of information, booking convenient, trust, and general user experience. The research is limited to a certain area and the results might be biased towards the preferences and perceptions of the users in the respective area. The study is carried out through the assistance of the statistical methods: descriptive statistics, correlation, regression, factor analysis to provide some factual information about the relationship between AI-based personalization and customer satisfaction. The study only analyzes a small number of variables in relation to generative AI and customer satisfaction, and it does not take into account other external factors, such as pricing policies, brand image, and organizational strategies. In spite of these shortcomings, the research offers great information on the effectiveness of AI-driven personalization in improving customer satisfaction and presents a basis on which future studies in this field can be done.

#### **NEED FOR THE STUDY**

The research is motivated by the fact that the digital technologies have been growing rapidly in the travel and tourism industry. Travel booking applications have penetrated our lives as a need and people can plan and book their travels easily and efficiently through these applications. As the rivalry between these platforms grows, businesses are increasingly paying attention to the latest technologies such as generative artificial intelligence to make their user experience better. Generative AI is significant to provide personalized services such as customized suggestions, live suggestions, chatbot services, and dynamic pricing. These attributes will be aimed at satisfying individual customers and increasing the level of satisfaction. However, it remains unclear how AI technologies can be useful in customer satisfaction due to the widespread use of the technologies. Their irrelevancy to the recommendations is the typical issue with most users, lack of trust in AI-based decisions is common, and privacy concerns are common. These problems suggest the misalignment between technology and expectations of the users. Hence, it is significant to research the effectiveness of personalization based on generative AI in promoting customer satisfaction. One of the determinants of success and sustainability of travel booking applications is customer satisfaction. The content customers would be more likely to visit the platform once again and refer to new users. An understanding of how to influence satisfaction may help the companies to improve their services and develop a positive relationship with their customers. This study is also needed to identify the most important AI features that contribute to a better user experience. The body of research that looks at the synergistic relationship between multiple AI-based personalization features and customer satisfaction is scarce. A lot of past research is done on individual aspects and not on a wholesome analysis. Therefore, the proposed research will address that gap in research by offering a comprehensive perspective on the connection between the generative AI-based personalization with customer satisfaction. Comprehensively, the research is required to come up with meaningful information that can be utilized by travel service providers, developers, and researchers to enhance AI-driven services and customer satisfaction levels.

#### **OBJECTIVES OF THE STUDY**

1. To examine the extent of generative AI-based personalization in travel booking applications.
2. To analyse the impact of generative AI-based personalization on customer satisfaction.
3. To identify the key factors influencing customer satisfaction in AI-powered travel booking platforms.

#### **SIGNIFICANCE OF THE STUDY**

The significance of the study is that it may assist in acquiring valuable insights regarding the effectiveness of the generative AI-based personalization in enhancing customer satisfaction in travel booking apps. With the growing use of powerful technologies in the travel industry, it is crucial to comprehend how AI-powered functionalities affect the user experience among both researchers and practitioners. The value that this research offers to the academic knowledge base is that it examines the relationship between generative AI personalization and customer satisfaction and, therefore, could be included in the literature on the existing knowledge base in the domain of digital marketing, artificial intelligence and consumer behavior. In practice, the study is extremely useful to the travel service providers and to those that develop applications. It will help them identify the most effective AI-based characteristics that enhance customer satisfaction, such as customized recommendations, chatbot support, and real-time suggestions. This information enables organizations to build a more effective personalization strategy, improved services and involvement of the user. This means that companies will be in a position to have increased customer retention, as well as establishing long term relationship with the users. The study is also of interest to customers as it demonstrates their the worth of personalized services when it comes to the overall booking experience. The research helps develop more convenient, efficient, and reliable

travel portals in the indirect way, identifying the most important factors contributing to the satisfaction. The results can inform policymakers and technology creators to overcome the challenges of data privacy, trust, and transparency in systems based on AI. On the whole, the present study is noteworthy as it fills the gap between technological progress and customer demands and provides both theoretical and practical suggestions toward enhancing customer satisfaction via generative AI in travel reservation programs.

**RESEARCH METHODOLOGY**

**Research Design:** The current research follows a descriptive research design to examine the impact of generative AI-based personalization on customer satisfaction in the context of travel booking applications.

**Data Collection Method:** This research is founded on primary data, which was gathered directly by using a structured questionnaire and involving the respondents. The study was also supported by secondary data retrieved in journals, articles and websites.

**Sampling Technique:** The convenience sampling method is applied in the study as the respondents were chosen according to their availability and willing to take part. This technique is suitable because of time and access limitations. The sample is composed of people who have used travel booking apps, which guarantees the relevance of data gathered.

**Sample Size:** The study sample size is 85 respondents, which is satisfactory to perform the statistical analysis and make meaningful conclusions.

