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Fulfilling Customer Contentment: The Impact of Passenger's Preferences and Characteristics on the Use of Chatbots for Booking and Inquiries

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Abstract: ***This study examines factors influencing passenger satisfaction with AI chatbots for airline bookings and inquiries at Ninoy Aquino International Airport (NAIA). It focuses on passenger preferences, chatbot adaptability, data privacy, and the effectiveness of AI chatbots in building trust and satisfaction. The research also explores strategies to enhance chatbot performance while addressing concerns about privacy and emotional intelligence. Data were gathered from 53 passengers at NAIA and four informants: an airline pilot, a cybersecurity expert, and two IT specialists. Using a mixed-method approach, the study combined quantitative techniques such as surveys and descriptive analysis with qualitative methods like thematic analysis of interviews. Key themes included ease of use, privacy concerns, and customer support. Results showed that while AI chatbots improved convenience and efficiency, passengers raised concerns about data privacy and the lack of emotional intelligence, which affected trust and satisfaction. Despite these issues, passengers preferred user-friendly, adaptable, and personalized chatbot features. Demographic factors showed no significant influence on preferences, adaptability, privacy concerns, or chatbot effectiveness. The study concludes that addressing privacy concerns with strong legal frameworks, adding multilingual options, and making chatbots more human-like are essential to improving passenger satisfaction. Recommendations include enhancing chatbot personalization, strengthening data security, and maintaining human oversight to ensure a balanced and effective customer service system.***

Keywords: ***AI chatbots, passenger satisfaction, aviation, data privacy, customer service, effectiveness, efficiency, human-like communication, personalized, language barriers, preferences, adaptability***

I. INTRODUCTION

Artificial Intelligence (AI) has impacted today's digital age, it enhanced tools transforming customer service, particularly in Aviation industries where clear communication and promptness are crucial. This study explains how AI chatbots stimulate engagement in human dialogue for flight booking and inquiries. Additionally, it has been believed that it could minimize the need for human intervention and meet the needs and wants of every customer satisfaction through offering accurate information and ensuring smooth transactions faster. Technological innovation in the Philippines has been seen to rapidly increase due to the fast demand of people. The AI chatbots that are currently operating at big airlines that are in the Philippines' busiest airports are handling passengers' inquiries and bookings. This shift has seen a huge potential to reduce operational costs and enhance the passengers' experience overall. The usage of AI chatbots has indeed presented several advantages such as minimizing human errors and being serviced 24/7; nonetheless, its efficiency still needed to narrow down its purpose and remained a question in satisfying passengers. Thus, this study explicitly explores different aspects of passengers influencing their satisfaction in utilizing AI chatbots in doing airline bookings and travel inquiries. It aims to analyze the passengers' preferences, AI chatbots' efficiency and error-correction capabilities, data privacy concerns, and its effectiveness in building relationships to passengers' overall trust and loyalty. These dynamics can be identified by seeking how airlines create an impact on customer service strategies with the usage of AI chatbots to improve overall satisfaction and operational efficiency.

According to Balouki (2024), chatbots can improve and engage in customer interactions without the need for constant human assistance. For agencies that used traditional methods of answering the phone for customer service, a chatbot can have their queries answered in real-time, with a proposed model to have users receive replies in record time such as flight delays, time of arrival, cancellations, and airline information.

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Based on the study of Kasinathan (2020), Artificial Intelligence is capable of improving the performance of customer service for AirAsia Berhad; the paper claims that the Malaysian branch of AirAsia will have hopes of improving customer service quality via a user-friendly system that requires no technical knowledge to operate. According to a study by Chen (2023), the influence of AI chatbots can aid in the loyalty retention of customers, resulting in higher satisfaction and trust in the airline company. As indicated by Chen (2023) the study shows the effectiveness of two different types of customer service, human and AI chatbots, with AI chatbots being capable of search-based responses while humans reply through experience. What differentiates the two is fluency, flexibility, service control, and customer intention. A study by Yoo (2022) discusses the effect of comparing the results on the interaction between humans and AI chatbots and that there is a significant difference in the levels of trust in the information being provided. Consumers were more inclined to believe in an AI chatbot rather than human services. As indicated by Izadi (2024), for AI chatbots to remain reliable and effective is that they should prioritize error correction within the AI's machine learning. The study states that chatbot technology needs to undergo several adjustments via data-driven feedback loops to involve humans in the learning process of data, to rectify and oversee what the chatbot will take in, and to prevent biased data. Based on the study of de Sá Siqueira (2023), an AI chatbot would have a reduced negative impact on its users if it combined technology acceptance models and concepts of social presence with perceived enjoyment as the theoretical basis, this is so that the chatbot would be more human-like in its communication skills. According to Abdellatif (2020), the development of AI chatbots requires special expertise compared to regular software. Human-centered computing is essential in the development of chatbots to ensure developed management, and to further enhance an AI chatbots needs to undergo model training, implementation guidelines, and natural language understanding. Based on the study of Toader (2020), the study discusses the constructive change needed in AI chatbots. Surveys discovered that users are more eager to engage and divulge information with a female virtual assistant than a male one, capable of building trust and a sense of competence compared to a male counterpart. As studied by Bilquise (2022), emotionally intelligent chatbots are crucial in the successful adaptation of technology in the world of public information service. Emotional intelligence is needed to develop and embed emotional responses in AI chatbots and measure data gathered in an evaluation process.

For AI to be successfully used in the aviation sector, operators' trust is essential. In a study by Halawi et al. (2024), customer input regarding a chatbot's simplicity and effectiveness is an important factor for it to show its importance in the aviation industry. According to a study done by Afroogh et al (2022), legal frameworks, moral principles, and ethical AI use can boost user confidence. Consumer perceptions of the ease of use and utility of AI systems impact trust in these systems. By predicting security incidents, identifying unusual network activity, automating operations, and offering proactive solutions, AI technologies are transforming data security. Naga (2024) encourages the use of ethical artificial intelligence to protect personal information and steer clear of dishonest design techniques. Users may be deceived into submitting unneeded personal information by these patterns, which may conceal data reduction alternatives. To ensure that AI respects consumer privacy rights, the Philippine National Privacy Commission promotes more awareness. These developments can reduce manual labor, speed up response times, and safeguard the privacy rights of customers. Bedué and Fritzsche (2022) mention that AI will more likely be utilized if people have more confidence in the company that provides artificial intelligence. This explains how a customer's emotional connection to a store is triggered when they receive excellent electronic service and feel socially pleased. Customer intent, a feeling of community, successful merchant performance, and positive engagement result from this. With chatbots providing an array of options, the concept's quick evolution justifies its significance to Ltifi (2023). In a study done by Garcia et al. (2024), a survey that was given to 350 frequent flyers in CALABARZON in the Philippines shows that there is a direct relationship between airline chatbots and pre-flight assistance services especially when it comes to customer satisfaction. The study also claims that more personalized features, automation, emotional understanding, and decision-making can also improve customer satisfaction when accessing information. In another study done by Rady (2023), he discusses that airlines use chatbots to collect data such as customer preferences and concerns to improve customer experience as well as marketing strategies, and overall service. Rady also discusses that because of key points mentioned in his study, there's simplicity and convenience of booking a flight through the use of chatbots in the context of EgyptAir. A chatbot must achieve its primary goal while providing a variety of new, improved capabilities that surpass those of current websites, apps, or search engine alternatives. It can also accurately understand a customer's needs and inquiries to give a well-informed response. Arreza (2022). Another study done also by Arreza (2022) shows that an effective airline chatbot can further improve customer satisfaction, especially for frequent flyers which can increase customer loyalty. Thi Phuong Anh (2022) claims that when it comes to an AI chatbot system that's used in Air New Zealand, customer satisfaction, as well as customer trust, are crucial factors in gaining customer loyalty, specifically, repurchasing flight tickets.

AI chatbots are now becoming essential in the aviation industry. It enhances customer service, provides real-time responses to many passengers, and simplifies bookings and inquiries 24/7. Studies show that the efficiency of AI chatbots improves customer service, trust, and satisfaction. However, there are still critical factors that need to be addressed. Emotional intelligence, error correction, and personalization need to be optimized for the chatbot's performance, while privacy and ethical concerns must be included to build users' confidence in utilizing it. AI chatbots with enhanced communication, personalized features, and ease of use will positively influence the customer experience to have greater and higher satisfaction, loyalty, and operational efficiency for airlines.

A. Background of the Study

An artificial intelligence (AI) tool that mimics human dialogue with a user is called a chatbot. Chatbots can enhance and engage customer relationships with little to no human intervention. Customers can receive real-time responses to their questions instead of having to wait on hold at agencies or over the phone.

