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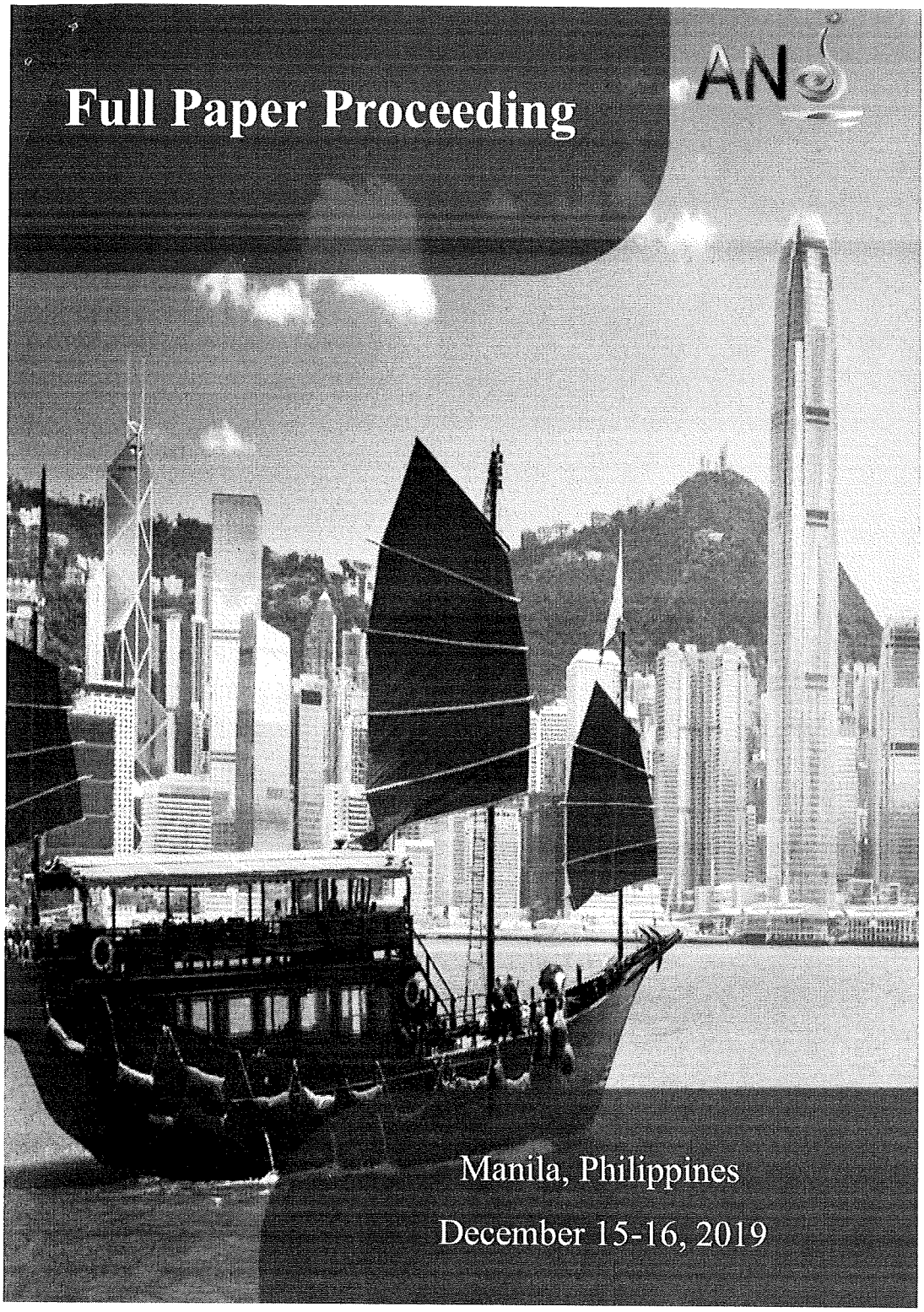

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39th International Conference on Modern Research in Social Sciences, Management and Applied Business

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Willingness to use and Pro-Environmental Attitudes for Airlines' Environmental Friendly Services: The Perspective of Thai Passengers

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Abstract This research has three main objectives. Firstly, there is intention to understand passengers' perception towards airlines' environmental friendly services related to pre-travel, pre-flight and in-flight service. Secondly, there is the investigation of passengers' pro-environmental attitudes and perception towards airlines' environmental friendly services. Thirdly, there is the analysis of passengers' willingness to use the airlines toward pro-environmental attitudes. To confirm theories and relevant literature have been drawn both paper version and reliable sources which is our methodology. Utterly, the results showed that there are significant in perception towards airlines' environmental friendly services and passengers' pro-environmental attitudes. Additionally, passengers' pro-environmental attitudes have a positive effect to willingness to use the airlines. The conclusion is substantial to the improvement and sustainability of airline environmental protection effort and airline business performance.