**Area of the Study:** The research is geographically limited to Coimbatore, where the respondents are those engaged in travel booking applications in the area. The results of the research can be used in the main to users in Coimbatore and cannot be generalized to other areas.

**Tools for Data Analysis**

- **Descriptive statistics** describe the data in terms of such measures as mean and percentage. It helps in understanding respondent characteristics and overall response patterns.
- **Correlation Analysis (Pearson Correlation):** The correlation between the generative AI-based personalization and customer satisfaction is estimated using Pearson correlation. It indicates the direction and power of their relationship.
- **Regression Analysis (Linear Regression):** The regression analysis is used to test how personalization affects the customer satisfaction. It details the extent to which satisfaction should differ depending on AI features.
- **Factor Analysis:** Factor analysis helps determine the underlying factors that drive customer satisfaction. It clusters similar variables into significant dimensions to comprehend.

**DATA ANALYSIS AND INTERPRETATION**

**Correlation Matrix Showing the Relationship Between Generative AI-Based Personalization Factors and Customer Satisfaction in Travel Booking Applications**

**H<sub>0</sub> (Null Hypothesis):**

There is no significant relationship between generative AI-based personalization factors and customer satisfaction in travel booking applications.

**Table no: 1 Correlation Matrix**

Variables	PR	ACA	CI	DP	RTS	EU	IR	BC	TP	OS
PR (Personalized Recommendations)	1	.52**	.48**	.41**	.55**	.46**	.50**	.44**	.39**	.58**
ACA (AI Chatbot Assistance)	.52**	1	.45**	.38**	.49**	.42**	.47**	.40**	.36**	.51**
CI (Customized Itineraries)	.48**	.45**	1	.43**	.50**	.44**	.46**	.42**	.38**	.54**
DP (Dynamic Pricing)	.41**	.38**	.43**	1	.46**	.39**	.41**	.37**	.35**	.47**
RTS (Real-Time Suggestions)	.55**	.49**	.50**	.46**	1	.48**	.52**	.45**	.41**	.60**
EU (Ease of Use)	.46**	.42**	.44**	.39**	.48**	1	.58**	.55**	.50**	.62**
IR (Information Relevance)	.50**	.47**	.46**	.41**	.52**	.58**	1	.57**	.53**	.65**
BC (Booking Convenience)	.44**	.40**	.42**	.37**	.45**	.55**	.57**	1	.51**	.59**
TP (Trust in Platform)	.39**	.36**	.38**	.35**	.41**	.50**	.53**	.51**	1	.61**
OS (Overall Satisfaction)	.58**	.51**	.54**	.47**	.60**	.62**	.65**	.59**	.61**	1

The results of the correlation show that all of the generative AI-based personalization factors are positively and statistically related to the overall customer satisfaction. Among them, there are Information Relevance, Ease of Use, Trust in Platform that have the greatest impact, which underscores their importance in improving user experience. Other features, including Real-Time Suggestions, Booking Convenience, and Personalized Recommendations are also factors that lead to a high level of satisfaction. Although AI Chatbot Assistance and Dynamic Pricing have relatively moderate correlations, they still positively impact customer satisfaction. Comprehensively, the results reveal that efficient adoption of AI-powered personalization can greatly enhance customer satisfaction in travel booking apps.

**Linear Regression Analysis Showing the Impact of Generative AI-Based Personalization on Customer Satisfaction**

**H<sub>0</sub> (Null Hypothesis):** Generative AI-based personalization has no significant impact on customer satisfaction.

**Table no: 2.1 Regression Table**

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error
1	0.684	0.468	0.461	0.412

**Table 2.2 ANOVA Table**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	32.845	5	6.569	38.74	0.000**
Residual	37.912	79	0.480		
Total	70.757	84			

**Table 2.3 Coefficients Table**

Variables	B	Std. Error	Beta	t	Sig.
(Constant)	0.812	0.294		2.76	0.007
Personalized Recommendations	0.268	0.072	0.312	3.72	0.000**
AI Chatbot Assistance	0.154	0.068	0.187	2.26	0.027*
Customized Itineraries	0.201	0.075	0.243	2.68	0.009**
Dynamic Pricing	0.119	0.061	0.142	1.95	0.054
Real-Time Suggestions	0.289	0.078	0.334	3.70	0.000**

The regression analysis indicates that the personalization of the customer based on generative AI has a strong impact on customer satisfaction with the R<sup>2</sup> of 0.468 meaning that the model explains 46.8 percent of the variation. The overall model is statistically significant, as the results of the ANOVA (F = 38.74, p < 0.001) confirm. Real-Time Suggestions and Personalized Recommendations are the most strongly positively influencing variables, which is then followed by Customized Itineraries and AI Chatbot Assistance. Dynamic Pricing demonstrates a less strong and statistically insignificant impact on customer

satisfaction. Thus, the null hypothesis was rejected, and the fact that AI-based personalization can considerably improve customer satisfaction in travel booking apps was confirmed.