Chatbots are transforming airlines' customer interaction, offering services like inquiring about booking a flight and its information which can help reduce human service agent workload. According to a study by Sarol et al., (2022), businesses and customers must communicate effectively, and new technologies like artificial intelligence (AI) are being embraced to boost customer happiness, cut down on errors, and increase operational efficiency. Airlines can save time by giving passengers accurate information with chatbots, natural language processing, and conversational agents.

The primary international airport in the Philippines also serves Metro Manila. It is the main gateway to the Philippines, making it the busiest airport in the country. The airport is located between Pasay and Parañaque, around 7 kilometers (4.3 miles) south of Manila proper and southwest of Makati.

B. Theoretical Framework

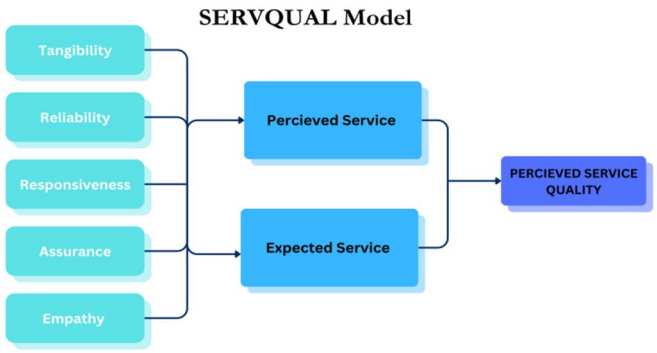


Fig. 1: SERVQUAL model framework

Adapted from the "SERVQUAL Model", by Şimşek (2017), the research study focused on modeling a service quality targeted for the satisfaction of customers and their behavioral intentions within the industry of aviation. The proposed model was adapted from an earlier study from 1988 by Parasuraman and others. In this model, the researchers have studied that customer intentions within aviation should be reliable; to provide accurate and dependable services, it should be tangible, making it representable by objects or employees; it should be responsive, meaning it is willing to assist in a fast and efficient service; it should have assurance, making it provide confidence to the customer; and lastly, it should be empathetic, making the firm's service ready and providing each customer with personal service.

Rady (2023) states that "passengers engage with airline chatbots, useful information about their preferences, actions, and worries is gathered. Airlines can use this information to make well-informed decisions." Sarol et al., (2023) then discuss that effective communication between a customer and business is crucial and that this applies to AI chatbots. Time spent by a passenger who interacts with a chatbot sees minimized interactions with an airline because of the practicality that supports the customers' needs.

With these in mind, the rapid growth and success of AI chatbots and how their integration into industries has seen tremendous gain; the introduction and acceptance of such technology is bringing a new competitive edge into the world and its leading industries. AI chatbots in the field of aviation are a revolutionizing step because they promise to enhance efficiency and customer satisfaction and create interest in tourism that can further grow the aviation industry in the right direction.

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C. Conceptual Framework

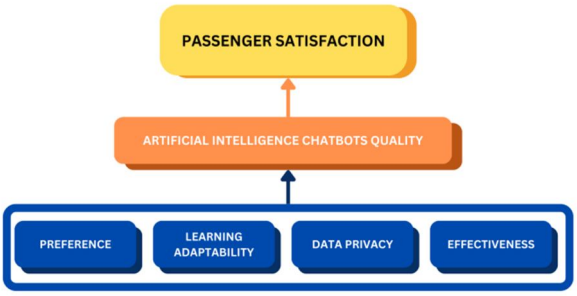


Fig. 2: Conceptual Framework of the Key Components in the Use of Artificial Intelligence Chatbots that Affect Passenger Satisfaction

The conceptual framework (figure 2) represents the relationship between artificial intelligence chatbot quality with passenger satisfaction, which is the main focus of the researcher's study. The artificial intelligence chatbot quality is the capabilities or attributes of the chatbots that passengers expect or influence satisfaction. The AI chatbot quality is composed of 4 components namely, preference, learning adaptability, data privacy, and effectiveness. Preference refers to the characteristics of chatbots that encompass convenience and flexibility that show a passenger's preference for using AI chatbots rather than communicating with human agents. Learning adaptability shows chatbots' ability to adapt and learn over time to respond to a wider variety of inquiries with more accurate responses. Data privacy is the capability of chatbots to effectively handle and protect the personal information that the passenger provides. Effectiveness shows the reliability of the chatbots, this component encompasses chatbots' credibility, accuracy, and transparency.

D. Statement of the Problem

This study aimed to determine the factors that affect customer satisfaction in using artificial intelligence chatbots in airline bookings and inquiries. With this, the researchers aim to answer the following questions:

1) What do passengers prefer in using AI Chatbots compared to human agents?
2) How can AI chatbots adapt their capabilities through error correction/machine learning?
3) How can artificial intelligence be utilized while protecting personal information and ensuring data privacy?
4) What does the level of effectiveness of chatbot responses have on passengers' trust and satisfaction?
5) Is there a significant relationship between passenger preference, adaption, data privacy, and effectiveness with the use of AI chatbots for flight booking and travel inquiries in terms of their:
    a. Age;
    b. Flight Frequency;
    c. Type of Airline; and
    d. Terminal Designation?
6) What strategies can be used to improve customer satisfaction in the use of AI chatbots while effectively targeting customer preferences and characteristics?

E. Hypothesis

There is no significant relationship between passenger preference, adaption, data privacy, and effectiveness with the use of AI chatbots for flight booking and travel inquiries in terms of their age, flight frequency, type of airline used, and terminal designation.

F. Significance of the Study

The existence of the study is relevant to the following:

1) *Passengers.* The study can show passengers how AI Chatbots would be utilized under their preferences. They will be able to understand how accustomed AI Chatbots would be to their liking.

2) *IT developers.* Developers can learn the ideas of how AI Chatbots must be accommodating to the users. This will help aid the compatibility of AI Chatbots being integrated into customer-related technologies.
3) *Airline Companies*. AI Chatbots can be beneficial to Airline Companies in terms of Marketing and Customer Service. They can gain customer loyalty and customer satisfaction by having inquiries and demands met by AI Chatbots.
4) *Academics and Researchers.* Future Academics can gain different information and insights from the study regarding AI Integration in Chatbots. This can show how AI Chatbots can affect Customer Service Satisfaction positively without human complexion.

II. METHODOLOGY

A. Research Design

This study used a descriptive analysis within a quantitative research approach to investigate passengers' preferences and satisfaction with AI chatbots for airline bookings and travel inquiries in NAIA Terminals 1, 2, 3, and 4. A sample of airline passengers who used AI chatbots for booking and inquiries was examined using a descriptive analysis approach. The sample was diversified in age, travel frequency, and technology familiarity to fully comprehend user experiences.

Questionnaires and surveys with interviews measured ease of use, accuracy, emotional intelligence, data privacy, error repair, and overall satisfaction. These data collection approaches were used to measure how different aspects affect passengers' AI chatbot satisfaction. Interviews were used for qualitative theme analysis of passengers' AI chatbot experiences. This method provided a deeper understanding of passengers' emotional and practical preferences for AI chatbots over humans. The interviews shed light on passengers' privacy, error correction, and chatbot assistance concerns, expectations, and satisfaction. By using a mixed-method approach, formal structured questionnaire surveys provided quantitative data while interviews provided qualitative insights. This complete strategy provided numerical satisfaction data and in-depth passenger experiences to thoroughly investigate the research topic. Isolating data from multiple sources using these procedures ensured the findings' reliability and validity.

Thematic analysis was utilized for data analysis. Researchers used thematic analysis to discover qualitative themes including privacy, ease of use, and customer support in the interview data. These themes illuminated the emotional and functional variables that affect passengers' AI chatbot trust and comfort.

B. Respondents

The target respondents for the study are general passengers varying from different age groups based on generational differences. The sampling method used for choosing the respondents is the Quota Sampling Method where respondents are divided into several targeted groups. The survey's purpose is to openly understand the preferences of passengers from different terminals, in terms of satisfaction with customer services and the effectiveness affected by AI Chatbots. This study seeks different views from the passengers on how AI Chatbots differ from Human Services.

To achieve the data needed, the researchers conducted an online survey sent to various passengers that ranged from experienced to none in terms of flying where a total count of 53 respondents was collected that reached the quota of 10 respondents per terminal resulting in a response rate of 46.67%. To compute the response rate, the researchers divided the responses by 100. The acceptable rate for an external survey is 10% to 15%. Therefore, the results of the survey were within the acceptable rate of 10%. The required respondents were determined using Slovin's formula (n = N/1+Ne2).

