

# The Air Travelers' Experiences and Attitudes toward Chatbots: A Qualitative Analysis of a Technological Innovation

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**Abstract:- The Airline Industry is challenged to adopt a new technological innovation to deliver products and services and skillfully manage digital innovation to improve direct channel functions. One is the use of a chatbot for customer services. However, its modernity leads to difficulty in assessing its effectiveness. Thus, this study investigated whether the chatbots in the Airline Industry acknowledge the travelers' actual needs based on the Filipino air travelers' experiences. Based on the results, the chatbots were not that well-used because they cannot yet handle transaction complexity. Nevertheless, as they are still developing, the chatbots' features and capabilities will still be improved over time since they are continuously learning to handle complicated tasks and inquiries from air travelers. Therefore, airline companies should improve their features and capabilities to improve the air travelers' experience in accomplishing travel-related transactions.**

**Keywords:-** Organizational business model, technological innovation, chatbot experience, chatbots in the Airline Industry, UTAUT2.

## I. INTRODUCTION

The era of complex automation is still only about to commence. This era will technologically transform us and lead to revolutionary adjustments in communication, transportation, health care, education, industry, and even fundamental research [1]. Inventions like smartphones, apps, virtual face-to-face conversations, and the rise of Facebook, Amazon, Apple, Netflix, and Google added much speed to this development [2]. Machine language translation is also now expected to close the language barrier finally. In business, automated secretaries, salespeople, waiters, customer support personnel, and others will execute the work and tasks, leading to cost savings, efficiency gains, and improved customer experiences [1]. Adapting to the new business model and the technological phenomenon has become a challenge for the Aviation Industry to deliver products and services. Another challenge is to enhance one's skills in managing technological innovation and improving direct channel duties such as sales, marketing, cross-selling, and others [3] to cater to the needs of the new generation of travelers, that is, automation.

In addition, the shift to the digital domain due to the pandemic [4] drives people and organizations to plan and present interventions and innovations that may help all of us. Some of these interventions may be delivered via chatbots, including information dissemination, symptom monitoring, mental health support, and others [5]. Chatbots, or conversational agent (CA), is an Artificial Intelligence (AI) system that provides intelligent and human-like conversations by recognizing voice prompts, text messages, or both [6]. Regarding information dissemination, chatbots are identified as essential conversation agents to update us on the latest travel advisories and procedures [7]. These examples are Charlie (Cebu Pacific) and AVA (AirAsia), responsible for disseminating the airline's latest advisories, such as new contactless flight guidelines.

These trends have encouraged more customer interactions and participation using social networking platforms [8]; thus, customer support services are highly in demand. Its use is essential in the said industry where customer services are much needed, like bookings, canceled flights, baggage fees, delays, package offers, and many other concerns. With this, chatbots can help travelers manage their experiences most easily as possible [9]. There is no doubt that chatbots are an essential tool for the Aviation Industry within the realm of Artificial Intelligence (AI) for accommodating customer offers. However, because of the modern chatbot technology, many opportunities have been missed during business-to-customer interactions [10]. The customers' complaints include the chatbots' difficulty with complex requests, inability to deliver personalized offers, and lack human characteristics [8][11]. These led to the generation of feelings of frustration, anxiety, and chaos, which resulted in customer dissatisfaction leading to varied coping strategies like avoidance [12].

Nevertheless, the difficulty in processing complex requests was argued by Nili, Barros, and Tate [13], who stated that public sector agencies have already been using chatbots in handling complex inquiries from citizens concerning services. This contradictory nature of the travelers' chatbot-related experiences may lead to difficulty measuring its effectiveness. Thus, it is essential to measure its effectiveness and understand the chatbot experience from the travelers' points of view, particularly on the user's experiences that impact the intention to use and accept chatbots.

Thus, this study's role is to investigate whether the chatbots implemented in the Aviation Industry acknowledge the travelers' actual needs and wants to be based on their experiences. This study also needs to investigate whether the chatbot performance is aligned with the airlines' goals of its implementation and the air travelers' actual experiences.

