CHAPTER IV

FINDINGS

This chapter presents the survey results of the data collection based on the research methodology discussed in chapter three. Data was analyzed statistically. The descriptive and inferential analysis results were achieved using the statistical program, and presented in five parts as follows:

Patr 1: Demographic profiles of passengers

Patr 2: Travelling characteristics of passengers

Patr 3: Passengers' perception towards impact of airlines on global warming

Patr 4: Passengers' attitudes towards impact of airlines to alleviate impact on global warming

Patr 5: Hypotheses testing

Part 1: Demographic profiles of passengers

Table 3 shows that the majority of respondents are females (54.75%) and the rest are males (45.25%).

Table 3 Gender of respondents

Gender	Frequency	Percentage (%)
Females	219	54.75
Males	181	45.25
Total	**400**	**100.00**

According to Table 4, 58.50 % of the respondents were between 20 and 35 years old, followed by those of 36-50 years old (23.50%). A few of the respondents (8.25%) were between 51-65 years old, 7.25% under 20 years old, and 1.75% over 60 years old respectively.

Table 4 Age of respondents

Age	Frequency	Percentage (%)
20-35 years	234	58.50
36-50 years	94	23.50
51-65 years	33	8.25
Under 20 years	29	7.25
Over 60 years	7	1.75
Total	**400**	**100.00**

Table 5 shows that the majority respondents earned a bachelor's degree (40.75%), 25.50% finished a master's degree, 22.50% had attained vocational qualification, and 8.50 % had attained high school. The remaining 2.75% earned a doctoral degree.

Table 5 Educational level of respondents

Education	Frequency	Percentage (%)
Bachelor	163	40.75
Master	102	25.50
Vocational qualification	90	22.50
High school	34	8.50
Doctoral	11	2.75
Total	**400**	**100.00**

Table 6 demonstrates the majority of the respondents were private company officers which equal to 41%, followed by 26.50% who were self-employed, 17.75% and 13.75% were government officers and students respectively.

Table 6 Occupation of respondents

Occupation	Frequency	Percentage (%)
Private company officers	164	41.00
Self-employed	106	26.50
Government officers	71	17.75
Students	55	13.75
Others	4	1.00
Total	**400**	**100.00**

Table 7 shows two major groups of respondents earned monthly income of $1,500-3,000 and $3,001-4,500 that equals to 32% and 27% respectively. Next were those who earned $4,501-6,000 (19.75%), less than 1,500 (13.25%) and over $6,001 (7.75%) respectively.

Table 7 Income (per month) of respondents

Income	Frequency	Percentage (%)
$1,500-3,000	128	32.00
$3,001-4,500	108	27.00
$4,501-6,000	79	19.75
Less than $1,500	53	13.25
Over $6,000	31	7.75
Total	**400**	**100.00**

Table 8 demonstrates the majority of the respondents were Europeans that equal to 58.75%, followed by Scandinavians, which equal to 24.25% and North Americans, which equal to 13%. The rest belongs to other nationalities, which equal to 3.75%.

Table 8 Passenger profiles in term of nationality

Nationality	Frequency	Percentage (%)
European	235	58.75
Scandinavian	97	24.25
North American	52	13
Other	15	3.75
Total	**400**	**100.00**

Part 2: Travelling characteristics of passengers

According to Table 9, 44% of the respondents have flown with Lufthansa 2-3 times, 21.50% have flown 4-5 times and 18% have flown only and once, while 6.50% have flown more than 5 times**.**

Table 9 Flying time with Lufthansa

Flying time with Lufthansa	Frequency	Percentage (%)
2-3 times	176	44.00
4-5 times	86	21.50
First time	72	18.00
More than 5 times	66	16.50
Total	**400**	**100.00**

As illustrated in Table 10, the top three reasons to fly with Lufthansa according to the respondents were service quality (30.25%), reasonable price (24.25%), and safety (17.50%) respectively. Next were reputation of responsibility (15.50%) to the environment and punctuality (12.50%) respectively.

Table 10 Reasons in choosing Lufthansa

Reasons in choosing Lufthansa	Frequency	Percentage (%)
Service quality	121	30.25
Reasonable price	97	24.25
Safety	70	17.50
Reputation of responsibility to the environment	62	15.50
Punctuality	50	12.50
Total	**400**	**100.00**

Part 3: Passengers' perception towards impact of airlines on global warming

Passengers' perception towards impact of airlines on global warming consists of attention, comprehension, and retention. Table 11 represents passengers' attention towards impact of airlines on global warming. The respondents strongly agreed about their overall attention towards impact of airlines on global warming (Mean = 4.24). Meanwhile, they strongly agreed with the current earth's temperature that is warmer than in the past (Mean = 4.38), and the fact that waste recycling can help to reduce impact on global warming (Mean = 4.34). However, they agreed with the fact that the airlines industry is creating an impact on global warming (Mean = 4.20), and the aircraft engine pollutes and has an effect on global warming (Mean = 4.04).

Table 11 Attention towards airlines' impact on global warming

Attention	$\bar{X}$	S.D.	Meaning
The current earth temperature is warmer than in the past.	4.38	0.67	Strongly agree
Waste recycling can help to reduce impact on Global Warming.	4.34	0.68	Strongly agree
The airlines industry is creating an impact on Global Warming.	4.20	0.72	Agree
The aircraft engine pollutes and has an effect on Global Warming.	4.04	0.78	Agree
Total	**4.24**	**0.48**	**Strongly agree**

Note: 1 – 1.80 = strongly disagree, 1.81 – 2.60 = disagree, 2.61 – 3.40 = neither agree nor disagree, 3.41 – 4.20 = agree, and 4.21 – 5.00 = strongly agree

Table 12 shows passengers' comprehension towards impact of airlines on global warming. The respondents strongly agreed about their overall comprehension towards impact of airlines on global warming (Mean = 4.21). Separately, they strongly agreed with unreasonable energy consumption like electricity can have an effect on global warming (Mean = 4.36), followed by the fact that global warming is mainly caused by human activities (Mean = 4.30). However, they perceived the following measures agree: the airlines industry is a major contributor in creating greenhouse gas emissions (Mean = 4.12), air travel is a major contributor to global climate change by fossil fuel consumption (Mean = 4.11), and increase efficiency in airline operation areas will help make good result on global warming (Mean = 4.11).