Table 1: Respondents Profile Frequency Table by Age

Age	Frequency	Percentage
12-27 years old (Gen Z)	33	62.3
28-43 years old (Millennial)	10	18.9
44-59 years old (Gen X)	8	15.1
60-78 years old (Baby Boomer)	2	3.8
Total	53	100%

Based on the age profile mentioned above, the categories are separated based on generational differences, where Ages 12-27 are Gen Z, 28-43 are Millennials, 44-59 are Gen X, and 60-78 are Baby Boomers. The largest concentration of the respondents was the Gen Z group, understanding their perspectives and feedback upon the survey can influence the outcome of the study.

Table 2: Respondents Profile Frequency Table by Type of Carrier

Carrier	Frequency	Percentage
Legacy	39	73.6
Low Cost	14	26.4
Total	53	100%

According to the table above, 37.7% of the respondents chose their preferred carriers as Low-Cost Carriers and 62.3 chose Legacy Carriers as their preferred carriers. The categories of carriers were based on the present airlines that use chatbots for their customer services. This variation of perspectives by the respondents can affect how AI chatbots are more frequently used and seen in the carriers.

Table 3: Respondents Profile Frequency Table by Flight Frequency

Carrier	Frequency	Percentage
Legacy	39	73.6
Low Cost	14	26.4
Total	53	100%

The table above shows that most of the respondents, 33 out of 53 are frequent flyers, where they fly 2 or more flights in 1 year and the remaining 20 were first time flyers or they have little to no experience in flying. This result can determine how the study can be relevant to those who seek proper services even if each passenger varies in experiences.

Table 4: Respondents Profile Frequency Table by Terminal Designation

Experience	Frequency	Percentage
Terminal 1	10	18.9
Terminal 2	11	20.8
Terminal 3	22	41.5
Terminal 4	10	18.9
Total	53	100

The values stated above in the table are the frequencies of the respondents regarding what Terminal they were designated with concerning their flight experiences. Most of the respondents were designated in Terminal 3, which correlates with the airlines that can be found in the stated Terminal. Results from these values can show where respondents can be mostly found that utilize the customer services of their chosen airline. The informants are composed of one Pilot, a Cybersecurity Personnel, and two Information Technologists. They rendered insights into the different aspects of what AI chatbots can affect in the aviation industry regarding passenger preference, capabilities, utilization, and effectiveness. The two Information Technologists emphasized the AI chatbot's ability to have convenient responses and efficiency toward users and also highlighted that the AI chatbot system must have rules, high security, human oversight, balanced functionality, and a diverse dataset to work as intended for a better-personalized experience. The pilot and cybersecurity personnel called attention to having proper restrictions and limitations on what AI chatbots can do, balanced human supervision and guided boundaries must be present since human empathy and mind can not be replaced.

C. Settings

This study aimed to identify factors that affect a passenger's satisfaction with customer service (booking/travel inquiries) in the use of AI chatbots. The survey was conducted at the busiest airport in the Philippines, which includes the use of chatbots for booking and inquiries. This setting was chosen because it is also the largest airport in the Philippines as well as it is the primary international gateway into the country. To conduct this study, the researchers have limited their scope to passengers who use either low-cost carriers or legacy carrier airlines that have their chatbot function and operate in the chosen setting of this study.

D. Instrument

To effectively and efficiently address the research question and objectives outlined in this study, the researchers have employed the following methods and instruments to be used for the data collection and analysis process: To ensure that the authenticity of the study was accurate, the researchers sought out the guidance of professionals with knowledge regarding the research topic. The recommendations and feedback from the validators have significantly aided and contributed to the credibility of the study. The validators' mentorship and wisdom significantly ensured the quality of the research, and their efforts were appreciated. For the researchers to gather accurate information and data, they formulated the questionnaire based on the statement of the problem that is related to the study.

This study used questionnaires that are used to survey the respondents in "Fulfilling Customer Contentment: The Impact of Passengers' Preferences and Characteristics on the Use of Chatbots for Booking and Inquiries." The questionnaire consisted of four questions that involved sub-questions, which total the whole questionnaire into twenty questions about AI and its relations to a passenger in terms of trust, data privacy, comparability to human agents, and adaptability in improvement. The respondents answered the provided questions using a four-point Likert scale: 4- Very useful, 3-useful with revisions, 2-change statement, and 1-remove statement.

Under the Data Privacy Act of 2012, the respondents' and validators' personal information will not be leaked, and that all was provided will remain confidential. Upon receiving the results from the validators, suggestions were made to revise all of the survey questions.

E. Data Analysis

The data analysis combined quantitative and qualitative methods to evaluate passengers' satisfaction and preferences regarding AI chatbots in the aviation industry. Frequency and Percentage were used to profile respondents by demographic characteristics, including age, travel frequency, airline type, and terminal designation. These metrics provided a clear snapshot of the sample's diversity and distribution, ensuring a representative group of participants. For instance, frequency allowed the researchers to count the number of respondents in each category, while percentage highlighted the proportional representation of these groups within the total sample. This approach made it possible to identify patterns and trends in passenger demographics, providing a strong foundation for understanding the varying perspectives of different respondent groups.

The study utilized a quota sampling method to ensure the inclusion of diverse respondent groups within the scope of the questionnaire. Using Slovin's Formula $n = \left(\frac{N}{1 + Ne^2}\right)$, the researchers calculated a target sample size of 400 respondents to achieve a certain confidence level, despite limited knowledge about the behavior of the target population. The response rate of 10% to 15% met acceptable survey standards, allowing for reliable and valid conclusions to be drawn from the collected data.

A Weighted Mean based on a Four-Likert scale (4 - Strongly Agree to 1 - Strongly Disagree) was calculated to measure central tendencies in responses, capturing the general level of agreement or disagreement with survey items. The ranking was employed to determine the highest and lowest mean values, identifying strengths such as chatbot accessibility and areas needing improvement, like concerns about data privacy.

ANOVA was applied to SOP 1 and SOP 4 to examine differences among groups, providing insights into variations in preferences and satisfaction based on demographic categories. Similarly, the T-Test was used for SOP 2 and SOP 3 to compare satisfaction levels between two distinct groups. For SOP 5, Spearman's Rank Correlation was employed to explore significant relationships between ranked variables, including preferences, adaptability, data privacy, and chatbot effectiveness.

The Thematic Analysis was used to delve deeper into the qualitative responses provided by informants. By systematically coding the data, the researchers identified recurring themes, including mixed trust levels, human supervision, and data privacy. Each theme was further analyzed to understand how passengers and informants perceive AI chatbots and the challenges they encounter. For example, "convenient responses" emerged from repeated references to the speed and availability of chatbots, which made it easier for users to resolve inquiries efficiently.

"Human influence" was linked to the importance of human oversight in training AI systems, ensuring adaptability and preventing errors by using diverse datasets. "Transparency" was emphasized through informants' suggestions to allow users control over their personal information, such as the ability to access, correct, and delete their data. This method ensured that the qualitative data matched the quantitative findings, providing more understanding of passenger satisfaction and the strategies needed to improve AI chatbots.

F. Ethical Consideration

In conducting this study, the researchers adhered to ethical guidelines during the survey and interview to guarantee respondents' rights and data privacy per Republic Act No. 10173, known as the Data Privacy Act of 2012. Consent was secured from the respondents before data collection, and access to the gathered data will be restricted solely to the research team conducting the study. The researchers were able to coordinate with one another within the group alongside the institution and its appropriate departments to comply with the necessary safety procedures and standards that the institution upholds. They appropriately acknowledged and cited the information, data, and sources that contributed to the development of this study. The researchers also employed plagiarism tools to ensure no instances of unintentional plagiarism in the study.

III. RESULTS AND ANALYSIS

A. The Preference Of Passengers Using AI Chatbots Compared To Human Agent

Table 5: The Preference of Passengers Using AI Chatbots Compared to Human Agents

Statement	Standard Deviation	Weighted Mean	Decision
Do you think Chatbots are allowed to have real-time updates on flight information and weather conditions?	0.68	3.25	Agree
Do you think Chatbots need to be designed to be user-friendly and accessible for people with little to no technical knowledge?	0.49	3.74	Strongly Agree
Do you think AI Chatbots are able to keep loyal customers more than Human Quality Services?	0.82	2.43	Disagree
Do you think that Search Results by AI Chatbots are more likely to be chosen rather than Human Experience Results?	0.84	2.43	Disagree
Do you think the products of airlines offered by AI Chatbots are more trustworthy than Human Offers?	0.88	2.34	Disagree
Composite Mean	0.74	2.84	Agree

Legend: 3.51 - 4.00 Strongly Agree; 2.51 - 3.50 Agree; 1.51 - 2.50 Disagree; 1.00 - 1.50 Definitely Strongly Disagree

The table above represents the results of the survey regarding the Statement of Problem 1: The preference of passengers using AI Chatbots compared to human agents, highlighting the passenger's preference in choosing and weighing between AI chatbots and human agents. Five questions were answered by a four-point Likert scale three among the five were "Disagree" and one among the five questions "Agree" and one among the five questions is "Strongly Agree."