## II. RELATED STUDIES

It is expected that the new generation of travelers prefer immediate responses in whatever interactions they will have with service providers, significantly since mobility and individuals' need for traveling have increased recently, and travelers usually choose more efficient ways of traveling [14]. These new characteristics [15][16] and the changing behaviors [17][18] of modern travelers are also determined by the evolution of technology and the rise of the internet and social media concerning information search and travel planning.

Concerning the information and communication qualities of technology, the primary intention of a chatbot system is to carry a natural language conversation with a person interacting with it. Thus, it should be properly assessed because, with humans, a conversation is one of the most personal forms of interpersonal communication since it reinforces the transfer of information and knowledge from one human to another. However, contradicting chatbot-related experiences were heard from previous studies despite the dramatic improvements in these intelligent conversational agents over the last few years. The contradicting experiences may be because chatbots to date are already expected to deliver both the pre-defined answers to pre-defined questions and answers to items that are not pre-defined and pre-programmed, as these are natural in human-human conversations. Therefore, the problem lies in whether the airline companies' chatbots represent this type of chatbot since they attend to customers' needs regarding booking and reservation and answer open-ended inquiries. For instance, flight package offers, promos, baggage concerns, flight delays, and others.

Nevertheless, some scientifically acceptable theories or general principles were formulated to explain, predict, and understand a phenomenon, like the use of chatbots. One of these theories is the Unified Theory of Acceptance and Use of Technology 2 (UTAUT 2), which is relevant to individual consumers [19]. UTAUT 2 posits that performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit impact behavioral intention to use technology, while behavioral intention, facilitating conditions, and habit impact the use behavior [19][20][21]. However, two other constructs were identified to influence the technology acceptance process: personal innovativeness [22] and trust [19]. These directly impact consumers' intention to adopt services and confirm the strong positive relationship toward adoption intention [23]; thus, they were added to the study. Moreover, user experience and adoption/non-adoption classification are believed to be

moderating factors between some variables, including the intention to use technology and one's use behavior.

## III. METHODOLOGY

### A. Research Participants

This study was conducted on twenty-three (23) Filipino participants (interviewees) who confirmed their participation in the interview to gather qualitative data. These include two airline customer service representatives, two chatbot developers, and one airline's ICT Head for Philippines operations. All participants were those who traveled by air already, either once or more, as it is expected that there is a more significant occurrence that one will make travel-related inquiries using a chatbot, may it be before, during, or after the flight. Based on the qualifying procedure, seven (7) were identified as adopters, while fifteen (15) were identified as non-adopters of chatbots, except the airline's ICT Head. Conducting interviews with all the possible stakeholders is essential to strengthen the findings and achieve a holistic interpretation of the results.

### B. Research Design and Data Collection

This study operationalized the investigation of travelers' acceptance and use of chatbots through the Qualitative Method, particularly Content Analysis.

Concerning the sampling method, the interview participants were pulled out from the authors' previous quantitative research investigating the factors of the adoption and non-adoption of chatbots for air travel transactions. The previous research had gathered some Filipino air travelers despite conducting it during pandemic lockdowns. However, only those who responded to the call and confirmed to be interviewed were included as the final participants in this current study.

The participants were then divided into two groups: a) the chatbot adopters and b) the chatbot non-adopters based on the qualifying question. A participant is classified as an "adopter" if he/she confirms that he/she has heard about chatbots already, has tried using them for air travel transactions, and is currently using them. On the other hand, a participant is classified as a "non-adopter" if he/she confirms that he/she has:

- not heard about chatbots before the survey and did not know that they exist,
- heard about them but has not tried using them, or
- heard and tried it but not currently using it because of prior experience or do not feel the use of it despite knowing there is an option to avail it.

The classification was intended to sort out and group the information that was gathered from each of them.