Keywords: Willingness to Use, Pro-Environmental Attitudes, Environmental Friendly Services, Passenger Perception

INTRODUCTION

Airports in Thailand have the capacity to accommodate a huge number of passengers. Suvarnabhumi International Airport sees an average of nearly 70 flights flowing in and out per hour. Several other airports across the country accommodate more than 10 fights per hour. To support the increased capacity demands that are primarily resultant from the gradual growth of international visitors, airports across Thailand are investing significant financial and human resources into improving their operations. (Thailand Board of Investment, 2019)

Thailand, moreover, relies on imported aviation equipment and is a net-importer of products including aircraft parts, maintenance services, and airport/ground support equipment. U.S. aviation equipment and technology are well received by Thai buyers (The International Trade Administration, ITA, 2019). Additionally, Thailand is expected to receive over 40 million tourists in 2019, a 5.5% increase from 2018 according to the Tourism Council of Thailand. Under a Thai government policy to develop the domestic aerospace industry, Maintenance, Repair and Overhaul (MRO) services will take center stage. Thailand is a major player in regional aircraft maintenance and manufacturing industries. Infrastructure facilities are in place for aircraft repair and engine overhaul services. The major leading airlines in the country, Thai Airways, Bangkok Airways, and Thai Lion Air, have established Maintenance MRO facilities, aiming to serve their own aircraft and those of other airlines that service Thailand.

Airlines' environmental friendly services are mentioned in term of environmental management in 2018. Moreover, Airports of Thailand Public Company Limited (AOT) has continuously been committed to enhancing airport service quality, safety as well as the well-being of communities surrounding airports so as to achieve its vision to operate the world's smartest airports while increasing competitive excellence according to the Strategic Plan's goals to be reached by 2021 as well as respond to the Sustainable Development Goals of the United Nations. (AOT, 2018). In terms of sustainable development aspect, AOT has included the issues on the country's development and the social well-being and benefits as part of its strategies and day to-day operations by defining activities or providing support to improve the environment, society and economic system (Ibid)

Rarely, willingness to use of Airline Business have been founded. In the study of Martín (2008) to mention about Willingness to Pay for Airline Service Quality in term of the monetary valuations, pay, of air travel regarding level-of-service attributes. The quantitative method, logit regression, has been studied from the work of Garrow (2007) the willingness to pay to travel by air and willingness to pay for air service improvements are developed. Additionally, Kuoa and Jou (2017) refer to the supply side of strategic pricing planning for the civil aviation industry rather than the demand side. Therefore, the willingness to use in airline business still be in the dark, this research would like to shine it.

In term of pro-environmental attitudes, Félonneau and Becker (2008) studied about social dominant norm which are self-reported environmental concern is not necessarily accompanied by a change in attitudes, values and beliefs. Furthermore, the self-presentation paradigm examined student's adherence to and knowledge of this pro-ecological norm had been explored by Felonneau and Becker (2008) and discuss on the gender differences.

A survey the to study on Psychology and Educational Sciences study programmes from Pavalache-Ilie and Unianu (2012) revealed that the fact that it is necessary to train internality in order to develop a more positive attitude towards the environment. This can be realized within an educational programme aimed to promote the acquisition of internality in the causal explanation of

behaviours, adapting the internality training techniques to city population, teachers, employees and children. What's more, pro-environmental attitudes rise and fall with current events and vary with age, gender, socioeconomic status, nation, urban-rural residence, religion, politics, values, personality, experience, education, and environmental knowledge (Gifford and Sussman, 2012). However, the airline aspect of the attitude in the pro-environmental attitude should be clear.

Finally, this research has three main aims which are to study Thai passenger perception towards airlines' environmental friendly services related to pre-travel, pre-flight and in-flight service. To understand passengers' pro-environmental attitudes and perception towards airlines' environmental friendly services and passengers' willingness to use the airlines toward pro-environmental attitudes. The literature review include the three group of variables, items, as showed in the topics of this article. Lastly, the two hypothesis were tested and the result will be showed as well as discuss in the last part.