The responses are categorized based on questions about real-time weather conditions, being user-friendly, customer loyalty, being more chosen by humans, and the trustworthiness of AI than humans can offer. The responses were associated with a standard deviation and weighted mean. The total standard deviation is 0.7406 and a total mean of 2.8377, which indicates a response of "Agree". The highest weighted mean is 3.7358, which is focused on the AI Chatbots should be user-friendly and more accessible to people with minimal to zero knowledge.

The weighted means per question aligns with the people's preference for using AI, which supports and connects with the study of Alla, Balouki & Moumoun (2024). The Use of Chatbots as Supportive Agents in Air Transportation Systems. From this study, it is mentioned that a chatbot can improve and engage consumer interactions instead of just waiting, the customers can get their needed information in real-time.

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B. AI Chatbots Adapting Their Capabilities Through Error Correction/Machine Learning

Table 6: AI Chatbots Improving and Refining Their Capabilities

Statement	Standard Deviation	Weighted Mean	Decision
Do you think an AI chatbot is going to experience less error if it was monitored by a human?	0.69	3.28	Agree
Do you think an AI chatbot with internet information will be the solution for factual errors?	0.81	2.81	Agree
Do you think if an AI chatbot typed and spoke in a more casual manner, it would solve the lack of life in its speech pattern?	0.83	2.96	Agree
Do you think the performance of AI chatbots would be more engaging if they were voiced or typed like a female human support agent?	0.91	2.72	Agree
Do you think if an AI chatbot can understand emotions, it will improve its capabilities?	0.90	2.91	Agree
Composite Mean	0.83	2.94	Agree

Legend: 3.51 - 4.00 Strongly Agree; 2.51 - 3.50 Agree; 1.51 - 2.50 Disagree; 1.00 - 1.50 Definitely Strongly Disagree

The table above showcases the results taken from the survey in light of Statement of Problem 2: 'How can AI chatbots adapt their capabilities through error correction/machine learning?' There were five questions made that used a Four-Likert Scale that has a rating of 4 as the highest and 1 as the lowest in value. With the highest in value being 'Definitely Will' and the lowest being 'Definitely Won't'. The results taken show that all five questions got the result of 'Probably Will' which is third in rank from the legend provided.

Each of the following statements has a standard deviation and a corresponding weighted mean that accompanies it, with a total composite mean of 0.828442 for the standard deviation and a total of 2.93586 for the weighted mean. This indicates that the majority of the decisions are within the range of 2.51-3.50, which is 'Agree'. Hereby displaying that there is a moderate amount of expectation towards AI and its capability to improve and refine itself. The notably highest weighted mean is connected to the statement, 'Do you think an AI chatbot is going to experience less error if it was monitored by a human?' This shows that there is a need for an overseeing authority or a person to monitor and secure every action an AI chatbot's output will be.

The study with the most weighted mean showcases the studies of Izadi & Forouzanfar (2024), which explored how the progress of chatbot technology would require the constant development of machine learning and error correction. With the aid of human intelligence and monitoring, it should speed the learning process and help in adjusting learning methods. The statement with the lowest weighted mean being aligned with the studies of Toader et al. (2020) shows that if AI were to be programmed to be more female-like via manipulation of gender, it would see moderate improvement in their capabilities.

To see the overall and efficient improvement of AI chatbots, there should be a significant reduction in chatbot mistakes. This can be achieved through more human-like communication between the user and the chatbot. If the chatbot were to simulate human-to-human conversation, it'd be more engaging and fulfill its role as customer service; this is recommended by the study of Siqueira et al. (2023).

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C. Artificial Intelligence Being Utilized While Protecting Personal Information And Ensuring Data Privacy

Table 7: Artificial Intelligence being utilized while protecting Personal Information and ensuring Data Privacy

Statement	Standard Deviation	Weighted Mean	Decision
Do you think that confidence in an AI provider influences a person's decision to use AI?	0.72	3.23	Agree
Do you think that avoiding misleading design practices improves the reliability of AI chatbots?	0.65	3.34	Agree
Do you think that the presence of clear legal frameworks on data usage and security is necessary for people to trust AI technologies?	0.50	3.57	Strongly Agree
Do you think that the ease of use of AI systems affects your decision to share personal information?	0.79	3.13	Agree
Do you think that the use of human intervention for data privacy affects a decision to share personal information?	0.62	3.26	Agree
Composite Mean	0.66	3.31	Agree

Legend: 3.51 - 4.00 Strongly Agree; 2.51 - 3.50 Agree; 1.51 - 2.50 Disagree; 1.00 - 1.50 Definitely Strongly Disagree

The table above explores passengers' preferences regarding AI chatbots in terms of privacy and data protection, highlighting how certain factors influence a passenger's likelihood of using AI in airline bookings and inquiries. This data aligns with findings from the literature on the importance of data privacy and trust in AI for enhancing customer satisfaction and loyalty in the aviation industry.

The responses are categorized based on questions about confidence in AI providers, clarity of legal frameworks, avoidance of misleading design, ease of use, and human intervention for data privacy. Each response has an associated standard deviation and weighted mean, with the overall mean of 3.30566 indicating a general response of "Agree," reflecting a moderate willingness to use AI when data privacy is sufficiently addressed. Notably, the highest weighted mean of 3.566 was assigned to the need for clear legal frameworks, showing that legal protections are a priority for passengers.

The weighted means suggest a positive trend: passengers are more willing to use AI chatbots if there are strong data privacy protections, which is echoed in studies by Afroogh et al. (2022) and Naga (2024) that emphasize ethical AI usage and trust. The lower weighted means, around 3.13-3.34, indicate areas where trust in AI is moderate, pointing to opportunities for improvement in AI reliability and transparency, aligning with studies by Chen (2023) and Balouki (2024) on the role of user-friendly and reliable chatbots.

Airlines should prioritize establishing clear legal frameworks and avoiding misleading design practices in their AI deployments, as these were found to be essential for users' trust. As recommended by Izadi (2024), integrating error correction and human-like interactions in chatbots will further boost passenger confidence, leading to enhanced customer satisfaction and loyalty. This emphasis on strong privacy and security standards will likely yield positive perceptions, increased usage, and greater operational efficiency.

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D. The Level Of Effectiveness Of Chatbot Responses Have On Passengers' Trust And Satisfaction

Table 8: The Level of Effectiveness of Chatbot Responses Have On Passengers' Trust and Satisfaction

Statement	Standard Deviation	Weighted Mean	Decision
Do you think chatbot services play a crucial role in fostering customer loyalty?	0.70	2.77	Agree
Do you think language preference has an impact on improving customer satisfaction?	0.61	3.47	Agree
Do you think a chatbot needs to provide hands-on responses, as opposed to traditional websites and applications, to meet client expectations?	0.56	3.38	Agree
Do you think a chatbot needs to understand emotions in order to increase the loyalty of its users?	0.96	2.92	Agree
Do you think booking a flight through a chatbot offers more efficiency compared to on-site booking?	0.87	2.68	Agree
Do you think that the customer's decision-making process depends on the chatbot and its emotional understanding of each other?	0.80	2.70	Agree
Composite Mean	0.75	2.99	Agree

Legend: 3.51 - 4.00 Strongly Agree; 2.51 - 3.50 Agree; 1.51 - 2.50 Disagree; 1.00 - 1.50 Definitely Strongly Disagree

The table above shows the results of the survey regarding the Statement of Problem 4: "What does the level of effectiveness of chatbot responses have on passengers' trust and satisfaction?". There were six questions made using the Four-Likert Scale and based on the legend provided, all of the six questions had a value of 3 which is "Agree". The data shows that the level of effectiveness of chatbots does affect the passenger's trust and satisfaction, which can be supported by one of the studies provided by Garcia, et. al (2024) where the results show that the use of airline chatbots as a communication tool, with their ability to automate, customize, comprehend, feel emotions, and make judgments, helps travelers fulfill their pre-flight background research and obtain other important information.