Table 12 Comprehension towards airlines' impact on global warming

Comprehension	$\bar{\chi}$	S.D.	Meaning
Unreasonable energy consumption like electricity has an effect on Global Warming.	4.36	0.67	Strongly agree
Global Warming is mainly caused by human activities.	4.30	0.66	Strongly agree
The airline industry is a major contributor in creating greenhouse gas emissions.	4.12	0.75	Agree
Air travel is a major contributor to global climate change by fossil fuel consumption.	4.11	0.75	Agree
Increase efficiency in airline operation areas will make good result on Global Warming.	4.09	0.77	Agree
Total	4.21	0.44	**Strongly agree**

Note: 1 – 1.80 = strongly disagree, 1.81 – 2.60 = disagree, 2.61 – 3.40 = neither agree nor disagree, 3.41 – 4.20 = agree, and 4.21 – 5.00 = strongly agree

As presented in Table 13, the respondents strongly agreed about their overall retention towards impact of airlines on global warming (Mean = 4.23). They strongly agreed with you are familiar with the term of global warming (Mean = 4.41). While, they agreed with the fact that greenhouse gas emissions from air travel will increase considerably in the future (Mean = 4.06).

Table 13 Retention towards airlines' impact on global warming

Retention	$\bar{X}$	S.D.	Meaning
You are familiar with the term of Global Warming.	4.41	0.74	Strongly agree
Greenhouse gas emissions from air travel will rise considerably in the future.	4.06	0.69	Agree
Total	**4.23**	**0.54**	**Strongly agree**

Note: 1 – 1.80 = strongly disagree, 1.81 – 2.60 = disagree, 2.61 – 3.40 = neither agree nor disagree, 3.41 – 4.20 = agree, and 4.21 – 5.00 = strongly agree

In term of passengers' perception towards impact of airlines on global warming consists of attention, comprehension, and retention (Table 14), the respondents strongly agreed towards overall perception (Mean = 4.23). There are three components of perception as follows; the respondents strongly agreed towards overall attention (Mean = 4.24), the respondents strongly agreed towards overall retention (Mean = 4.23), and the respondents strongly agreed towards overall comprehension (Mean = 4.22).

Table 14 Perception towards airlines' impact on global warming

Perception towards airline's impact on global warming	$\bar{X}$	S.D.	Meaning
Attention	4.24	0.48	Strongly agree
Retention	4.23	0.54	Strongly agree
Comprehension	4.22	0.44	Strongly agree
Total	**4.23**	**0.40**	**Strongly agree**

Note: 1 – 1.80 = strongly disagree, 1.81 – 2.60 = disagree, 2.61 – 3.40 = neither agree nor disagree, 3.41 – 4.20 = agree, and 4.21 – 5.00 = strongly agree

Part 4: Passengers' attitudes towards airlines' attempt to alleviate impact on global warming

Passengers' attitudes towards impact of airlines to alleviate impact on global warming consist of beliefs, evaluation, and behavioural intention. Table 15 represents passengers' beliefs towards impact of airlines to alleviate impact on global warming. The respondents agreed about their overall beliefs towards impact of airlines to alleviate impact on global warming (Mean = 4.11). Separately, they strongly agreed with you prefer to use less convenient products and services that are responsible to the global warming (Mean = 4.22). Meanwhile, they perceived the following measures agree: the airlines industry needs to collaborate and should acknowledge the global warming phenomenon (Mean = 4.12), followed by the fact that the airlines needs to take action to help reduce greenhouse gas emissions (Mean = 4.07). And lastly, the environmental program of Lufthansa plans to use low-emission paint systems and replaced hazardous substances with biologically degradable could lessen the impact on global warming (Mean = 4.01).

Table 15 Beliefs towards airlines' attempt to alleviate impacts on global warming

Beliefs	$\bar{\chi}$	S.D.	Meaning
You prefer to use less convenient products and services that has the responsibility to the Global Warming.	4.22	0.75	Strongly agree
The airlines industry needs to collaborate and should acknowledge the Global Warming phenomenon.	4.12	0.74	Agree
The airlines industry needs to take actions to help reduce greenhouse gas emissions.	4.07	0.71	Agree

Table 15 (Cont.)

Beliefs	$\bar{\chi}$	S.D.	Meaning
The environmental program of Lufthansa plans to use low-emission paint systems and replaced hazardous substances with biologically degradable could lessen the impact on Global Warming.	4.01	0.72	Agree
Total	**4.11**	**0.54**	**Agree**

Note: 1 – 1.80 = strongly disagree, 1.81 – 2.60 = disagree, 2.61 – 3.40 = neither agree nor disagree, 3.41 – 4.20 = agree, and 4.21 – 5.00 = strongly agree

Table 16 represented passengers' evaluation towards impact of airlines to alleviate impact on global warming. The respondents perceived agree about their overall evaluation towards impact of airlines to alleviate impact on global warming (Mean = 4.09). Meanwhile, they strongly agreed with the "Cyclean Engine Wash", Lufthansa Airlines can reduce their CO_2 emissions proportionally (Mean = 4.21). However, they perceived the following measures agree: the airlines industry needs to reduce greenhouse-gas emissions in the areas of infrastructure and production by at least 30 percent by 2012 (Mean = 4.13), and according to the environmental program of Lufthansa, with the use of optimized aircraft load planning, optimizing flight routes, flying at variable speeds, theses can help to decrease CO_2 emissions (Mean = 4.11). Followed by the fact that sustainable use of natural resources, it will help to reduce the impact on global warming, and in the year 2011, the airlines industry has to pay emission tax. You are willing to contribute to pay apart of emission tax (Mean = 4.01).

Table 16 Evaluation towards airlines' attempt to alleviate impacts on global warming

Evaluation	$\bar{\chi}$	S.D.	Meaning
With the "Cyclean Engine Wash", Lufthansa Airlines can reduce their CO_2 emissions proportionally.	4.21	0.79	Strongly agree
The airlines industry needs to reduce greenhouse-gas emissions in the areas of infrastructure and production by at least 30 percent by 2012.	4.13	0.78	Agree
According to the environmental program of Lufthansa, with the use of Optimized Aircraft Load Planning, optimizing flight routes, flying at variable speeds, these can helpto decrease CO_2 emissions.	4.11	0.78	Agree
With the sustainable use of natural resources, it will help to reduce the impact on Global Warming.	4.01	0.70	Agree
In the year 2011, the airlines industry has to pay emission tax. You are willing to contribute to pay apart of emission tax.	4.01	0.71	Agree
Total	**4.09**	**0.55**	**Agree**

As presented in Table 17, the respondents agreed about their overall behavioural intention towards impact of airlines to alleviate impact on global warming (Mean = 4.07). They perceived the following measures agree: you are going to convince your friends and relatives to choose airlines that have environmentally-friendly programs (Mean = 4.11), followed by you are willing to choose the airline with emissions reduction policy and precise environmentally-friendly operation (Mean = 4.06), and you are willing to use "green airline" which has a sense of responsibility to the global warming (Mean = 4.05).