LITERATURE REVIEW

Airlines' Environmental Friendly Services

Commercial aviation industry is a critical contributor to global greenhouse gas (GHG) emissions of some pollutants and make the negative impact on the environment that cause alternately global warming (Forsyth, 2011). Additionally, there are some endeavors that airline companies demonstrate their modest policies and technological advance to express their concern for global environment protection. These efforts include reducing carbon footprint, testing of alternative bio-fuels efficiency of newer aircraft, using renewable energy, recycling fuels during aircraft maintenance. In this related method will be able to mitigate the growth of carbon Dioxide (CO2) emission generally produced by the airline industry. (Mair, 2011).

The International Air Transport Association (IATA) has addressed the environmental benefits of climate impact management as part of airline leader industry to achieve a zero carbon-emission future flight by the year 2050. This objective is required all IATA airline members' responsibility in order to strongly operate practices together followed in the aviation industry's four pillar climate protection strategy. This strategy absolutely consists of technological progress improvements, aircraft operational efficiency and ground processes measure, based-airport infrastructure improvements and a global market-based measure system to complement the other three pillars (IATA, 2009). Attributes of airlines' environmental friendly services have been proposed from reputed airlines website and international airlines' annual sustainability reports. The items are most truthfully associated with air passenger services can be divided into the following three stages of procedures: pre-travel, pre-flight and in-flight service.

In the pre-travel stage, online services are provided during the airline ticket reservation process such as seat selection, special meals order and selection. Passenger also receive flight information, for instance, time table, flight status, schedule management, additional services, membership services, promotions and travel distribution channels. In addition, airlines decide to use lightweight materials for all cabin service equipment or eco-friendly products to reduce aircraft fuel consumption and greenhouse gas emissions. Moreover, airlines convince passengers to pre-order in-flight meal and duty free product through online electronic system before departure flight to decrease aircrafts' total weight (China Airlines, 2018a).

As for the pre-flight stage, most airlines have introduced automatic ticketing and self check-in kiosks, passengers can completely check-in via mobile application or official airlines' website, print out e-boarding pass and e-luggage tag before selected departure flight. E-boarding pass includes passenger seat assignment and flight detail. This online service certainly save passenger time from waiting in line at the airport and promote paper saving activities, then passenger can present boarding pass at bag drop counter and proceed to boarding gate. (China Airlines, 2018a). Subsequently, Airlines establish the accuracy of flight plans during period of take off until landing for appropriate engine-aircraft performance in relation to optimal function of aircrafts and fuel efficiency. At the same time, airlines capably prepare passenger information, weight and balance detail in order to adjust aircraft configuration and passenger seat allocation for minimizing fuel consumption. In this way, airlines invest continually in newer and ultra-modern long haul aircraft especially innovation in fuel-efficient aircraft and engine technologies. (Japan Airlines, 2019).

During in-flight service process, most airlines encourage passengers to participate 3 R rules: reduce – reuse – recycle measure or other environmental friendly activities for establishing even more sustainability on board. For example, cabin attendants request passengers to close cabin window shade in high summer before they deplane from the aircraft to decline cabin temperature, alleviate the heavy usage of aircraft ventilation system and reduce the costs of the Auxiliary Power Unit (APU). Meanwhile, airlines propose passengers to assist flight attendants to separate cabin waste on board such as used cups, beverage cans, bottles and lids for recycling items. These give passengers opportunity to decrease environmental impact at the moment of their en route journey. Airlines also recommend passengers to reuse in-flight supplies such as paper cups, chopsticks, headset, upcycling amenity kits to reduce resource consumption. Besides, airlines promote electronic and information services by offering E-journal instead of classic newspapers and magazines. Airlines implement the exclusive use of eco products on long-haul flight in all service classes and the avoidance of plastic outer packing for amenity kits, slipper bags, reusable boxes and blanket cover bags. Moreover, airlines incorporated the concept of environmental protection into the design of in-flight meal. They offer mostly healthy, balanced and high quality ordinary raw material and put a ban on the use of overfished or endangered species. Another point is in-flight meal menu are printed by soy ink on recycled paper and marked with carbon footprint to foster passengers' environmental awareness. (China Airlines, 2018b, Lufthansa group, 2019). Base on the above discussion, the following hypothesis is developed:

H1 Perception towards airlines' environmental friendly services positively affect passengers' pro-environmental attitudes.