E. Significant Relationship Between Passenger'S Preference, Adaption, Data Privacy, Effectiveness With The Use Of AI Chatbots For Flight Booking And Travel Inquiries In Terms Of Their:

1) Age

Table 9: Relationship Between Preference, Adaption, Data Privacy, Effectiveness With The Use of AI Chatbots For Flight Booking and Travel Inquiries In Terms of Their Age

Statement	Group	Weighted Mean	Standard Deviation
Preference	Gen Z	2.81	0.05
	Millennial	2.82	0.05
	Gen X	3.20	0.06
	Baby Boomer	1.50	0.03
Adaptation	Gen Z	2.88	0.05
	Millennial	2.88	0.05

	Gen X	3.18	0.06
	Baby Boomer	3.10	0.06
Data Privacy	Gen Z	3.36	0.06
	Millennial	3.10	0.06
	Gen X	3.38	0.06
	Baby Boomer	3.20	0.06
Effectiveness	Gen Z	2.94	0.06
	Millennial	2.90	0.05
	Gen X	3.29	0.06
	Baby Boomer	3.00	0.06

Statement	F value	P value	Remarks
Preference	2.34	0.21	ACCEPT
Adaptation	1.64	0.39	ACCEPT
Data Privacy	1.23	0.52	ACCEPT
Effectiveness	2.49	0.15	ACCEPT

Legend: = or □ 0.05 REJECT; = or □ 0.01 REJECT; □ 0.05 ACCEPT

The table above shows various generational age groups' perceptions of multiple factors in chatbot interactions. The table indicates the relationship of four key factors: Preference, Adaptation, Data Privacy, and Effectiveness across four generational groups: Gen Z, Millennials, Gen X, and Baby Boomers. In the analysis of preference and adaptation, Gen X shows the highest weighted mean of 3.20 with a standard deviation of 0.06 for preference and a weighted mean of 3.18 with a standard deviation of 0.06 for adaptation. The data suggests that Gen X has the highest preference for chatbot interaction and exhibits better adaptation than other generational groups.

In terms of data privacy, all generational age groups show a high data privacy concern, indicating that data security is important regardless of age. Lastly, all generational age groups find AI chatbots effective, whereas Gen X has the highest weighted mean of 3.29 and standard deviation of 0.06.

The statistical analysis of the various key factors with the generational age group shows no significant relationship, with all p values above 0.05, indicating that the null hypothesis is accepted. This result suggests that all the generational age groups have almost similar views of AI chatbots, with only slight differences, indicating an area for better improvement. Developing an AI chatbot that is user-friendly and easily accessible regardless of age group is crucial for maintaining a satisfied passenger. Similarly to what Orden-Majia (2023) stated, a friendly design positively affects the user attitude and can drive travel intention. Also, one crucial key finding is the data privacy concerns of all age groups. Cheong (2024) mentioned that transparency requires continuous refinement. Addressing data privacy concerns will contribute to improving the satisfaction of passengers with the interaction of Artificial Intelligence.

2) Flight Frequency

Table 10: Relationship Between Preference, Adaption, Data Privacy, Effectiveness With The Use of AI Chatbots For Flight Booking and Travel Inquiries In Terms of Their Flight Frequency

Statement	Group		Weighted Mean	Standard Deviation
Preference	Flight Frequency	Frequent Flier	2.84	0.66
		First Time Flyer	2.84	0.86
Adaptation	Flight Frequency	Frequent Flier	2.95	0.70
		First Time Flyer	2.91	1.01
Data Privacy	Flight Frequency	Frequent Flier	3.23	0.63
		First Time Flyer	3.43	0.67
Effectiveness	Flight Frequency	Frequent Flier	2.93	0.67
		First Time Flyer	3.08	0.87

Statement	Group	T value	P value	Remarks
Preference	Frequent Flier	-0.04	0.57	ACCEPT
	First Time Flyer	-0.06	0.59	ACCEPT
Adaptation	Frequent Flier	0.19	0.71	ACCEPT
	First Time Flyer	0.18	0.72	ACCEPT
Data Privacy	Frequent Flier	-1.07	0.35	ACCEPT
	First Time Flyer	-1.09	0.36	ACCEPT
Effectiveness	Frequent Flier	-0.70	0.48	ACCEPT
	First Time Flyer	-0.65	0.51	ACCEPT

Legend: = or □ 0.05 REJECT; = or □ 0.01 REJECT; □ 0.05 ACCEPT

These tables highlight the correlation between passengers' flight frequency and four key factors: Preference, Adaptation, Data Privacy, and Effectiveness of AI Chatbots. The weighted mean of 2.83 and standard deviation of 0.66 and 0.86 indicate frequent and first-time fliers prefer AI chatbots for airline booking and inquiry. These indicate that they find chatbot interaction favorable regardless of the flight frequency. Regarding Adaptation, both categories can adapt to AI chatbots, with frequent flyers showing slightly higher adaptability compared to first-time flyers, with a weighted mean of 2.95 and a standard deviation of 0.70. First-time flyers show more concern about data privacy, with a weighted mean of 3.43 and a standard deviation of 0.57. Moreover, first-time flyers find chatbots more effective than frequent fliers, with a weighted mean of 3.08 and standard deviations of 0.87. These indicated frequent flyers have several opinions and questions about the effectiveness of chatbots.

Based on the result there is no significant relationship between frequent flyers and first-time flyers in terms of their preference, adaptation, data privacy concerns, and perceived effectiveness. All of the P values are above 0.05 indicating that it is matched with the null hypothesis. This highlights that AI chatbots are both accessible for frequent and first-time flyers having uniform use experience, this suggests that passenger interaction experience with chatbots meets their expectations regardless of how frequently they use it. This can be proved by the study of Chen et al. (2023) that had findings that an AI chatbot can affect a passenger's loyalty to an airline through service quality, trust, and satisfaction which can further reinforce loyalty through frequency.

3) Types Of Airlines

Table 11: Relationship Between Preference, Adaption, Data Privacy, Effectiveness With The Use of AI Chatbots For Flight Booking and Travel Inquiries In Terms of The Type of Carrier

Statement	Group		Weighted Mean	Standard Deviation
Preference	Type of Airline	Low Cost Carrier	2.84	0.73
		Legacy Carrier	2.84	0.78
Adaptation	Type of Airline	Low Cost Carrier	2.88	0.84
		Legacy Carrier	3.09	0.76
Data Privacy	Type of Airline	Low Cost Carrier	3.31	0.65
		Legacy Carrier	3.29	0.70
Effectiveness	Type of Airline	Low Cost Carrier	2.98	0.74
		Legacy Carrier	3.00	0.78

Statement	Group	T value	P value	Remarks
Preference	Low Cost Carrier	0.01	0.68	ACCEPT
	Legacy Carrier	-0.02	0.69	ACCEPT
Adaptation	Low Cost Carrier	-0.82	0.53	ACCEPT
	Legacy Carrier	-0.96	0.53	ACCEPT
Data Privacy	Low Cost Carrier	0.17	0.64	ACCEPT
	Legacy Carrier	0.16	0.65	ACCEPT
Effectiveness	Low Cost Carrier	-0.12	0.55	ACCEPT
	Legacy Carrier	-0.16	0.56	ACCEPT

Legend: = or □ 0.05 REJECT; = or □ 0.01 REJECT; □ 0.05 ACCEPT

To determine whether there is a correlation between passenger type or airline and crucial aspects of AI chatbots, The tables illustrate if different airlines offer passengers more effective AI chatbot services. The data show that both passengers have similar preferences for interacting with AI chatbots on two types of airlines, with a weighted mean of 2.84 and a standard deviation of 0.73 for low-cost carriers and 0.78 for legacy carriers. Passengers who utilize legacy airlines are marginally more adaptable to employing airline AI chatbots, with a weighted mean of 3.09 and a standard deviation of 0.76. Passengers are highly concerned about data privacy on both types of carriers, with a weighted mean of 3.31 for low-cost airlines and 3.29 for legacy carriers. Passengers rate chatbot effectiveness for bookings and inquiries for both low-cost and legacy carriers at a close weighted mean of 2.98 and 3.00, respectively. The analysis shows that there is no significant relationship between the type of carrier passengers use and the key factors of AI chatbots for bookings and inquiries. The data for both low-cost carriers and legacy carriers shows almost similar results, with slightly higher adaptability for passengers who use legacy carriers. This suggests that both carriers provide good-quality AI chatbots. According to the study of Arreza (2022), users who use airline chatbots can generally report a higher level of satisfaction and the service quality report would be more positive if the relationship between the quality and service is good. The drawings found from this study indicate that airline chatbots should enhance their services to provide a boost in customer satisfaction towards that type of airline.