Table 17 Behavioural intention towards airlines' attempt to alleviate impacts on global warming

Behavioural intention	$\bar{X}$	S.D.	Meaning
You are going to convince your friends and relatives to choose airlines that have environmentally-friendly programs.	4.11	0.75	Agree
You are willing to choose the airline with emissions reduction policy and precise environmentally-friendly operation.	4.06	0.73	Agree
You are willing to use "green airline" which has sense of responsibility to the Global Warming.	4.05	0.70	Agree
Total	**4.07**	**0.57**	**Agree**

Note: 1 – 1.80 = strongly disagree, 1.81 – 2.60 = disagree, 2.61 – 3.40 = neither agree nor disagree, 3.41 – 4.20 = agree, and 4.21 – 5.00 = strongly agree

Regarding, the respondents' overall attitudes towards impact of airlines to alleviate impact on global warming consist of beliefs, evaluation, and behavioural intention. (Table 18), they agreed towards overall attitudes (Mean = 4.09). There are three components of attitudes as follows; the respondents strongly agreed towards overall beliefs (Mean = 4.11), the respondents strongly agreed towards overall evaluation (Mean = 4.09), and the respondents strongly agreed towards overall behavioural intention (Mean = 4.07).

Table 18 Attitudes towards Airlines' attempt to alleviate impacts on global warming

Attitudes toward airlines' attempt to alleviate impacts on global warming	$\bar{X}$	**S.D.**	**Meaning**
Beliefs	4.11	0.54	Agree
Evaluation	4.09	0.55	Agree
Behavioural Intention	4.07	0.57	Agree
Total	**4.09**	**0.50**	**Agree**

Note: 1 – 1.80 = strongly disagree, 1.81 – 2.60 = disagree, 2.61 – 3.40 = neither agree nor disagree, 3.41 – 4.20 = agree, and 4.21 – 5.00 = strongly agree

Part 5: Hypotheses testing

Based on the purpose of this study, three hypotheses were proposed. Each hypothesis is reiterated below and the results of statistical analysis are reported. Hypothesis 1 and 2 were tested using Multivariate Analysis of Variance (MANOVA) in order to measure passengers' demographic profiles that are related to passengers' perception and attitudes towards airlines' impact on global warming. Hypothesis 3 was tested using Pearson's product moment correlation coefficient.

Hypothesis 1

H1: The passengers from different demographics will have different perception towards airlines' impact on global warming.

The first hypothesis is to study whether passengers with different demographics (gender, age, educational level, occupation, income and nationality) will have different perception towards airlines' impact on global warming. Testing for the first hypothesis, Multivariate Analysis of Variance (MANOVA) was used to determine the difference among the respondents for each dependent variable in the study. Post - hoc analysis will be conducted after a significant difference was found at the .05 alpha levels.

Hypothesis 1.1: The passengers with different gender will have different perception towards airlines' impact on global warming.

Multivariate Analysis of Variance was conducted with gender as independent variable and the three components of perception (retention, attention, and comprehension) as dependent variables. There is no significant difference (T^2= 1.143; *p*> .05) (see Table 19). The result indicates that both male and female respondents perceived no difference on perception towards impact of airlines on global warming (see Table 20).

Table 19 Multivariate Analysis of Variance (MANOVA) results of overall perception of passenger by gender

Effect		Value	F	Hypothesis df	Error df	Sig.
Gender	Pillai's Trace	.017	1.143	6.000	392.000	.337
	Wilks' Lambda	.983	1.143	6.000	392.000	.337
	Hotelling's Trace	.017	1.143	6.000	392.000	.337
	Roy's Largest Root	.017	1.143	6.000	392.000	.337

Note: * Level of significant at p ≤ .05

Table 20 Univariate results of overall perception of passenger by gender

Source	Dependen Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Gender	Retention	.042	1	.042	.145	.703
	Attention	.009	1	.009	.038	.846
	Comprehension	.060	1	.060	.305	.581

Note: * Level of significant at $p \leq .05$

Both male and female respondents revealed a high perception on impacts of airlines on global warming; for retention ($\bar{X} = 4.24_{male}$ vs. $\bar{X} = 4.22_{female}$); ($\bar{X} = 4.24_{male}$ vs. $\bar{X} = 4.25_{female}$) for attention; and ($\bar{X} = 4.20_{male}$ vs. $\bar{X} = 4.22_{female}$) for comprehension. The result indicates that both male and female respondents strongly agreed on their overall perception towards airline's impact on global warming (see Table 21).

Table 21 Descriptive statistic of overall passengers' perception towards airline's impacts on global warming by gender

	Gender	$\bar{X}$	S.D.
Retention	Male	4.24	0.51
	Female	4.22	0.56
	Total	4.23	0.54
Attention	Male	4.24	0.48
	Female	4.25	0.47
	Total	4.24	0.47
Comprehension	Male	4.20	0.45
	Female	4.22	0.44
	Total	4.21	0.44

Note: 1 – 1.80 = strongly disagree, 1.81 – 2.60 = disagree, 2.61 – 3.40 = neither agree nor disagree, 3.41 – 4.20 = agree, and 4.21 – 5.00 = strongly agree

Hypothesis 1.2: The passengers with different age levels will have different perception towards airlines' impact on global warming.

Multivariate Analysis of Variance was used to analyze, age as independent variable and the three components of perception (retention, attention, and comprehension) as dependent variables and there is a significant difference in the overall perception ($\lambda = 1.930$; $p < .05$) That is, the respondents of different age groups perceived the three components of perception towards airlines' impact on global warming differently (see Table 22).

Table 22 Multivariate analysis of variance (MANOVA) results of overall perception of passenger by age

Effect		Value	F	Hypothesis df	Error df	Sig.
Age	Polloi's Trace	.114	1.924	24.000	1568.000	.005
	Wilks' Lambda	.890	1.930	24.000	1358.269	.005
	Hotelling's Trace	.120	1.932	24.000	1550.000	.004
	Roy's Largest Root	.059	3.853	6.000	392.000	.001

Note: * Level of significant at p ≤ .05

Univariate results revealed that the passengers of different age levels expressed different levels of attention (F=3.615; p <.01) and comprehension (F=2.779; p <.01) (see Table 23).

Table 23 Univariate results of overall perception of passenger by age

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Age	Retention	2.145	4	.536	1.858	.117
	Attention	3.176	4	.794	3.615	.007
	Comprehension	2.148	4	.537	2.779	.027

Note: * Level of significant at p ≤ .05

Post hoc analysis (LSD) revealed regarding attention of passengers whose age is under 20 years old ($\bar{X}$ = 4.49) are expressed in different levels of attention from those ages between 20-35 years old ($\bar{X}$ = 4.22) and those ages between 36-50 years old ($\bar{X}$ = 4.18). Moreover, the passengers whose age is between 20-35 years old showed different levels and ages over 65 years old ($\bar{X}$ = 4.22 vs. $\bar{X}$ = 4.61). And the passenger whose age is between 36-50 years old represented different levels of attention from those over 65 years old ($\bar{X}$ = 4.18 vs. $\bar{X}$ = 4.61).