Aside from the group of air travelers, an airline IT Head was requested to participate in the interview regarding the implementation of chatbots. The chatbot developers were already interviewed regarding the specifications of chatbot development. All the interviewees were identified upon confirmation of participation, and the interviews commenced after the consent was secured.

### C. *Qualitative Content Analysis*

The qualitative methodology addresses investigations of meaning, interpretation, and socially constructed realities. A qualitative inquiry is also adopted to identify salient points [24] of the participants' views and experiences with technology.

In this study, Qualitative Content Analysis (QCA) was conducted on the interview transcripts as a way of systematic coding, categorizing, and exploring an enormous number of written texts in identifying patterns of words used and their frequency, even the structures of communication [25]. The content analysis was done in a "deductive" manner, which is used for data-driven approaches rather than concept-driven ones. In scientific logic, this means that the categorization was based on the research conditions, a theory, or a hypothesis and that the deductive conclusion is the premises' logical repercussion [26]. In QCA, the decisive action is data coding. A defined part of the transcript or article is selected in the study, and a category is assigned.

Concerning the evaluation of the aspects of validity in content analysis, qualitative criteria are used [27]. The commonly used criterion for evaluating qualitative content analysis is trustworthiness, which Lincoln and Guba [28] develop. It supports the claim that the inquiry's findings are essential and valuable [27][28]. The quality criteria for examining the qualitative research's trustworthiness include credibility, dependability, conformability, and transferability [28][29]. These were complied with by:

- choosing the participants based on the participant descriptions and presenting to them information about the study, consent form, and the interview protocol,
- using a codebook in coding the meaning units,
- counterchecking the codes in the documents, and
- generalizing the findings by applying them to other situations, groups, or settings.

## IV. RESULTS AND DISCUSSIONS

As a result of the qualitative content analysis, the following are the responses of the participants, which are primarily based on the UTAUT 2 constructs that serve as categories:

### A. *Performance Expectancy (PE)*

The study explains the future adoption intention of the chatbot [30] that these users engage in chatbots only when these chatbots can successfully perform their tasks. This means that the more the chatbot's performance meets user needs, the higher the adoption of chatbots [30]. On this note, this study's qualitative results and findings are intended to validate these statements; however, the results are primarily based on their experiences, particularly the adopters.

In the study, both the adopters and non-adopters (the travelers) confirmed that the chatbots they were using were a big help for them. They also confirmed that they could do check-ins and add-ons and buy tickets online, aside from being a source of flight and booking information compared

to a phone call. According to them, these chatbots are developed and implemented to cater to customers' inquiries 24/7; customers outside the time zone can still make the inquiries. Other qualities that emerged, besides helpfulness and convenience, include user-friendliness, operation improvement, transaction success, and good answering capability, among others. Some of the chatbots' other good qualities identified by the air travelers confirmed Parasuraman, Zeithaml, and Berry's [31] list, which includes reliability, responsiveness, and empathy. However, bad qualities are still observed, which include non-usefulness, unresponsiveness, answering capabilities, non-user-friendliness, and patience is needed. These negative observations may be because the chatbot just asks the individual what the concern is and continuously gives another set of choices to the point that sometimes the concern will not be answered. Also, if a person is in a hurry and likes somebody who answers the inquiries immediately, but there are lots of choices and options; indeed patience is needed. These conflicting experiences may be because of the different transactions being done by the air travelers and a little or lousy experience with a chatbot that makes them unable to determine its usefulness.

Aside from the air travelers, other participants in the study are the chatbot developers, customer service representatives (CSR), and the AirAsia ICT Head for Philippine Operations. According to the chatbot developers, the chatbots being developed are a flow-based type chatbot – flow-based means that it is just following a flowchart or a template of possible interaction with the users. Although it is claimed that chatbots are artificial intelligent bots, it is just an automated version of a flowchart or a systematic way of interacting with users. There is a cognitive dissonance between the expectations of a particular group of users with their ideal chatbot because, from the chatbot developers' point of view, the implementation is just this simple. So, the traits of chatbots that they are looking for are not yet within their programming capability. Thus, the study is relevant to improving the development of chatbots because, as it turns out, there is more to be desired in the chatbot's performance that can be used for the next generation of chatbots.