4) Terminal Designation

Table 12: Relationship Between Preference, Adaption, Data Privacy, Effectiveness With The Use of AI Chatbots For Flight Booking and Travel Inquiries In Terms of Terminal Designation in NAIA

Statement	Group	Weighted Mean	Standard Deviation
Preference	Terminal 1	2.78	0.05
	Terminal 2	2.69	0.05
	Terminal 3	2.82	0.05
	Terminal 4	3.10	0.06
Adaptation	Terminal 1	2.80	0.05
	Terminal 2	3.22	0.06
	Terminal 3	2.85	0.05
	Terminal 4	2.96	0.06
Data Privacy	Terminal 1	3.24	0.06
	Terminal 2	3.35	0.06
	Terminal 3	3.39	0.06
	Terminal 4	3.14	0.06
Effectiveness	Terminal 1	2.85	0.05
	Terminal 2	3.18	0.06
	Terminal 3	2.91	0.05
	Terminal 4	3.08	0.06

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Statement	F value	P value	Remarks
Preference	1.28	0.40	ACCEPT
Adaptation	1.28	0.38	ACCEPT
Data Privacy	0.97	0.46	ACCEPT
Effectiveness	1.28	0.39	ACCEPT

Legend: = or □ 0.05 REJECT; = or □ 0.01 REJECT; □ 0.05 ACCEPT

This table shows the analysis of coloration between passengers designated NAIA terminals with the four key factors in using AI chatbots. The data shows no significant relationship with the selected terminal of the passenger with the key factors of AI chatbots; preference, adaptability, data privacy, and effectiveness. All of the data shows a P value of above 0.05. However, the concern for data privacy is still high regardless of the terminal designation with a weighted mean ranging from 3.14 - 3.24. As mentioned by Le & Rajah (2022), the quality of a chatbot's service when applied to an airline that was Air New Zealand did not see any substantial satisfaction increase. Alongside this, the respondents albeit generally being okay with the service quality were not thrilled with the lack of human-like qualities.

5) The Relationship Between Passengers' Preferences, Adaptation, Data Privacy, And Effectiveness In Using AI Chatbots For Flight Booking And Inquiries Impacts

Table 13: The relationship between passengers' preferences, adaptation, data privacy, and effectiveness in using AI chatbots for flight booking and inquiries impacts

Statement	**Significance**
Preference & Adaptation	0.000**
Preference & Effectiveness	0.037*
Adaptation & Data Privacy	0.001**
Adaptation & Effectiveness	0.000**
Data Privacy & Effectiveness	0.003**

Legend: * with significant relationship: ** with very significant relationship

The table above shows the relationship between passengers' preferences, adaptation, data privacy, and effectiveness in using AI chatbots for flight booking and inquiries impacts. As seen in the table, between preference and adaptation of passengers with AI chatbots interaction, the significance value is 0.000 indicating that there is a very significant relationship between the two factors. This suggests that passenger adaptability highly depends on the preference they have interacting with AI chatbots, when the chatbot's functionality and capability are aligned with the passenger preferences, they tend to adapt quickly to using it, this highlights the importance of flexibility of the AI chatbots to tailor itself for the preference of the passenger.

Aside from that, the effectiveness of AI chatbots has a significant relationship with passenger preferences having a significance value of 0.037. Passengers' preferences highly influence how effective the chatbots are in their perspective, this indicates that if passengers find the chatbots their liking, their perspective of chatbots answering their inquiries and guiding them in bookings is effective. In terms of passenger adaptation and data privacy concerns, the analysis shows that there is a significant relationship between adaptation and data privacy, having a significance value of 0.001. Passengers who are capable of adapting easily are more likely to trust the chatbot they are using. Contrary, Passengers who find difficulty in adapting to the chatbots will have higher concerns about data privacy such as personal information distribution.

In adaptation and effectiveness, it has a significance level of 0.000 indicating that it has a very high significant relationship. This means that the ability of the passengers to adapt to the chatbot system is tied to how they perceive the effectiveness of the chatbot. Passengers who are capable of adapting quickly to the use of chatbots find the chatbot more effective.
Lastly, the effectiveness of chatbots has a very significant relationship with data privacy having a significance level value of 0.003. This indicates that passengers' perception of data privacy highly influences the perception of the chatbot's effectiveness. Passengers would likely trust the chatbot's capability of securing their personal information if they find the chatbot effective.

6) Strategies That Can Be Used In Improving Customer Satisfaction In The Use Of AI Chatbots Targeting Customer Preferences And Characteristics

Table 14: Strategies that can be used in improving customer satisfaction with the use of AI chatbots targeting customer preferences and characteristics

Master Theme	Superordinate Theme
Reasons for a mixed trust level despite satisfaction in AI Chatbots against a human agent, and the strategies needed to better improve its level of trustworthiness.	Convenient Responses
	Human Influence
Ways that human supervision and independent learning ability should be balanced, and the steps that should be taken to reduce any misunderstanding between AI chatbots and humans.	Restrictions
	Diverse dataset
Specific actions that AI systems should implement to build passenger trust in data privacy and security, with a focus on establishing clear legal guidelines, ensuring transparent design, and incorporating human oversight.	Transparency
	Security Standards
	Human Oversight
Features that chabots should have that would greatly impact their appeal to the user's emotions and if having language options in using AI chatbots can enhance passenger's trust and satisfaction.	Personalized Experience
	Language Barrier
Different passenger preferences, adaptability, data privacy concerns, and chatbot effectiveness that can guide the development in the AI chatbots?	Balanced Functionality

Master Theme 1: Reasons for a mixed trust level despite satisfaction in AI Chatbots against a human agent, and the strategies needed to better improve its level of trustworthiness.
Superordinate Theme 1.1: Convenient Responses
Informant 2: "...The speed and convenience of AI…"
Informant 3: "Response speed and availability are one of the capabilities that chatbot offers best..."

Convenient Responses by AI Chatbots have good value to its users, this simply makes it easier for users to follow up on their inquiries or any other needs. As the informants stated, AI chatbot response speed and convenience in ways such as being available and efficiency of responses are found to be great when mixed with human agents, raising higher trust level and user satisfaction. This connects to the related literature by Amani and Jandaghi (2020) instead of waiting on hold in agencies or on the phone, customers can get answers to their questions in real-time with the mix of convenience and human interaction.

Superordinate Theme 1.2: Human Influence
Informant 2: “Many people prefer a mix of AI and human help.”
Informant 3: “...Provide user friendly error messages…”
Informant 4: “...Train your AI using wide range of database.”

Human influence is something that will set the AI Chatbot to aim to achieve its purpose, in AI systems, influence of Humans is always present. AI Chatbots cannot start without the work of a human, its system relies solely on human knowledge and doings. Statements made by the informants are focused on what humans can do that are based on how AI Chatbots would work, there is always a human presence, and machine learning is a good example of this. Data from humans are used by AI, these are specific training made for AI to utilize into their own learning and use it for however or whatever its purpose is. Human influence can relate to the study by Soori, Arezoo, and Dastres (2023) that states that AI can work alongside humans with their knowledge and adapt to changing environments and tasks based on using ranges of databases.

Master Theme 2: Ways that human supervision and independent learning ability should be balanced, and the steps that should be taken to reduce any misunderstanding between AI chatbots and humans.
Superordinate Theme 2.1: Restrictions
Informant 1: “Independent learning ability by imposing restrictions and limitations.”
Informant 2: “...set some rules, and keep an eye on it...”

Setting restrictions or a limitation to what an AI chatbot should be capable of accomplishing when given a task should be imposed to prevent any unwanted inputs that are unwanted, whether harmful or offensive in nature. The informants that have answered the researchers’ query in regards to the supervision of an AI chatbot and the balance of human involvement showed that three of the four informants queried gave a response that could all be linked towards the restriction of certain actions an AI chatbot should be able to perform regardless of its independence from human supervision. To understand this further, this can be connected to the related literature of Izadi and Forouzanfar (2024) in which the study discussed that to address any chatbot's flaws through a multi-pronged development with this in mind, the developers must prioritize setting restrictions in the chatbot’s limitations and being proactive in the addressing of errors to ensure a valuable user experience.
Superordinate Theme 2.2: Diverse dataset
Informant 2: “...we should train the AI on a diverse dataset”
Informant 3: “...chatbot to human…”
Informant 4: “...feed as much data to your AI.”

The development of AI chatbots requires a level of expertise above the average, one must be capable of implementing machine learning algorithms so that the AI chatbot will have a diverse dataset, however should remain unbiased and monitored to mitigate any false or unhelpful feedback. Based on the study of Abdellatif et al. (2020), the challenge in a chatbot’s development is the performance of the tasks given rather than the development itself, with the majority of developers utilizing a Stack Overflow to solve this challenge; by providing their AI chatbots with a leverage to understand topics hence diversifying its dataset.