Regarding comprehension, the passengers whose age is under 20 years old ($\bar{X}$ = 4.37) expressed different levels of comprehension from those between 20-35 years old ($\bar{X}$ = 4.19) and respondents between 51-65 years old ($\bar{X}$ = 4.13). Besides, the passengers whose age is between 20-35 years old showed different levels and those over 65 years old ($\bar{X}$ = 4.19 vs. $\bar{X}$ = 4.60). Furthermore, the passenger whose age is between 36-50 years old presented different levels of comprehension compared to respondents over 65 years old ($\bar{X}$ = 4.22 vs. $\bar{X}$ = 4.60).

All age groups revealed a high level of attention and comprehension towards airline's impact on global warming (see Table 24 and Table 25).

Table 24 Descriptive statistic of overall passengers' perception towards airline's impacts on global warming by age

	Age	$\bar{X}$	**S.D.**
Attention	Under 20	4.49	0.29
	20-35	4.22	0.48
	36-50	4.18	0.49
	51-65	4.26	0.50
	Over 65	4.61	0.13
	Total	4.24	0.47

Table 24 (Cont.)

	Age	$\bar{X}$	S.D.
Comprehension	Under 20	4.37	0.31
	20-35	4.19	0.45
	36-50	4.22	0.46
	51-65	4.13	0.45
	Over 65	4.60	0.26
	Total	4.21	0.44

Note: 1 – 1.80 = strongly disagree, 1.81 – 2.60 = disagree, 2.61 – 3.40 = neither agree nor disagree, 3.41 – 4.20 = agree, and 4.21 – 5.00 = strongly agree

Table 25 Post-hoc tests of overall passengers' perception towards airline's impacts on global warming by age

LSD

Dependent Variable	(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.
Attention	Under 20	20-35	.2709(*)	.09220	.003
		36-50	.3079(*)	.09955	.002
		51-65	.2336	.12016	.053
		Over 65	-.1158	.19737	.558
	20-35	Under 20	-.2709(*)	.09220	.003
		36-50	.0370	.05713	.518
		51-65	-.0373	.08827	.672
		Over 65	-.3867(*)	.17974	.032

Table 25 (Cont.)

LSD

Dependent Variable	(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.
	36-50	Under 20	-.3079(*)	.09955	.002
		20-35	-.0370	.05713	.518
		51-65	-.0743	.09592	.439
		Over 65	-.4236(*)	.18362	.022
	51-65	Under 20	-.2336	.12016	.053
		20-35	.0373	.08827	.672
		36-50	.0743	.09592	.439
		Over 65	-.3493	.19556	.075
	Over 65	Under 20	.1158	.19737	.558
		20-35	.3867(*)	.17974	.032
		36-50	.4236(*)	.18362	.022
		51-65	.3493	.19556	.075
Comprehension	Under 20	20-35	.1809(*)	.08648	.037
		36-50	.1511	.09338	.106
		51-65	.2474(*)	.11271	.029
		Over 65	-.2276	.18512	.220
	20-35	Under 20	-.1809(*)	.08648	.037
		36-50	-.0297	.05358	.580
		51-65	.0666	.08279	.422
		Over 65	-.4084(*)	.16859	.016

Table 25 (Cont.)

LSD

Dependent Variable	(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.
	36-50	Under 20	-.1511	.09338	.106
		20-35	.0297	.05358	.580
		51-65	.0963	.08997	.285
		Over 65	-.3787(*)	.17223	.028
	51-65	Under 20	-.2474(*)	.11271	.029
		20-35	-.0666	.08279	.422
		36-50	-.0963	.08997	.285
		Over 65	-.4750(*)	.18343	.010
	Over 65	Under 20	.2276	.18512	.220
		20-35	.4084(*)	.16859	.016
		36-50	.3787(*)	.17223	.028
		51-65	.4750(*)	.18343	.010

Note: * The mean difference is significant at the .05 level

Hypothesis 1.3: The passengers with different educational level will have different perception towards airlines' impact on global warming.

Multivariate Analysis of Variance was conducted with educational level as independent variable and the three components of perception (retention, attention, and comprehension) as dependent variables. There is no significant difference ($\lambda = 1.369$, $p > .05$) (see Table 26). The result indicates all educational level groups perceived no difference on perception towards impact of airlines on global warming (see Table 27).

Table 26 Multivariate Analysis of Variance (MANOVA) results of overall perception of passenger by educational level

Effect		Value	F	Hypothesis df	Error df	Sig.
Educational Level	Pillai's Trace	.082	1.369	24.000	1568.000	.110
	Wilks' Lambda	.920	1.369	24.000	1358.269	.110
	Hotelling's Trace	. 085	1.368	24.000	1550.000	.110
	Roy's Largest Root	042	2.727	6.000	392.000	.013

Note: * Level of significant at $p \leq .05$

Table 27 Univariate results of overall perception of passenger by educational level

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Educational level	Retention	.310	4	.078	.265	.901
	Attention	1.270	4	.317	1.414	.229
	Comprehension	1.414	4	.353	1.811	.126

Note: * Level of significant at $p \leq .05$

All educational level groups revealed a high perception on impacts of airlines on global warming; for overall retention, attention, comprehension ($\bar{X}$ = 4.23 vs. $\bar{X}$ = 4.24 vs. $\bar{X}$ = 4.21). The result indicates that all educational level groups strongly agreed on their overall perception towards airline's impact on global warming (see Table 28).

Table 28 Descriptive statistic of overall passengers' perception towards airline's impacts on global warming by educational level

	Education Level	$\bar{\chi}$	S.D.
Retention	High School	4.31	0.65
	Vocational qualification	4.25	0.49
	Bachelor degree	4.23	0.59
	Master degree	4.21	0.48
	Doctoral degree	4.18	0.34
	Total	4.23	0.54
Attention	High School	4.40	0.47
	Vocational qualification	4.26	0.38
	Bachelor degree	4.22	0.56
	Master degree	4.20	0.41
	Doctoral degree	4.34	0.39
	Total	4.24	0.47
Comprehension	High School	4.28	0.44
	Vocational qualification	4.23	0.40
	Bachelor degree	4.17	0.50
	Master degree	4.22	0.40
	Doctoral degree	4.49	0.16
	Total	4.21	0.44

Note: 1 – 1.80 = strongly disagree, 1.81 – 2.60 = disagree, 2.61 – 3.40 = neither agree nor disagree, 3.41 – 4.20 = agree, and 4.21 – 5.00 = strongly agree

Hypothesis 1.4: The passengers with different occupation will have different perception towards airlines' impact on global warming.