From the CSRs' point of view in terms of workload, they said that the existence of chatbots makes their work easier and lighter because, most of the time, they will just execute the verification of transactions that were already initially processed by the chatbot. However, it is expected that there will be more workloads for the CSRs because the transactions can now be processed quickly at a given time since the chatbot is sharing the burden of processing the transactions, especially during the pandemic when the airline industry is the most affected. Specifically, there was a 50% increase in transactions that reached their office because of the cancellation of flights and the request for a refund, among others.

Lastly, from the ICT Head's view, the main goal of implementing a chatbot is for it to handle more than a hundred times of customer support work due to its multi-tasking and multiple-session capabilities. Thus, the

chatbot's overall strength is increased capacity to handle requests and cost savings in the workforce. However, its weakness is handling nonstandard questions, language barriers, and language semantics which the chatbot cannot process.

#### B. Effort Expectancy (EE)

In the study, EE means that it is easy to find chatbots on the airline website or Facebook Messenger and communicate with and make any air travel-related transactions. Based on the results, the air travelers expressed that chatbots are easy to use since there is a step-by-step process. In addition, whenever the air traveler post questions, the chatbots usually gives options to click, so it is easy to follow. Therefore, it is understandable and fast to use, though many questions and options can be answered to narrow and filter the travelers' wants. Overall, this implies that, whether the air travelers are chatbot adopters, less effort is expected from them as users when they make air travel transactions through a chatbot, as explained in the results. This implication supports the statement that effort expectancy and the experience of a system's ease of use have positively influenced the user's decision to use chatbots for air travel transactions [32][33].

#### C. Social Influence (SI)

SI refers to the degree to which travelers are more likely to conform to their social group when this group says that the traveler should use the chatbot for any air travel transactions for some reason. The results show that both the adopters and non-adopters expressed that using a chatbot for air travel transactions is their own free will. This result may be because most of them are used to make flight bookings, among other transactions, through a website or mobile app that notices the integrated chatbot and eventually use it. Alternatively, they were left with no choice because of flight cancellations and had difficulty contacting the human agent through the airline's hotline due to the pandemic. This statement opposed the findings by Venkatesh et al. [20] that others' opinions and suggestions would affect the customers' initial usage of a new system. However, this confirms the findings by Alalwan, Dwivedi, & Rana [34], Shaw & Sergueeva [35], and Alalwan [36] that social influence has no significant effect on a user's behavioral intention toward new technology.

#### D. Hedonic Motivation (HM)

HM, in the study, is described as the expected fun or pleasure a traveler anticipates receiving from using a chatbot to delivering air travel-related services. Because of the hedonic motivation toward a chatbot, using it will benefit the traveler by satisfying his/her interest in having an excellent travel experience. This observation will result in having positive attitudes toward using it.

According to some air travelers who are chatbot adopters, how a chatbot replies to them is fun and friendly because they can feel the care. This statement may imply that a hedonic experience with a chatbot will result in a higher adoption rate. This implication supports the statement that the user's experience with a chatbot, combined with the hedonic aspects of technology, leads to

a better evaluation of the said technology and a higher chance of adoption [37].

#### E. Price Value (PV)

PV refers to the cost of using the technology per his/her expectations before using it [38][39]. This cost could be obtained for chatbot use through lower transportation costs in booking flights and other travel-related inquiries and transactions. This cost could also be obtained by not paying extra charges from travel agents and availing of other discount offers.

The results show that both adopters and non-adopters generally agree that PV influences their intention to use a chatbot for air travel transactions. They agreed that the use of chatbots for air travel transactions has no additional fee, though they cannot say that there is a financial saving by using these chatbots in knowing low-price offers and packages and that they like to search for cheap deals through the chatbots. This may imply that travelers choose to engage in new technology if they believe that it will not involve any amount or if there are financial benefits that they can get from using it. This supports the statement of [39], who mentioned that the greater the benefits derived from using a system, the greater the individual's interest in using it.