Master Theme 3: Specific actions that AI systems should implement to build passenger trust in data privacy and security, with a focus on establishing clear legal guidelines, ensuring transparent design, and incorporating human oversight. Most chatbot developers prefer to build their AI chatbots from a certain topic so that they can integrate them into a certain field and diversify from there, similar to a tree’s roots spreading deeper into the soil.
Superordinate Theme 3.1: Transparency
Informant 2: “Let the users have control over their data by allowing them to access, correct, and delete their information”
Informant 3: “...how the data will be used… Ability for users to view what data the provider collected…”
Transparency builds passenger trust by ensuring passengers understand how their data is collected, used, and protected. Informants emphasized the importance of clear explanations and user control over personal data, such as allowing access, corrections, and deletions. This ensures passengers feel empowered and reduces mistrust in AI systems. This theme is relevant to studies in the RRL, such as Afroogh et al. (2022) and Naga (2024), which highlight that clarity and openness encourage passengers to engage more confidently with AI systems, especially when privacy concerns are addressed through transparent practices.

Superordinate Theme 3.2: Security Standards
Informant 1: "...by imposing limitations and restrictions."
Informant 3: "...ISO certification may help too."
Informant 4: "Follow and get ISO certified."

Implementing strong security standards, such as obtaining ISO certifications and imposing strict data limitations, reassures passengers that their personal information is safe. Informants highlighted the need for compliance with global security protocols and transparent restrictions on data handling. This theme connects to studies in the RRL, including Chen (2023) and Balouki (2024), which stress the importance of robust data protection measures in establishing trust. Passengers are more likely to use AI systems when they see evidence of strong security practices, reducing concerns about breaches or misuse.

Superordinate Theme 3.3: Human Oversight
Informant 1: "We can balance human supervision in AI chatbots and their independent learning ability…"
Informant 2: "Humans can teach the AI the ropes, set some rules, and keep an eye on it..."
Informant 3: "Escalation from chatbot to human may play an important part."
Human oversight ensures a balance between AI efficiency and the empathy provided by human agents. Informants suggested integrating escalation systems and human monitoring to address complex issues and minimize chatbot errors. This is supported by the RRL findings, particularly Izadi (2024) and Balouki (2024), which emphasize that human involvement bridges gaps in AI functionality and builds trust. By combining AI speed with human understanding, passengers experience a system that is both reliable and empathetic, leading to higher satisfaction levels.

Master Theme 4: Features that chatbots should have that would greatly impact their appeal to the user's emotions and if having language options in using AI chatbots can enhance passenger's trust and satisfaction.
Superordinate Theme 4.1: Personalized Experience
Informant 3: "...Understand and remember the context or nature of conversation…"

Informant 4: "Add AI voice that could project different tones showing emotions such as empathy, relief, happy, etc."
The superordinate theme is derived from the similarities between Informant 3 and Informant 4. Features in AI chatbots that can ensure a more personalized experience can help with its efficiency towards its users. The informants suggest that features that appeal to emotions and empathy as well as understanding the nature of the interaction can increase the user's personalized experience. This supports a study by Ltifi (2023) that discusses that an emotional connection between the user and their experience with a chatbot can lead to a positive experience which can help the AI chatbot address the user's concerns better.

Superordinate Theme 4.2: Language Barrier
Informant 2: "...Yes. Having language options can make it more appealing to the users."
Informant 3: "Address the user with their name, a local language and not robot type of response…"
Informant 4: "...Absolutely! Language is the number 1 barrier for customer service, eliminating this problem could result in a higher efficacy rate."

The last superordinate theme for the fourth question of the interview is derived from the similarities among the informants. They agree that the language barrier is indeed a huge factor that affects the user's experience. A user can have a negative experience with a chatbot if the language used cannot be easily understood by the user. This supports a study done by Chaves, et. al (2021) wherein the results of their study showed that language characteristics are strong predictors of the user's preferences.

Master theme 5: The passenger preference, adaptability, data privacy concerns, and chatbot effectiveness can guide the development of the AI chatbots.
Superordinate Theme 5.1: Balanced Functionality
Informant 4: "...Combining the right amount of these elements provides both highly functional and trusted interactions."
The Balanced functionality emphasizes the importance of a balanced integration of passenger preference, adaptability, data privacy concerns, and chatbot effectiveness in the development of effective AI chatbots in delivering satisfaction and trust to customers.

This subordinate theme discusses a balanced functionality that meets the needs of passengers and is capable of adapting to different preferences and characteristics while ensuring the security of their data privacy and providing technical effectiveness in providing responses and information. The informants highlight the balancing of these elements to provide highly functional and trusting interactions between passengers and AI chatbots. This supports a study done by Bhavsar (2024) wherein AI technologies are continuously revolutionizing data security since they continue to learn and adapt which allows them to provide the appropriate response.

IV. DISCUSSION

A. *Conclusions*

After a thorough analysis of the data, the study highlights the following key findings:

1) Findings that came from the Results and Analysis show that there is a mixed response regarding the preference of passengers in using AI Chatbots in comparison to human agents. Based on the results, chatbots are to be given access to flight information and weather conditions as part of a source of information for their database. Results state that the Chatbots must also be designed to be accessible to people with little technical knowledge. With that agreed, preference by the passengers states that the Chatbots will not suffice in keeping loyal customers more than human services, responses by human experience are more to be chosen, and that human products offered are more trustworthy than relying on AI Chatbots. These results indicate that passenger preferences are more likely to choose human agents in terms of trust and quality.

2) From the gathered results and analysis, the researchers can conclude that an AI chatbot's capabilities can be improved and enhanced to adapt itself to any given situation through the usage of error correction/machine learning. This can be achieved if the AI chatbot were to be monitored and logged, with a restriction set upon its possibilities to ensure that there is still a connection between human and machine and to detect any pattern of errors or misinterpretation. A diverse dataset and the deployment of updates and self-improvement through the users' interactions can aid in new models due to the appropriate training and errors that were correctedduringn an AI chatbot's lifetime. Once the AI chatbot has achieved its diverse set of data to understand contextual awareness and how to handle it, it could be left alone to act as an independent entity. Only to be once more watched over by its developers should there be any error reports and manual updates to be given out.

3) Based on the results and analysis, specifically for statement problem no. 3, it is evident that data privacy and security play a significant role in passengers' trust and satisfaction when using AI chatbots for airline bookings and inquiries. Passengers value clear legal frameworks, ethical AI design, and transparent communication about data usage. They also appreciate having control over their personal information, which fosters trust and reduces concerns about privacy violations. The study highlights the importance of adhering to global security standards, such as ISO certifications, to reassure passengers of strong data protection. Additionally, incorporating human oversight enhances chatbot reliability, particularly in sensitive or complex scenarios, bridging the gap between AI efficiency and human empathy. These elements collectively contribute to passengers' confidence in utilizing AI chatbots for seamless and secure interactions.

4) From the study's results and analysis, the researchers concluded that a user can have a more positive experience with using a chatbot if it has more personalized features that appeal to their emotions. Features that help with the language barrier can also improve a user's experience as it can help them understand the conversation between them and the chatbot better. These features should further prove AI chatbots as a source of support for a source of information rather than replacing human interaction altogether. Empathizing and understanding the nature of the conversation can help establish a better connection between the user and the AI chatbot which then can further aid the user in addressing their concerns to have a more desirable outcome.

5) The result of the analysis of the gathered data has shown no significant relationship between passenger age, flight frequency, type of airline used, and terminal designation with the four key factors of AI chatbot interaction: preference, adaptation, data privacy, and effectiveness. However, the study highlights the importance of user-friendly chatbots and an essential focus on securing personal information. As a result, it showed a deep concern for data privacy regardless of passengers' age, flight frequency, type of airline used, and terminal designation. The study also shows an interconnected relationship between the four key factors of AI chatbot interaction. Passenger preference contributes to the ability to adapt to chatbots. Passengers' adaptation to AI chatbot functions and characteristics leads to better trust and understanding of how chatbots use and distribute their personal information. Having trust and adaptation to the chatbot's function and characteristics influences the perception of the passengers on the effectiveness of the chatbot.

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6) Based on the gathered results and analysis, the researchers concluded that convenient responses by AI have a good value to its users. It makes the inquiries easier. AI Chatbots' response speed and convenience are concluded to be best when mixed with human agents. This raises the trust level of users in AI Chatbots and their satisfaction. Human influence is also a major factor in one of the strategies to improve customer satisfaction. The chatbots rely solely on human knowledge. Hence, AI chatbots still use data from humans, but the AI can still be independent and perform without human supervision. Transparency with AI chatbots and the users can build trust, for as long as the passengers or the users understand how their data is being collected, used, stored, and protected. The researchers concluded that the language barrier is a huge factor in the user's experience. Based on the answers of the informants, the users will have a negative experience if the language cannot be understood easily by the users.