Multivariate Analysis of Variance was used to analyze occupation as the independent variable and the three components of perception (retention, attention, and comprehension) as dependent variables. There is no significant difference ($\lambda = 1.268$, $p > .05$) (see Table 29). The result indicates all occupation groups perceived no difference on perception towards impact of airlines on global warming (see Table 30).

Table 29 Multivariate Analysis of Variance (MANOVA) results of overall perception of passenger by occupation

Effect		Value	F	Hypothesis df	Error df	Sig.
Occupation	Pillai's Trace	.076	1.264	24.000	1568.000	.177
	Wilks' Lambda	.926	1.268	24.000	1358.269	.174
	Hotelling's Trace	.079	1.272	24.000	1550.000	.171
	Roy's Largest Root	.051	3.333	6.000	392.000	.003

Note: * Level of significant at $p \leq .05$

Table 30 Univariate results of overall perception of passenger by occupation

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Occupation	Retention	3.871	4	.968	3.406	.009
	Attention	3.175	4	.794	3.614	.007
	Comprehension	1.063	4	.266	1.356	.248

Note: * Level of significant at $p \leq .05$

All occupation groups revealed a high perception on impacts of airlines on global warming; for overall retention, attention, and comprehension ($\bar{X}$ = 4.23 vs. $\bar{X}$ = 4.24 vs. $\bar{X}$ = 4.21). The result indicates that all occupation groups strongly agreed on their overall perception towards airline's impact on global warming (see Table 31).

Table 31 Descriptive statistic of overall passengers' perception towards airline's impacts on global warming by occupation

	Occupation	$\bar{X}$	S.D.
Retention	Government Officer	4.39	0.50
	Private company officer	4.21	0.54
	Self-employed	4.15	0.51
	Student	4.32	0.59
	Others	3.75	0.50
	Total	4.23	0.54
Attention	Government Officer	4.37	0.48
	Private company officer	4.21	0.48
	Self-employed	4.21	0.46
	Student	4.30	0.44
	Others	3.63	0.63
	Total	4.24	0.47
Comprehension	Government Officer	4.29	0.42
	Private company officer	4.18	0.44
	Self-employed	4.21	0.45
	Student	4.25	0.44
	Others	3.90	0.74
	Total	4.21	0.44

Note: 1 – 1.80 = strongly disagree, 1.81 – 2.60 = disagree, 2.61 – 3.40 = neither agree nor disagree, 3.41 – 4.20 = agree, and 4.21 – 5.00 = strongly agree

Hypothesis 1.5: The passengers with different income levels will have different perception towards airlines' impact on global warming.

Multivariate Analysis of Variance was conducted with income as independent variable and the three components of perception (retention, attention, and comprehension) as dependent variables and there is a significant difference in the overall perception ($\lambda = 1.798$, $p < .05$). That is, the respondents of different income groups perceived the three components of perception towards airlines' impact on global warming differently (see Table 32).

Table 32 Multivariate Analysis of Variance (MANOVA) results of overall perception of passenger by income

Effect		Value	F	Hypothesis df	Error df	Sig.
Income	Pillai's Trace	.107	1.788	24.000	1568.000	.011
	Wilks' Lambda	.897	1.798	24.000	1358.269	.010
	Hotelling's Trace	.112	1.805	24.000	1550.000	.010
	Roy's Largest Root	.063	4.136	6.000	392.000	.000

Note: * Level of significant at $p \leq .05$

Univariate results revealed that the passengers of different income groups expressed different levels of retention ($F= 5.412$; $p <.01$) (see Table 33).

Table 33 Univariate results of overall perception of passenger by income

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Income	Retention	6.032	4	1.508	5.412	.000
	Attention	2.090	4	.522	2.349	.054
	Comprehension	1.787	4	.447	2.301	.058

Note: * Level of significant at $p \leq .05$

Post-hoc analysis (LSD) revealed that, regarding the retention, the passengers with monthly income lower than $ 1,500 ($\bar{X}$ = 4.03) reported significant lower retention in airline's impact on global warming than those with income between $1,501 -3,000 ($\bar{X}$ = 4.25) and those with income between $3,001 – 4,500 ($\bar{X}$ = 4.40). Besides, the passengers with monthly $1,501 -3,000 showed significantly lower in airline's impact on global warming than those with income between $3,001 – 4,500 ($\bar{X}$ = 4.25 vs. $\bar{X}$ = 4.40). Moreover, the passengers with monthly income between $3,001 – 4,500 ($\bar{X}$ = 4.40) presented significantly higher retention in airline's impact on global warming than those with income between $1,501 -3,000 ($\bar{X}$ = 4.25), those with income between $4,501 – 6,000 ($\bar{X}$ = 4.18) and, those with income over $6,000 ($\bar{X}$ = 4.09). That is, all income groups stated their high retention towards airline's impact on global warming (see Table 34 and Table 35).

Table 34 Descriptive statistic of overall passengers' perception towards airline's impacts on global warming by income

	Income (per month)	$\bar{X}$	S.D.
Retention	Less than $ 1,500	4.03	0.60
	$ 1,500 - $ 3,000	4.25	0.57
	$ 3,001 - $ 4,500	4.40	0.45
	$ 4,501- $ 6,000	4.18	0.52
	Over $ 6,000	4.09	0.51
	Total	4.23	0.54

Note: 1 – 1.80 = strongly disagree, 1.81 – 2.60 = disagree, 2.61 – 3.40 = neither agree nor disagree, 3.41 – 4.20 = agree, and 4.21 – 5.00 = strongly agree

Table 35 Post-hoc tests of overall passengers' perception towards airline's impacts on global warming by income

LSD

Dependent Variable	(I) Income (per month)	(J) Income (per month)	Mean Difference (I-J)	Std. Error	Sig.
Retention	Less than $ 1,500	$ 1,500 - $ 3,000	-.2178(*)	.08622	.012
		$ 3,001 - $ 4,500	-.3698(*)	.08853	.000
		$ 4,501- $ 6,000	-.1512	.09397	.108
		Over $ 6,000	-.0654	.11818	.580

Table 35 (Cont.)

LSD

Dependent Variable	(I) Income (per month)	(J) Income (per month)	Mean Difference (I-J)	Std. Error	Sig.
	$ 1,500 – $ 3,000	Less than $ 1,500	.2178(*)	.08622	.012
		$ 3,001 - $ 4,500	-.1521(*)	.06897	.028
		$ 4,501- $ 6,000	.0666	.07583	.380
		Over $ 6,000	.1523	.10433	.145
	$ 3,001 – $ 4,500	Less than $ 1,500	.3698(*)	.08853	.000
		$ 1,500 - $ 3,000	.1521(*)	.06897	.028
		$ 4,501- $ 6,000	.2187(*)	.07844	.006
		Over $ 6,000	.3044(*)	.10625	.004
	$ 4,501- $ 6,000	Less than $ 1,500	.1512	.09397	.108
		$ 1,500 - $ 3,000	-.0666	.07583	.380
		$ 3,001 - $ 4,500	-.2187(*)	.07844	.006
		Over $ 6,000	.0857	.11082	.440
	Over $ 6,000	Less than $ 1,500	.0654	.11818	.580
		$ 1,500 - $ 3,000	-.1523	.10433	.145
		$ 3,001 - $ 4,500	-.3044(*)	.10625	.004
		$ 4,501- $ 6,000	-.0857	.11082	.440

Note: * The mean difference is significant at the .05 level.