#### F. Facilitating Conditions (FC)

In the study, FC refers to having the resources necessary to access the chatbots and having the ability and knowledge to find the chatbots. The air travelers in the study believed that the provision of the airline companies who are implementing a chatbot and their technical infrastructure would lead to their willingness to use the chatbot. As they said, accessibility and resource availability are what they like about it compared to other communication tools like Twitter and e-mail, which airline companies also utilize. Furthermore, they expressed that because of the availability of chatbots on the airline's website and app, they just directly chat with these chatbots without opening another app for communication purposes, which added to their convenience and can also just be found on Facebook Messenger. Moreover, transactions were successful because the chatbot gave a guide. For instance, when "refund" is typed, the chatbot gives the process on how to request a refund immediately. This statement supports the finding that airline companies should provide ongoing facilitation and usage support through their IT application when consumers need help [40][41].

#### G. Habit (H)

In the study, habit is expected that habitual users of the internet, online travel applications (apps), and chatting via social media tend to browse websites and apps for possible chances of conversing with somebody, like chatbots, for air travel transactions as part of their natural behavior. Thus, it can be said that habit can affect both the intention to use and the use behavior. However, the air travelers in the study generally disagree that having air travel transactions through a chatbot is almost like a habit for them. They disagreed that they are addicted to using a chatbot of any airline and must use a chatbot for air travel matters. These

may imply that the air travelers do not believe they are in the stage wherein they habitually use a chatbot for air travel transactions. However, one interviewee claimed he has been using a chatbot for a long time.

#### H. Personal Innovativeness in IT (PIIT)

PIIT refers to one's enthusiasm for engaging in any new IT [42]. It is known that users and their use behavior differ in their technological adoption tendencies [22][43]. It has been acknowledged that those who are highly innovative individuals are the ones who are active seekers of new ideas [44][45]. The factor of individuals' differences is even identified as one of the success factors of technological system implementation [45].

From the results, both the chatbot adopters and non-adopters expressed that when they hear about new technology, they will look for ways to experiment with it. Most of them also highlighted that they are usually the first to try new information technologies among their peers. Since a great majority of the participants are millennials (also known as Generation Y), this may imply that their level of innovativeness is higher than those that belong to other generations, regardless of whether they are adopters or non-adopters of chatbots in making air travel transactions. This implication supports the finding that many millennials share a sophisticated understanding of innovation and want to be involved in organizations supporting breakthrough ideas [70]. The implication also supports the finding that millennials are the first "high-tech generation" and are digital natives enthusiastic about technological advances [46][47].

#### I. Trust (T)

Trust is a subjective conviction that technology will fulfil its obligations [34]. One way to establish online trust is to create a platform or user interface that is easy to use, navigate, and understand [48].

In the context of chatbots, trust is a traveller's belief that he/she can easily use it and establish a good and comprehensive conversation concerning any air travel transactions. In return, the traveller understands the chatbot's responses to his/her inquiries and needs. Therefore, Chatbots' user-friendliness, ease of use, ease of navigation, and well-understood mechanism are believed to help build trust significantly.

In the study, most adopters said they trust the chatbot for air travel transactions and plan to continue using it, particularly for booking a flight aside from changing flights. No issue with security, particularly on the use of credit cards, was also not encountered. However, since it is still developing, several non-adopters expressed that they do not plan to continue using a chatbot for air travel transactions. In addition, a few find it time-consuming because they know it is not a human they are talking to. Thus, only a few participants expressed their trust in the chatbots for air travel transactions and continued using them.

#### J. Intention to Use

Intention to use refers to an end user's aspiration to use technology in the future [49], particularly chatbots in this study. It is assumed that intentions demonstrate motivational factors that underlie actions [50].