Pro-environmental Attitudes and Willingness to Use

Environmental attitudes are considerable essential as an antecedent of environmental behaviors, often measure in tourism research as key indicator of tourist internal influence to predict individuals' environmental behaviors (Kim, 2012). The term of attitudes are defined as an outcome of unobservable psychological process. They also determine as predisposition which cause of learning to response the positive or negative of specific action. Attitudes are closely significant relation to belief, trust and intention that are direct factors of concrete product and service decision making process. (Meng and Choi, 2016)

In recent years, it appears to be the case that, the attention in pro-environmental attitudes which emerges when individual greener tourists apperceive and concern about the consequences of climate change toward the environmental friendly issues. It is generally accepted now that tourism and hospitality companies should be emphasized and take responsible for their corporate social responsibility (CSR) and environmental friendly activities (Whitmarsh and O'Neilli, 2010).

Based on the Theory of Reasoned Action (TRA), an individual's behavioral intention is determined by variation of his/her attitude to engage in that positive or negative behavior of each personal final decision. (Ajzen and Fishbein, 1980; Fabrigar et al., 2006). As many current studies of the literature have shown that a positive and significant association between pro-environmental attitudes and diverse pro-environmental tourist behaviors. Mayer et al. (2012) examined that 612 air passengers general attitudes regarding a green image of different airlines both full service network carriers and low cost carriers operating at Liverpool John Lennon Airport of England. The result indicated that air passengers can differentiate between airlines based on their environmental friendliness and green image of the airlines. Air travellers also differentiate between the perceived effectiveness of the measure that airlines can adopt to decline their environmental impact. Using new aircraft is determined as the most productive method to confirm airlines' environmental commitment. According to Chen et al. (2012), they described that while generating a green image positively affects consumer purchasing behavior, the effect of corporate social responsibility initiatives on customer loyalty in the airlines industry are generally considered by the majority of Taiwanese customers. The research findings has shown that when airlines recognize the essential of environmental protection, they has responded by incorporating environmentally friendly practice such as reducing air pollution, complying with international and national environment regulations, using renewable energy and reducing energy consumption on the ground. As a result, an increasing number of Taiwanese customers have positive attitudinal loyalty regarding airline social responsibility initiatives and become lifetime customers as a member of frequent flyer passengers of the airlines. Hagmann et al. (2015) conceded that most passengers hold different green image of the airlines. These images are specific to passengers' general attitude regarding green image of various airlines. Passengers' general attitude and perceived environmental friendliness influence airline choice during reservation process. It is also illustrated that passenger are willing to pay extra for a greener flight and eco-friendly service options.

According to these research results, it could be said that passengers are willing to use airlines when they have more particular attitudes to do things that are environmentally friendly. Thus, the following hypothesis is proposed:

H2 Passengers's pro-environmental attitudes have a positive effect to willingness to use these airlines

The proposed theoretical research framework includes a total of 2 constructs and 2 research hypothesis. The relationship between each constructs are illustrated in figure 1