Hypothesis 1.6: The passengers with different nationalities will have different perception towards airlines' impact on global warming.

Multivariate Analysis of Variance was used to analyze nationality as the independent variable and the three components of perception (retention, attention, and comprehension) as dependent variables and there is a significant difference in the overall perception ($\lambda = 2.850$, $p < .05$) That is, the respondents of different nationalities perceived the three components of perception towards airlines' impact on global warming differently (see Table 36).

Table 36 Multivariate Analysis of Variance (MANOVA) results of overall perception of passenger by nationality

Effect		Value	F	Hypothesis df	Error df	Sig.
Nationality	Pillai's Trace	.125	2.847	18.000	1176.000	.000
	Wilks' Lambda	. 879	2.850	18.000	1103.572	.000
	Hotelling's Trace	.132	2.848	18.000	1166.000	.000
	Roy's Largest Root	.063	4.147	6.000	392.000	.000

Note: * Level of significant at $p \leq .05$

Univariate results revealed that passengers of different nationalities expresseddifferent level of retention (F=4.557; $p<0.01$), attention (F=2.728; $p<0.05$), and comprehension (F=4.099; $p<0.01$) (see Table 37).

Table 37 Univariate results of overall perception of passenger by nationality

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Nationality	Retention	3.874	3	1.291	4.557	.004
	Attention	1.821	3	.607	2.728	.044
	Comprehension	2.364	3	.788	4.099	.007

Note: * Level of significant at $p \leq .05$

Post hoc analysis (LSD) revealed that, regarding the retention, the Scandinavians expressed different levels of retention from the group of other nationalities ($\bar{X}$ = 4.22 vs. $\bar{X}$ = 3.83). Besides, the Europeans ($\bar{X}$ = 4.29) presented different levels of retention from North Americans ($\bar{X}$ = 4.12) and the group of other nationalities ($\bar{X}$ = 3.83).

Regarding the attention, the Scandinavians expressed different levels of attention from the group of other nationalities ($\bar{X}$ = 4.26 vs. $\bar{X}$ = 3.90). Moreover, the Europeans showed different levels of attention from the group of other nationalities ($\bar{X}$ = 4.26 vs. $\bar{X}$ = 3.90). In addition, the passengers whose nationality is North American represented different levels of attention from the group of other nationalities ($\bar{X}$ = 4.26 vs. $\bar{X}$ = 3.90).

Regarding the comprehension, Scandinavians expressed different levels of attention from the group of other nationalities ($\bar{X}$ = 4.16 vs. $\bar{X}$ = 3.88). Furthermore, the Europeans showed different levels of attention from the group of other nationalities ($\bar{X}$ = 4.26 vs. $\bar{X}$ = 3.88). Moreover, the passengers whose nationality is North American presented different levels of attention from the group of other nationalities ($\bar{X}$ = 4.21 vs. $\bar{X}$ = 3.88).

There is significant difference among the passengers of different nationalities who revealed a high level of retention, attention, and comprehension towards airline's impact on global warming (see Table 38 and Table 39).

Table 38 Descriptive statistic of overall passengers' perception towards airline's impacts on global warming by nationality

	Nationality	$\bar{X}$	**S.D.**
Retention	Scandinavian	4.22	0.51
	European	4.29	0.51
	North American	4.12	0.62
	Other	3.83	0.70
	Total	4.23	0.54
Attention	Scandinavian	4.26	0.46
	European	4.26	0.46
	North American	4.26	0.47
	Other	3.90	0.67
	Total	4.24	0.47
Comprehension	Scandinavian	4.16	0.44
	European	4.26	0.45
	North American	4.21	0.37
	Other	3.88	0.49
	Total	4.21	0.44

Note: 1 – 1.80 = strongly disagree, 1.81 – 2.60 = disagree, 2.61 – 3.40 = neither agree nor disagree, 3.41 – 4.20 = agree, and 4.21 – 5.00 = strongly agree

Table 39 Post-hoc tests of overall passengers' perception towards airline's impacts on global warming by nationality

LSD

Dependent Variable	(I) Nationality	(J) Nationality	Mean Difference (I-J)	Std. Error	Sig.
Retention	Scandinavian	European	-.0677	.06425	.293
		North American	.1063	.09150	.246
		Other	.3883(*)	.14770	.009
	European	Scandinavian	.0677	.06425	.293
		North American	.1740(*)	.08159	.034
		Other	.4560(*)	.14178	.001
	North American	Scandinavian	-.1063	.09150	.246
		European	-.1740(*)	.08159	.034
		Other	.2821	.15603	.071
	Other	Scandinavian	-.3883(*)	.14770	.009
		European	-.4560(*)	.14178	.001
		North American	-.2821	.15603	.071
Attention	Scandinavian	European	.0030	.05693	.958
		North American	-.0093	.08108	.909
		Other	.3552(*)	.13088	.007
	European	Scandinavian	-.0030	.05693	.958
		North American	-.0123	.07229	.865
		Other	.3521(*)	.12563	.005

Table 39 (Cont.)

LSD

Dependent Variable	(I) Nationality	(J) Nationality	Mean Difference (I-J)	Std. Error	Sig.
	North American	Scandinavian	.0093	.08108	.909
		European	.0123	.07229	.865
		Other	.3644(*)	.13826	.009
	Other	Scandinavian	-.3552(*)	.13088	.007
		European	-.3521(*)	.12563	.005
		North American	-.3644(*)	.13826	.009
Comprehension	Scandinavian	European	-.0941	.05291	.076
		North American	-.0448	.07535	.552
		Other	.2829(*)	.12164	.021
	European	Scandinavian	.0941	.05291	.076
		North American	.0493	.06719	.463
		Other	.3770(*)	.11676	.001
	North American	Scandinavian	.0448	.07535	.552
		European	-.0493	.06719	.463
		Other	.3277(*)	.12849	.011
	Other	Scandinavian	-.2829(*)	.12164	.021
		European	-.3770(*)	.11676	.001
		North American	-.3277(*)	.12849	.011

Note: * The mean difference is significant at the .05 level.

H2: The passengers with different demographics will have different attitudes towards global warming in relation to choosing the airline service.