B. Recommandation

Based on the conclusions, the researchers recommend the following:

1) Findings state that passenger preferences are more likely to be focused on actual human performances rather than choosing products offered by AI Chatbots. This can vary from the preferences in terms of loyalty, quality, and trustworthiness of human interactions rather than AI Chatbots. To handle this, the researchers recommend IT Developers that implement AI Chatbots to create a human-AI tandem that can result in better preferences in regards to being better than AI Chatbots acting by themselves. Developing AI Chatbots with Human Influence can further improve the quality of the results provided for passengers since it will be more human-like and this can result in passenger satisfaction and in choosing AI Chatbots, not just human results. This shows that Human Services are more likely to be chosen as it relates more to the users and that experiences and emotions by humans are more reliable than AI Chatbots. This can also be resolved by mixing Human Services from Airline Companies to AI Chatbots, further expanding its database to result in better and preferred responses.
2) The results show that a majority of active AI chatbot developers utilize machine learning and error correction alongside the integration of stack overflow, which allows the AI chatbot to access information on almost everything from its basic needs to advanced topics. Provided an AI is given time to cultivate and absorb this knowledge and diversify its dataset with proper guidance from its developers and feedback from users, then AI chatbots will be able to adapt their capabilities. The researchers recommend that the technology of AI chatbots used in Airline companies should explore beyond the adaptability of error correction and evolve its intelligence to examine a more meta-learning approach alongside personalization which can better cater to the passenger's liking. Given a technique known as MAML, or model-agnostic meta-learning, otherwise defined as 'learning to learn' will give AI a more collective learning process; alongside this, a more personalized chatbot is crucial in effective communication to avoid any generic and tasteless user-machine interaction. With a more tailored communication style, content tailored to the user's preference will give an AI an edge in analyzing the ongoing trend, conversational history understanding, and contextual understanding it needs to provide the appropriate answers the user would need, especially in a field such as the aviation industry.
3) Airline companies should prioritize the development of comprehensive data privacy policies and transparent practices for managing personal information. This includes creating user-accessible controls, adopting global security standards such as ISO certifications, and ensuring compliance with legal frameworks to build passenger trust. Human oversight should be integrated into chatbot operations to handle sensitive issues and bridge the gap between AI efficiency and human empathy. Regular feedback collection and system updates must be conducted to adapt to evolving privacy and functional concerns. These measures can enhance passengers' satisfaction and loyalty, providing practical insights for developers, airline companies, and future academics and researchers. IT developers can use this study to design more secure and human-centered chatbots, while airlines can build customer trust and operational efficiency. Academics and researchers can expand on these findings to further explore AI integration and its role in improving customer experiences in aviation.
4) The results show that a major problem with AI chatbots is the language barrier between the user and the chatbot. To increase the efficiency rate which can lead to a positive experience, the researchers recommend that airline companies should implement features that can address the language barrier problem where there are multiple language options that a user can choose from for the conversation between the chatbot and the user to be easily understood. The results also show that a more personalized experience can increase customer loyalty. Therefore the researchers recommend that airlines should also encode features that can appeal to and empathize with the user's emotions. Specifically, these personalized features should show that the tone of the chatbot's response is more humane rather than robotic, however, still serves its purpose as a supporting source of information and does not replace human interaction.

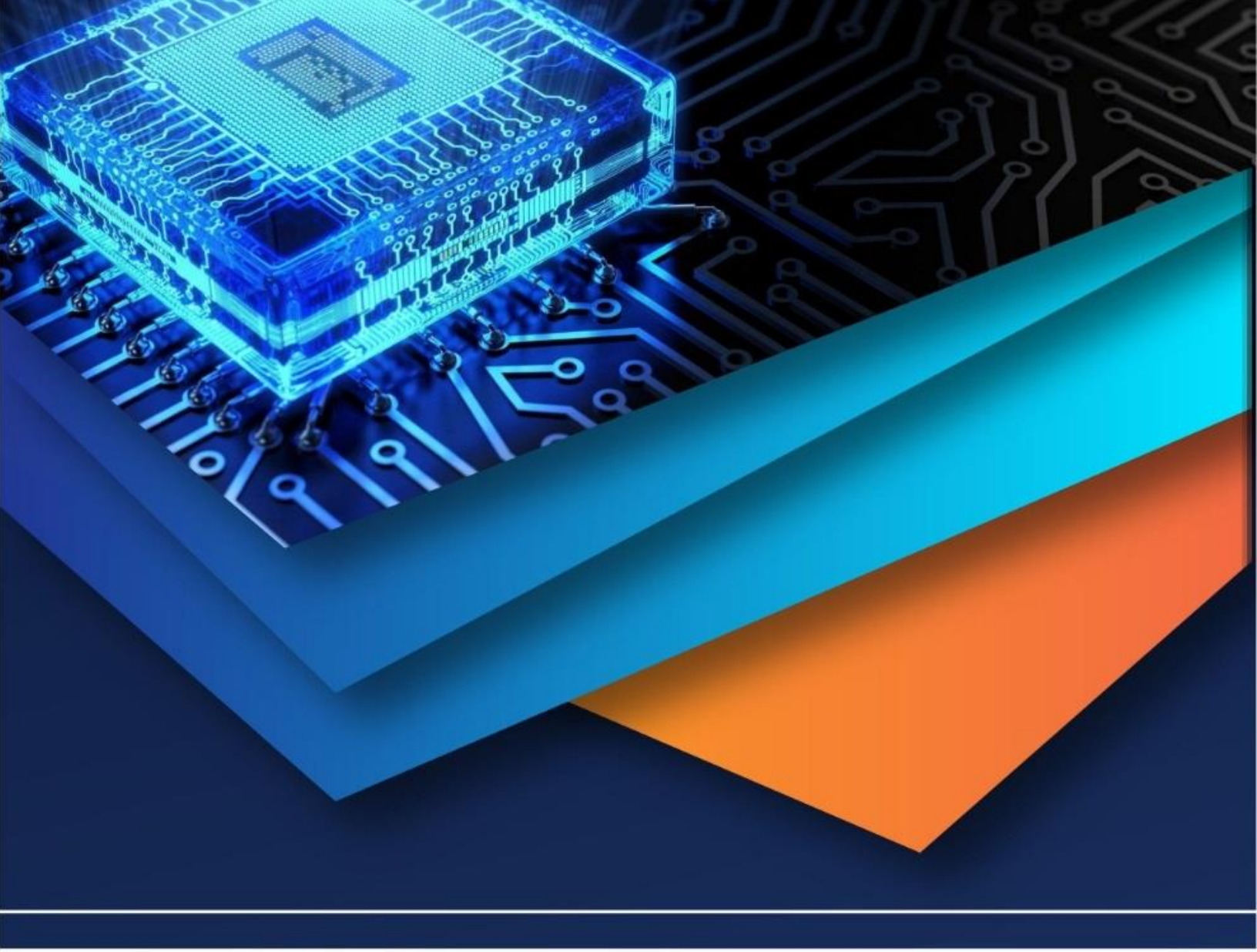
5) With the result of the analysis of data and information from the informants, IT developers should build a user-friendly interface that can suit the different preferences and characteristics of the passengers. They should also use the four factors in Passenger and AI interaction: preferences, adaptation, data privacy, and effectiveness perception as a guideline for creating Artificial Intelligence chatbots that give the passengers high satisfaction and complete trust. Developing an AI chatbot surrounding these four factors will help in understanding and aligning passenger demands and needs in AI chatbot functions that will help them adapt without any deep technical skills; this adaptation will help passengers have the confidence in trusting the data privacy security of the chatbots system boosting their perception of the effectiveness of the chatbot. Aside from this, Airline companies should include a Feedback system where, at the end of the interaction, AI chatbots have the functionality to collect feedback from the passengers. Airlines could offer an interactive tutorial or customization of chatbots for passengers, allowing them to adapt more quickly and easily.

6) The results show many different strategies that can be used to improve customer satisfaction with different master themes and subordinates. Based on the results and conclusions, AI chatbots cannot be independent at all times and they will need human agents on the side and human supervision even if restrictions have been placed. The trust and the preference of the users are still inclined with the help of humans while integrated with the chatbots and for it to handle, the researchers recommend IT Developers that implementing AI chatbots should have parameters and use the strategies that can improve the customer experience and satisfaction. AI Chatbots incorporated with convenient responses with speed and comfort can be used as a foundation to satisfy the preferences of the users since the purpose is being served. Human influence is a large parameter, to begin with, due to its process of incorporating actual humans into the AI chatbots, affecting the restrictions set by the humans themselves to make the chatbot as independent as it can be. Having a diverse dataset can make the AI chatbot more efficient due to its wide range of data that can be analyzed and attended to. Aside from the preferences of users and the trainability of the AI, language will be a barrier to the success of these chatbots. All of the informants agreed that the language is a barrier and a hindrance in terms of customer service. This can be resolved with the help of the passengers and human services from the airline companies, being assisted by academics and research.

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