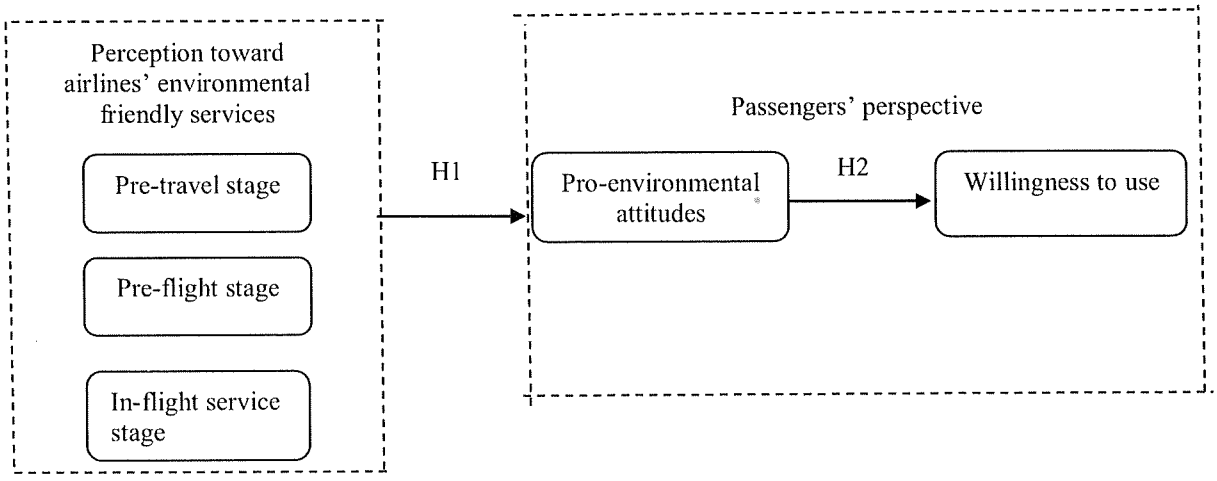

Figure 1: **Research Framework**

METHODOLOGY

Population, Sample Size And Sampling Techniques

A population was derived from Thai passengers who had air travel experience at least one flight on both full service and low cost carriers' flights and arrived to and departed from Suvarnabumi International Airport (BKK) within the past three year. Available data of the population number from the last year was 8,446,070 (Ministry of Tourism and Sports of Thailand, 2018). The sample size for regression analysis was based on Hair et al. (2014) which indicated that the desired level is between 15-20 observations for each predictor variable. Also, the minimum sample size should be 100. In this research, the predictor variables are 3, which require a minimum sample size at 100. Convenience sampling was applied as nonprobability sampling technique in this study to select Thai passengers who had experienced with the airlines.

Research Tools

The questionnaire was considered to be the major tool of quantitative research which was divided into four main parts. The first part, socio-demographic profile of respondent was obtained regarding their gender, age, highest education level, occupation and personal income. Travel behaviors also were stated in this part which include purpose for air travel, number of air travel per year, frequent used carrier, accompanying persons and travel arrangement. The second part consisted of variables that were adapted from previously validated studies, the websites and sustainability reports of internationally famous airlines to determine the group of variable mentioned in the Table 1. Respondent were asked to indicate overall level of perception toward airlines' environmental friendly services. The participant also state their pro-environmental attitudes which based on Davison et al. (2014); Alcock et al. (2017) in third section of the survey. At the final part of questionnaire, willingness to use such airlines based on Oreg and Katz-Gerro, 2006; Hagmann et al. (2015) were also rated by respondent. Item-Objective Congruence Index (IOC) was applied into a content validity test evaluated by three experts. These experts include two supervisors of flight operations and one academic lecturer from logistical transportation and aviation business of renowned university. The congruence index of the questionnaire is much higher than minimum score at 0.5. This means the overall content of various items of designed questionnaire are completed to be used in the pilot test process (Pasunon, 2010). Thirty pilot questionnaires of 30 airline passengers or equivalent were distributed via an online channel. After that, we calculate the some significant statistics to test the assumption and following with the process of questionnaire improvement. The reliability test of this research demonstrated Cronbach's Alpha Coefficient at 0.720 for levels of perception toward airlines' environmental friendly services, at 0.734 for levels of pro-environmental attitudes and at 0.809 for levels of willingness to use airlines. These questionnaire implied to a good internal consistency which could be used as reliable tools for the research (George, Mallery, 2000)

Data Collection

There are three main stage of data collecting process which consists of preparation stage, gathering and collecting data stage, and the data filling out and purify stage. We can describe in details at the following

1. The preparation stage

The data was collected by questionnaire which consist of four parts as mentioned in research tools detail.

2. The gathering and collecting data stage

Data gathered from designed questionnaire were randomly selected passengers of Thai airlines passengers for international as well as domestic flights and questionnaire were collected through an online survey via participated family and friend e-mail. The invitation was also published on online community website, such as Facebook. At the end of this stage, the number of 145 valid response were received. Respectively, 134 self-completed questionnaires were fully retrieved.

3. The data filling out and purify stage

To make sure that the data are clean and ready to analyze the quantitative results which are including to show in term descriptive statistics in Table 2 which are demographic information of Thai passengers. Thai passenger travel behaviors were indicated in Table 3, respectively. The average and the correlation between the main variables were illustrated in Table 4. Finally, the test of two main hypotheses to describe the stated research objectives were in Table 5, the regression analysis result.