The second hypothesis is to study whether passengers with different demographics (gender, age, educational level, occupation, income and nationality) will have different attitudes towards airlines' impact on global warming. For testing the second hypothesis, Multivariate Analysis of Variance (MANOVA) was used to determine the difference among the respondents for each dependent variable in the study. Post - hoc analysis would be conducted when statistically significant difference was found at the .05 alpha levels.

Hypothesis 2.1: The passengers with different gender will have different attitudes towards global warming in relation to choosing the airline service.

Multivariate Analysis of Variance was conducted with gender as independent variable and the three components of attitudes (beliefs, evaluation, and behavioural intention) as dependent variables and there is no significant difference (T^2= 1.143, p> .05) (see Table 40). The result indicates that both male and female respondents perceived no difference on attitudes towards global warming in relation to choosing the airline service (see Table 41).

Table 40 Multivariate Analysis of Variance (MANOVA) results of overall attitudes of passengers by gender

Effect		Value	F	Hypothesis df	Error df	Sig.
Gender	Pillai's Trace	.017	1.143	6.000	392.000	.337
	Wilks' Lambda	.983	1.143	6.000	392.000	.337
	Hotelling's Trace	.017	1.143	6.000	392.000	.337
	Roy's Largest Root	.017	1.143	6.000	392.000	.337

Note: * Level of significant at p ≤ .05

Table 41 Univariate results of overall attitudes of passenger by gender

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Gender	Beliefs	.319	1	.319	1.203	.273
	Evaluation	1.195	1	1.195	3.500	.062
	Behavioral Intention	.030	1	.030	.092	.762

Note: * Level of significant at $p \leq .05$

Both male and female respondents revealed attitudes on impacts of airlines on global warming; for beliefs ($\bar{X} = 4.07_{male}$ vs. $\bar{X} = 4.12_{female}$); ($\bar{X} = 4.06_{male}$ vs. $\bar{X} = 4.17_{female}$) for evaluation; and ($\bar{X} = 4.06_{male}$ vs. $\bar{X} = 4.08_{female}$) for behavioural intention. The result indicates that both male and female respondents agreed on their overall attitudes towards global warming in relation to choosing the airline service (see Table 42).

Table 42 Descriptive statistic of overall attitudes of passengers towards airlines' attempt to alleviate impact on global warming by gender

	Gender	$\bar{X}$	S.D.
Beliefs	Male	4.07	0.50
	Female	4.12	0.52
	Total	4.10	0.52
Evaluation	Male	4.06	0.60
	Female	4.17	0.57
	Total	4.12	0.59
Behavioural intention	Male	4.06	0.56
	Female	4.08	0.58
	Total	4.07	0.57

Note: 1 – 1.80 = strongly disagree, 1.81 – 2.60 = disagree, 2.61 – 3.40 = neither agree nor disagree, 3.41 – 4.20 = agree, and 4.21 – 5.00 = strongly agree

Hypothesis 2.2: The passengers with different age levels will have different attitudes towards global warming in relation to choosing the airline service.

Multivariate Analysis of Variance was used to analyze age as the independent variable and the three components of attitudes (beliefs, evaluation, behavioural intention) as dependent variables and there is a significant difference in the overall perception ($\lambda = 1.930$, $p < .05$). That is, the respondents of different age groups perceived the three components of attitudes towards airlines' attempt to alleviate impacts on global warming differently (see Table 43).

Table 43 Multivariate Analysis of Variance (MANOVA) results of overall attitudes of passengers by age

Effect		Value	F	Hypothesis df	Error df	Sig.
Age	Pillai's Trace	.114	1.924	24.000	1568.000	.005
	Wilks' Lambda	.890	1.930	24.000	1358.269	.005
	Hotelling's Trace	.120	1.932	24.000	1550.000	.004
	Roy's Largest Root	.059	3.853(b)	6.000	392.000	.001

Note: * Level of significant at $p \leq .05$

Univariate results revealed that the passengers of different age levels expressed different levels of behavioural intention ($F= 3.769$; $p < .01$) and beliefs ($F= 2.912$; $p < .05$) (see Table 44).

Table 44 Univariate results of overall attitudes of passenger by age

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Age	Beliefs	3.032	4	.758	2.912	.021
	Evaluation	2.697	4	.674	1.983	.096
	Behavioral Intention	4.755	4	1.189	3.769	.005

Note: * Level of significant at $p \leq .05$

Post-hoc analysis (LSD) revealed that, regarding the beliefs, the passengers whose age is under 20 years old ($\bar{X}$ = 4.33) expressed different levels of beliefs from those age between 20-35 years old ($\bar{X}$ = 4.05), and those age between 51-65 years old ($\bar{X}$ = 4.07).

Regarding the behavioural intention, the passengers whose age is under 20 years old showed different levels of behavioural intention from those ages between 20-35 years old ($\bar{X}$ = 4.30 vs. $\bar{X}$ = 3.99). Besides, the behavioural intention, the passengers whose age is between 20-35 years old from those between 36-50 years old ($\bar{X}$ = 3.99 vs. $\bar{X}$ = 4.17).

That is, all age groups revealed a high level of beliefs and behavioural intention towards global warming in relation to choosing the airline service (see Table 45 and Table 46).

Table 45 Descriptive statistic of overall attitudes of passengers towards airlines' attempt to alleviate impact on global warming by age

	Age	$\bar{X}$	**S.D.**
Beliefs	Under 20	4.33	0.30
	20-35	4.05	0.52
	36-50	4.13	0.52
	51-65	4.07	0.52
	Over 65	4.43	0.47
	Total	4.10	0.52
Behavioural Intention	Under 20	4.30	0.47
	20-35	3.99	0.58
	36-50	4.17	0.57
	51-65	4.13	0.51
	Over 65	4.38	0.52
	Total	4.07	0.57

Note: 1 – 1.80 = strongly disagree, 1.81 – 2.60 = disagree, 2.61 – 3.40 = neither agree nor disagree, 3.41 – 4.20 = agree, and 4.21 – 5.00 = strongly agree

Table 46 Post-hoc tests of overall passengers' attitudes towards airline's impacts on global warming by age

LSD

Dependent Variable	(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.
Beliefs	Under 20	20-35	.2821(*)	.10037	.005
		36-50	.2012	.10837	.064
		51-65	.2623(*)	.13080	.046
		Over 65	-.0975	.21485	.650
	20-35	Under 20	-.2821(*)	.10037	.005
		36-50	-.0808	.06219	.194
		51-65	-.0198	.09608	.837
		Over 65	-.3796	.19566	.053
	36-50	Under 20	-.2012	.10837	.064
		20-35	.0808	.06219	.194
		51-65	.0610	.10442	.559
		Over 65	-.2988	.19988	.136
	51-65	Under 20	-.2623(*)	.13080	.046
		20-35	.0198	.09608	.837
		36-50	-.0610	.10442	.559
		Over 65	-.3598	.21288	.092
	Over 65	Under 20	.0975	.21485	.650
		20-35	.3796	.19566	.053
		36-50	.2988	.19988	.136
		51-65	.3598	.21288	.092

Table 46 (Cont.)