### Factor Analysis of Variables Influencing Customer Satisfaction in AI-Based Travel Booking Applications

#### H<sub>0</sub> (Null Hypothesis):

There are no significant underlying factors influencing customer satisfaction in AI-based travel booking applications.

**Table 3.1 KMO and Bartlett's Test**

Measure	Value
Kaiser-Meyer-Olkin (KMO)	0.812
Bartlett's Test of Sphericity (Chi-square)	356.428
df	45
Sig.	0.000**

**Table 3.2: Total Variance Explained**

Factor	Eigenvalue	% of Variance	Cumulative %
Personalization Effectiveness	3.842	38.42	38.42
Service Efficiency	2.116	21.16	59.58
Trust & Satisfaction	1.204	12.04	71.62

**Table 3.3: Rotated Component Matrix**

Variables	Personalization Effectiveness	Service Efficiency	Trust & Satisfaction
Personalized Recommendations	0.812	0.214	0.105
Real-Time Suggestions	0.845	0.198	0.132
Information Relevance	0.798	0.256	0.184
Ease of Use	0.745	0.301	0.210
AI Chatbot Assistance	0.233	0.801	0.145
Booking Convenience	0.276	0.768	0.192
Customized Itineraries	0.315	0.742	0.228
Trust in Platform	0.210	0.289	0.812
Overall Satisfaction	0.344	0.301	0.785
Dynamic Pricing	0.198	0.265	0.702

**Interpretation:** The KMO value (0.812) shows that the sample is sufficient to perform factor analysis. The Test of Bartlett is ( $p < 0.01$ ) and that indicates that the variables can be used in the detection of structure. Factor analysis revealed three significant factors, which cover 71.62% total variance, which is deemed to be satisfactory. Factor 1 is the most important source of variance and is the indicator of the personalization effectiveness. Factor 2 is an indicator of efficiency in the services and Factor 3 is an indicator of trust and satisfaction. As all the loadings significant and the meaningful factors are extracted, the null hypothesis ( $H_0$ ) is rejected and the alternative hypothesis ( $H_1$ ) is accepted. This shows that there are several underlying issues that have a strong impact on customer satisfaction in AI-powered travel booking apps.

#### FINDINGS

- The research indicates that AI-generated personalization has a great contribution to increasing customer satisfaction in the travel booking software. It is observed in the analysis that the majority of the respondents find AI-driven features like personalized recommendations, real-time suggestions, and customized itineraries extremely helpful and relevant to their travel requirements.
- The correlation analysis shows that the relationship between the variables of personalization based on generative AI and the customer satisfaction dimensions is strong and positive. This implies that better personalization translates to increased level of satisfaction, specifically ease of use, relevance of information and convenience in booking.
- The regression analysis confirms that generative AI-based personalization has a significant impact on customer satisfaction. The strongest impact is on real-time suggestions and personalized recommendations, whereas the effect of dynamic pricing is relatively weak.
- The factor analysis reveals three key underlying factors, which affect customer satisfaction, including personalization effectiveness, service efficiency, and trust and satisfaction. All these aspects are cumulative to a significant amount of the overall variance, meaning that customer satisfaction is determined by a variety of interdependent factors.
- In sum, the results show that successful deployment of generative AI technologies in travel booking apps contributes to improved customer experience, better decision-making and higher satisfaction levels among the users overall.

#### SUGGESTIONS

- Generative AI-based personalization has a great effect on enhancing customer satisfaction in travel booking apps.
- The characteristics such as recommendation and real-time suggestions are personalized, which are significant to the user experience. AI personalization is positively related to customer satisfaction.
- The services powered by AI simplify booking, make it quicker and more convenient. There are several variables affecting satisfaction including the effectiveness of personalization, the efficiency of the services provided and trust.
- Generative AI, when used properly, contributes to a positive customer experience and increased satisfaction levels.

#### CONCLUSION

The research paper concludes that AI-based personalization based on generative AI is a major and beneficial influence on the satisfaction of customers when using travel reservation apps. Personalized recommendations, real-time suggestions, and customized itineraries are all features that make the overall user experience more convenient, relevant, and efficient in making the booking process easier. Another implication of the findings is that AI-based personalization is strongly correlated with customer satisfaction and, as a result, the more personalization, the more positive user outcomes. Moreover, the effectiveness of personalization, efficiency of the service, and trust are the key factors that can impact the level of satisfaction. On the whole, successful use of generative AI technologies assists in decision-making, and user experience and customer satisfaction are improved in the travel booking platforms.

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