Most adopters agreed that the intention to use influences their use behavior in making air travel transactions, particularly on whether they can get more choices or options by making air travel transactions through a chatbot. In contrast, most non-adopters just neutrally expressed their thoughts about it. Regarding whether they can make air travel transactions that cannot be accommodated in the physical customer service office through chatbot, the majority of adopters still agreed on it. In contrast, the non-adopters neither agreed nor disagreed. These findings may imply that an individual's decision concerning behavioral intention to use a new technology depends on their varied experiences with its use. These experiences include both the good and bad ones from the adopters and non-adopters. Some good ones include the following: 1) chatbots are useful, especially to those stranded passengers who need to go home, and it is very useful for them to know the flight updates; 2) another participant stated that calling a call center agent for customer service is a hassle since we have to pay for the call since AirAsia is not based in the Philippines; 3) that chatbots are beneficial because there is no more person-to-person contact; 4) one participant also stated that for e-mail, the reply is late, mostly between 24 to 48 hours, however, if his need is immediate, he found a chatbot helpful; and 5) chatbot use is convenient for them since we do not have to wait for a long time before somebody will answer our call like when transactions are done through a phone call, among others. On the other hand, the following are some of the bad experiences that they shared: 1) a participant expressed that, most of the time, he/she preferred to have conversations through an airline's Twitter account because they are very responsive on Twitter compared to a chatbot; 2) human agent is preferred for inquiries while bookings are made online through an app or a website; 3) one participant expressed that it is more comfortable talking to a person who understands one's plight, and 4) one also expressed that we do not need chatbots and it should not appear on the website because we only end up frustrated.

#### K. Use Behavior

Use Behavior refers to an act, physical and mental, involved in integrating the information found into an individual's existing information base [51][52]. The study assesses this based on how frequently the participants use a chatbot in making air travel-related inquiries and bookings. From the results, in general, the adopters rarely use chatbots in making both air travel-related inquiries and bookings. However, few of them admitted during the interview that they had used it many times already. On the other hand, the majority of the non-adopters expressed that they never use chatbots in making both air travel-related inquiries and bookings. However, though it is generally never used, a few of the selected non-adopters admitted during the interview that they had already tried it for a few

transactions. The transactions specified by the participants include changing destination and date or rebooking, inquiry, and refund or travel fund request.

#### *L. Emerging Factors that Affect the Adoption/Non-Adoption of Chatbots*

In the researcher's previous study [53], most participants were classified as non-adopters. This classification may imply that many Filipino air travelers are still unaware of the chatbot implementation in the airline industry and are not knowledgeable about using it. On the other hand, it may also suggest that Filipino air travelers are aware of it already. However, they are still doubtful about using it due to some factors. These factors include technological factors such as the absence of empathy, capability to answer inquiries, efficiency, being pre-programmed, security, and technicality, and personal factors such as familiarity, hesitation, internet speed, time, and availability of other options, language barrier, and patience.

Concerning the empathetical factor, it is observed that a few Filipino air travelers interviewed have high regard for having an emotion-aware chatbot in the airline industry. Being an emotion-aware chatbot means recognizing the customer's tone and emotion from the text messages [54]. It is a chatbot that can sense a customer's emotional state during a text conversation [55]. Similarly, in industries like the airlines, where a high volume of customer contacts and services are needed [56], it is essential to examine the social factors that affect communication and interaction between humans and chatbots [57][58][59]. It is also equally essential to understand human-chatbot interactions as it helps create better customer experiences and a higher possibility of sales increase [60]. This statement relates to social presence, which refers to how a person is perceived as a "real person" when communicating with others in mediated communication [61]. Based on the social presence theory, robots with highly human-oriented attitudes, like the presence of a human-like emotion, were perceived as intelligent communication partners with whom humans enjoyed interacting [62]. After all, social robots are designed and are expected to instill a strong sense of social presence among consumers during the interaction and act like real social actors to create a truly social experience for users [59][63]. Thus, the results of the study confirm the finding that, for customer service transactions, a chatbot must consider emotional requests and inquiries and that it is expected to be as good as human agents in showing empathy in assisting users in coping with emotional situations [64].