Table 1. *The Attributes of Airlines' Environmental Friendly Services*

Attributes	Statement
Pre-travel stage	- Provide online service during the airline ticket reservation process to decrease paper usage - Convince passengers to pre-order in-flight meal through online electronic system before departure flight to prevent food waste - Suggest passengers to pre-order duty free items through E-shopping system before departure flight to reduce aircraft loading - Use lightweight materials for all cabin service equipment to reduce the aircraft fuel consumption
Pre-flight stage	- Provided e-check in service via mobile application or official airlines' website and automatic ticketing and self check-in kiosks at the airport - Encourage passenger to print out e-boarding pass and e-luggage tag before departure flight to replace paper usage - Conduct the accuracy of flight plans for engine-aircraft performance in relation to aircraft optimal function and lower fuel consumption - Adjust aircraft configuration and passenger seat allocation to save fuel consumption - Invest in newer and ultra-modern long haul aircraft for fuel efficiency and engine technologies
In-flight service stage	- In summer, request passenger to close cabin window shade before disembarkation to decline cabin temperature and heavy usage of aircraft ventilation - Propose passengers to assist cabin attendants to separate cabin waste on board, e.g., used cups, beverage cans, bottles and lids for recycling items. - Recommend passengers to reuse in-flight supplies, e.g., paper cups, chopsticks, headset, upcycling amenity kits to reduce resource consumption - Promote in-flight entertainment system to display e-journal instead of classic newspapers and magazines to reduce paper consumption - Use eco products on board in all service classes and avoid using plastic packing for amenity kits, slipper bags, reusable boxes and blanket cover bags - Use ordinary ingredients produce for in-flight meal and put a ban on the use of overfished or endangered species - Use soy ink on recycled paper for in-flight meal menu and marked with carbon footprint to foster passengers' environmental awareness

EMPIRICAL RESULT

From Thai passenger as the sample of 134 respondents. Most of them were 85 female respondents (63.4%). The majority participants were 31-40 years, representing 45.5%. The largest group of 63 (47.0%) respondents gained bachelor degree education, and only 4 (3.0%) respondents achieved below bachelor degree. Of the 134 respondents, 47 (35.1%) were private business employees, 42 (31.3%) were government/civil servants, 25 (18.6%) were business owners. Only 10%, 6% and 3% respectively were temporary workers, others relevant occupations and students. The majority respondents of 49 (36.6%) had average incomes between 20,001-40,000 Baht per month. The following table summarizes socio-demographic information of Thai passengers.

Table 2. *Socio-Demographic Information of Thai Passengers*

Variables	Frequency	Percentage
Gender		
Male	49	36.6
Female	85	63.4
Age		
12-20 years	4	3.0
21-30 years	17	12.7
31-40 years	61	45.5
41-50 years	33	24.6
Above 51 years	19	14.2
Education level		
Under Bachelor degree	4	3.0
Bachelor degree	63	47.0
Master degree	59	44.0
Doctoral degree	8	6.0
Occupation		
Student	4	3.0
Government/Civil Servant	42	31.3
Private business employee	47	35.1
Business owner	25	18.6
Temporary worker/Freelance	10	7.5
Others	6	4.5
Personal income per month		
Less than 20,000 THB	25	18.7
20,001-40,000 THB	49	36.6
40,001-60,000 THB	18	13.4
60,001-80,000 THB	9	6.7
80,001-100,000 THB	12	8.9
More than 100,000 THB	21	15.7

Table 3. *Thai Passenger Travel Behaviors*

Variables	Frequency	Percentage
Purpose of travel		
Leisure/Holiday	50	37.3
Business	31	23.1
Education	14	10.5
Visit friend/relatives	15	11.2
Medical purpose	8	6.0
Meeting/Seminar	16	11.9
Number of air travel per year		
1-2 times	27	20.1
3-4 times	54	40.3
5-6 times	41	30.6
More than 6 times	12	9.0
Frequent used carrier		
Low-cost carrier (LCC)		
Full-service network carrier	53	39.6
(FSNC)	81	60.4
Accompanying persons		
Alone	34	25.4
Friends/Colleague	42	31.3
Spouse	31	23.1
Family	27	20.2
Travel arrangements		
Own arrangement	95	70.9
Package	39	29.1

Based on the Thai passengers travel behavior results were presented in Table 3, 37.3% or 50 passengers traveled for leisure purpose whereas 23.1%, 11.9%, 11.2% had other purposes on business, meeting/seminar and visiting friends and relatives. The rested travel for education purpose and medical purpose. That is, 54 (40.3%) of respondents had experienced by air travel mode at 3-4 times per year. Most of respondents, 81 persons (60.4.%) are frequently fly with full service carrier. According to the number of accompanying persons, majority respondents of 42 (31.3%) passengers traveled with friends or colleagues. In addition, 95 respondents (70.9%) arranged trip by themselves whereas 39 passengers or 29.1% decided to choose travel agency to arrange their trip package including accommodation, air ticket and travel itinerary.