Regarding the other personal factors, it is observed that there is still a lack of understanding about how customers respond to replacing human customer service staff with chatbots [65][66]. This observation could be because a slow adoption still occurs, which means a delayed adoption of innovation [67][68]. On the other hand, the observation could also be because of customers' indecisiveness in adopting AI-based technology, like chatbots, as the excitement of using it is accompanied by uncertainty and fear [69], insecurity, and anxiety [19]. Furthermore, the delayed adoption could be because

chatbots deployed by the airline companies do not yet meet the users' expectations of their efficiency and capability and still need improvement, as suggested by the selected air travelers in the sample. For instance, one of them suggested adding another language, like Filipino, other than English, and the program should also be improved to address specific questions. Another participant suggested increasing the speed of assisting the passengers' concerns that the airline company should let the public know who Charlie is.

#### *M. Suggestions and Commendations for Chatbot Improvement*

Due to its multi-tasking and multiple-session capabilities, a chatbot is implemented to handle more than a hundred times of customer support work. It is also implemented to ease access to support functions such as booking, rebooking, additional sales, and inquiries. However, it was observed that there are more non-adopters than adopters and a delayed adoption [68] of a chatbot for air travel transactions because some are unaware of its existence and its use; while some are aware of it already but still doubtful and hesitant to use it due to the factors presented in the previous page. Thus, suggestions for a chatbot's improvement include the following: 1) addition of another language other than English, like Filipino; 2) improved answering capability to cater to broader concerns; 3) more personal in answering queries, not just the general answers, increased speed of assisting the passenger, and others.

## V. CONCLUSIONS

The air travelers' first-hand experience with chatbots is essential to evaluate their effectiveness, particularly in terms of functionality. In the same way, views from different stakeholders are needed to assess whether the chatbot performance is aligned to the airline's goals of its implementation and the air travelers' actual experiences.

Furthermore, the chatbots used in the airline companies in the Philippines are not that well-used yet because they cannot handle transaction complexity. However, on a positive note, as evident in the air travelers' experiences, none of the chatbots presented here are entirely and correctly developed when first deployed by the airline companies. Nevertheless, it would be a tremendous improvement for new technology, like chatbots, knowing that the chatbot developers, airline customer service representatives, and the airline ICT Head's responses and experiences somehow coincide with the primary goal of why chatbots are adopted in the airline industry. Furthermore, it is also believed that the chatbots' features, capabilities, and others will be improved over time since it is known that chatbots continuously learn to handle complicated and future concerns from air travelers.

Indeed, this study assessed whether these chatbots serve their purpose, as stated by one of the airlines' ICT Heads in the Philippine Operations.

## VI. RECOMMENDATIONS

Since the airline industry chatbots are still developing, their performance should be improved to meet the air travelers' expectations of their efficiency and capability. Furthermore, the air travelers' experience should be improved in accomplishing air travel-related transactions with minimal time and effort compared to the traditional means.

The airline companies should also consider improving the chatbot's capability to understand and process transactions that are expressed and entered using languages other than English, for instance, transactions written in Filipino to cater to the travelers who can only express their concerns better in that particular language.

Chatbots should be visible, available, and accessible on any platform, like in social media (e.g., FB Messenger), that can be light and quickly loaded despite slow or poor internet connection. Through this, those travelers who are not privileged to have a high-speed internet connection can also converse easily with a chatbot and express their concerns regarding air travel.

Lastly, the airline companies should also improve their chatbot to be an emotion-aware bot that is not just limited to generating a pre-programmed response. This recommendation is because empathy is believed to inspire loyalty in the customers. When they feel understood, it builds their trust in the service and increases the longevity of their association with the airline company.

## ACKNOWLEDGMENT

We would like to thank all the participants for agreeing to be interviewed which greatly contributed to the success of the study.

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