Table 4. *The Average and the Correlation between the Main Variable*

Variables	Perception toward airlines' environmental friendly services			Passengers' perspective	
	Pre-travel stage	Pre-flight stage	In-flight service stage	Pro-environmental attitudes	Willingness to use
Mean	4.31	4.34	4.06	4.27	4.19
Standard Deviation	.552	.415	.734	.412	.624
Pre-travel stage	-				
Pre-flight stage	.500**	-			
In-flight service stage	.319**	.376**	-		
Pro-environmental attitudes	.340**	.464**	.481**	-	
Willingness to use	.620**	.619**	.540**	.574**	-

As the result showed in Table 4, the pearson's correlation between the set of variables are in between .319 and .620. Moreover, the relationship of the group of variables are significance at 0.05. Therefore, the simple regression analysis is developed to test for the two main hypothesis. However, to determine the effect of perception toward airlines' environmental friendly services we need to calculate the grand mean of pre-travel, pre-flight, and in-flight service stages which are 4.31, 4.34 and 4.06.

An initial assumption was completed to verify the use of the data for regression analysis. A Durbin-Watson value of 1.737 and 1.855 was calculated. With this value between 1.50-2.50, it can be realized that the data meet the assumption of independence of residuals. Leverage value was 0.007 determined to be less than 0.5, thus indicating that no case had excessive leverage in the model. Additionally, all Cook's distances were 0.12 and 0.11 which were below a value of 0.2, indicating that there were no influential points.

Table 5. *The Regression Analysis Result*

Variables	**Hypothesis**	
	Pro-environmental attitudes **H1**	*Willingness to use* ***H2***
Perception toward airlines' environmental friendly services	.523***(.068)	
Pro-environmental attitudes		.870***(.108)
Adjusted R^2	.310	.330
***** p<0.05 , (The value in this table showed the regression coefficients and standard deviation)**		

The regression analysis result from Table 5 aims to test the effect of perception toward airlines' environmental friendly services on willingness to use through pro-environmental attitudes. The enter method was employed in this stage even though several other methods are available to build models, controlling how variables are included into a model; note also that several methods can be combined. Therefore, the main goal of this methods is to determine the best subset of variables explaining a dependent variable. The result showed that perception toward airlines' environmental friendly services has positive impact on pro-environmental attitudes ($\beta = 0.523$, $p < 0.05$) at 0.05 significance level. So that we do not reject the null hypothesis of the first assumption, H1. Not surprisingly, pro-environmental attitudes has positive effect on *willingness to use* ($\beta = 0.870$, $p < 0.05$) at 0.05 significance level. So that we do not reject the null hypothesis of the second assumption, H2 as we expected.

CONCLUSION

The result of this research reveals the understanding of passengers' perception towards airlines' environmental friendly services related to pre-travel, pre-flight and in-flight service has been focused in details. In addition, the study considers analysis of passengers' pro-environmental attitudes and perception towards airlines' environmental friendly services as well as passengers' willingness to use the airlines toward pro-environmental attitudes were analyzed to confirm the theoretical model as we founded in the literature review.

Hypothesis 1, H1, Perception toward airlines' environmental friendly services has positive effects on pro-environmental attitudes from the pearson's correlation and simple regression analysis which R^2 of .310. This results illustrate the influence that Thai passengers are perceived the significantly environmental friendliness issues of the airlines based on their environmental friendly services which can be associated with pro-environmental attitude. Apart from the Mayer et al. (2012) study confirmed that passengers are perceived the effectiveness of environmental friendliness measures among 12 of airlines. These measures include: using new aircraft, offering carbon off-setting, testing bio fuels (can be subjected to environmental friendly service related to pre-flight stage); reduce the waste on board and serving fair trade and organic products (can be subjected to environmental friendly service related to in-flight stage).

The finding reported that air travellers' attitude towards different airlines are diverge depending on their perception regarding effectiveness of environmental measures. From the passengers' viewpoint of this issue, an effective approach are evaluated as more environmental friendly activities. Hwang and Seong (2019) seem to agree that when air passengers acknowledge an attempt of environmentally friendly airline to well-established environmental concerns and conduct prosperously environmental protection such as saving fuel, reducing waste and recycling. It is fair to say that air passengers are more likely to show higher levels of desirable attitude toward various airlines.

Hypothesis 2, H2, Pro-environmental attitudes has positive impact on *Willingness to use* is confirmed by the pearson's correlation and simple regression coefficient as well as R^2 at the level of .330 respectively. In this exploration, the results

demonstrated the high correlation coefficient that can be inferred that Thai passengers' pro-environmental attitudes and willingness to use are positive associated. To likewise, Van Birgelen et al. (2011) concluded that air passengers who have positive attitudes toward carbon offsetting and well understand negative impact of CO_2 emissions from air travel on the environment, they are willing to choose the airline that participate carbon offset program at the time of purchasing tickets. An investigation by Lu and Wang (2018) also illustrated that carbon offsetting air travel has a positive impact on the natural environment, that is why passengers' attitudes toward voluntary carbon offset schemes program are related to willingness to use the airlines that implement this program. Additionally, airline passengers are also willing to change their travel behaviors when travelling by air. For example, passengers intend to decrease baggage weight to mitigate carbon emissions. Besides, passenger willing to compensate extra charge for a low-carbon flights. Another study by Hwang and Seong (2019) pointed out that there are significant positive relationship between airlines' green image and desire to take an environmentally friendly airlines. If passengers respond to strong environmental reputation of the airlines, there will be a positive on their decision to choose with that airlines.

RESEARCH CONTRIBUTION

There are three main groups of people and institution would get the benefit from our research results which are at the following

1. Airline business to improve business performance through their effort in environmental friendly services on behalf of marketing strategies which well-appointed as environmental protection policy in each airlines' annual sustainability report. Furthermore, airline should continually provide air passengers with environmental education information on particular environmental friendly services to enhance passengers' perception of these services which could develop their positive pro-environmental attitudes and be more willing to use airlines' select routes. Airlines can demonstrate fuel saving consumption, carbon emission and mitigation via several media channel such as in-flight entertainment, magazines, printed card or airline website. In addition, airlines can promote frequent flyer passengers to join reduce, reuse, recycle or other environmental friendly services on environmental themed flights (e-flights).

2. The Civil Aviation Authority of Thailand (CAAT), on behalf of an aviation regulator as a part of policy maker, to develop environmental policy measure that encourage airlines to meet sustainable development goals. These includes the processes to reduce carbon emission, air pollution, energy consumption and the involvement in environmental protection program. Apart from that, CAAT should remind authorized airlines to follow the international standard of Environmental Management System (EMS) to obtain ISO 14001 certification for their environmental management accreditation and environmental commitment affirmation.

3. The linkage of airline industry and hospitality service sectors to expand and extend the environmental friendly services. Airlines can provide travel arrangement services via their website. For example, promoting green connection by public transport to reach the airport, offering eco-friendly accommodation as per airline marketing package and proposing eco-friendly or organic product with recycle packaging.

SUGGESTION FOR FUTURE RESEARCH

To improve the quality of the research and the new paradigm of perception toward airlines' environmental friendly services in airline business as well as to extend the concept of pro-environmental attitudes has positive and willingness to use environmental friendly services. We recommend to expand the work on this topic in three main perspectives

1. To study in term of the comparative study which is used to determine and quantify relationships between two or more variables by observing different groups that either by choice or circumstances is exposed to different treatments. For example, Thai and foreign passenger.

2. To employ path analysis to be our theoretical testing. Because this method, allow us to specify relationships among the set of the independent variables. The result can show us the causal relationship through which independent variables produce both direct and indirect effects on a dependent variable.

3. To follow up the Thai passenger about the persistence in behavior. In this case, the data base might need to create the cohort study and the time-series data analysis need to be concerned. However, we might gather the personal contact via the e-mail to let them give us the personal behavior. So that the electronic questionnaire that might be help us to collect the data in term of panel study with priceless and placeless.

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