LSD

Dependent Variable	(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.
Behavioral Intention	Under 20	20-35	.3073(*)	.11048	.006
		36-50	.1251	.11929	.295
		51-65	.1739	.14398	.228
		Over 65	-.0821	.23650	.729
	20-35	Under 20	-.3073(*)	.11048	.006
		36-50	-.1822(*)	.06845	.008
		51-65	-.1334	.10577	.208
		Over 65	-.3894	.21537	.071
	36-50	Under 20	-.1251	.11929	.295
		20-35	.1822(*)	.06845	.008
		51-65	.0488	.11494	.672
		Over 65	-.2072	.22002	.347
	51-65	Under 20	-.1739	.14398	.228
		20-35	.1334	.10577	.208
		36-50	-.0488	.11494	.672
		Over 65	-.2560	.23433	.275
	Over 65	Under 20	.0821	.23650	.729
		20-35	.3894	.21537	.071
		36-50	.2072	.22002	.347
		51-65	.2560	.23433	.275

Note: * The mean difference is significant at the .05 level.

Hypothesis 2.3: The passengers with different educational level will have different attitudes towards global warming in relation to choosing the airline service.

Multivariate Analysis of Variance was used to analyze educational level as an independent variable and the three components of attitudes (beliefs, evaluation, and behavioural intention) as dependent variables and there is no significant difference ($\lambda = 1.369$, $p > .05$) (see Table 47). The result indicates that all educational level groups perceived no difference on attitudes towards global warming in relation to choosing the airline service (see Table 48).

Table 47 Multivariate Analysis of Variance (MANOVA) results of overall attitudes of passengers by educational level

Effect		Value	F	Hypothesis df	Error df	Sig.
Educational Level	Pillai's Trace	.082	1.369	24.000	1568.000	.110
	Wilks' Lambda	.920	1.369	24.000	1358.269	.110
	Hotelling's Trace	.085	1.368	24.000	1550.000	.110
	Roy's Largest Root	.042	2.727	6.000	392.000	.013

Note: * Level of significant at $p \leq .05$

Table 48 Univariate results of overall attitudes of passengers by educational level

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Educational level	Beliefs	1.011	4	.253	.952	.434
	Evaluation	.876	4	.219	.635	.638
	Behavioral Intention	1.728	4	.432	1.337	.255

Note: * Level of significant at $p \leq .05$

All educational level groups revealed attitudes on airlines impact on global warming overall beliefs, evaluation, and behavioural intention ($\bar{X}$ = 4.10 vs. $\bar{X}$ = 4.12 vs. $\bar{X}$ = 4.07). The result indicates that all educational level groups agreed on their overall attitudes towards global warming in relation to choosing the airline service (see table 49).

Table 49 Descriptive statistic of overall attitudes of passengers towards airlines' attempt to alleviate impact on global warming by educational level

	Education Level	$\bar{X}$	S.D.
Beliefs	High School	4.19	0.39
	Vocational qualification	4.14	0.48
	Bachelor degree	4.05	0.55
	Master degree	4.09	0.52
	Doctoral degree	4.20	0.51
	Total	4.10	0.52

Table 49 (Cont.)

	Education Level	$\bar{\chi}$	S.D.
Evaluation	High School	4.20	0.53
	Vocational qualification	4.09	0.58
	Bachelor degree	4.11	0.60
	Master degree	4.10	0.59
	Doctoral degree	4.36	0.64
	Total	4.12	0.59
Behavioural Intention	High School	4.16	0.56
	Vocational qualification	4.05	0.56
	Bachelor degree	4.05	0.59
	Master degree	4.07	0.53
	Doctoral degree	4.42	062
	Total	4.07	0.56

Note: 1 – 1.80 = strongly disagree, 1.81 – 2.60 = disagree, 2.61 – 3.40 = neither agree nor disagree, 3.41 – 4.20 = agree, and 4.21 – 5.00 = strongly agree

Hypothesis 2.4: The passengers with different occupation will have different attitudes towards global warming in relation to choosing the airline service.

Multivariate Analysis of Variance was conducted with occupation as independent variable and the three components of attitudes (beliefs, evaluation, and behavioural intention) as dependent variables and there is no significant difference (λ = 1.268, p> .05) (see Table 50). The result indicates that all occupation groups perceived no difference on attitudes towards global warming in relation to choosing the airline service (see Table 51).

Table 50 Multivariate Analysis of Variance (MANOVA) results of overall attitudes of passengers by occupation

Effect		Value	F	Hypothesis df	Error df	Sig.
Occupation	Pillai's Trace	.076	1.264	24.000	1568.000	.177
	Wilks' Lambda	.926	1.268	24.000	1358.269	.174
	Hotelling's Trace	.079	1.272	24.000	1550.000	.171
	Roy's Largest Root	.051	3.333(b)	6.000	392.000	.003

Note: * Level of significant at $p \leq .05$

Table 51 Univariate results of overall attitudes of passengers by occupation

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Occupation	Beliefs	2.879	4	.720	2.761	.027
	Evaluation	3.658	4	.914	2.708	.030
	Behavioral Intention	2.151	4	.538	1.670	.156

Note: * Level of significant at $p \leq .05$

All occupation groups revealed no significant attitudes on impacts of airlines on global warming for overall beliefs, evaluation, and behavioural intention ($\bar{X}$ = 4.10 vs. $\bar{X}$ = 4.12 vs. $\bar{X}$ = 4.07). The result indicates that all occupation groups agreed on their overall attitudes towards global warming in relation to choosing the airline service (see Table 52).

Table 52 Descriptive statistic of overall attitudes of passengers towards airlines' attempt to alleviate impact on global warming by occupation

	Occupation	$\bar{\chi}$	S.D.
Beliefs	Government Officer	4.16	0.53
	Private company officer	4.09	0.54
	Self-employed	4.08	0.48
	Student	4.13	0.46
	Others	3.30	0.53
	Total	4.10	0.52
Evaluation	Government Officer	4.22	0.61
	Private company officer	4.08	0.57
	Self-employed	4.11	0.60
	Student	4.16	0.53
	Others	3.31	0.52
	Total	4.12	0.59
Behavioural intention	Government Officer	4.11	0.59
	Private company officer	4.05	0.55
	Self-employed	4.07	0.55
	Student	4.14	0.61
	Others	3.42	0.57
	Total	4.07	0.57

Note: 1 – 1.80 = strongly disagree, 1.81 – 2.60 = disagree, 2.61 – 3.40 = neither agree nor disagree, 3.41 – 4.20 = agree, and 4.21 – 5.00 = strongly agree

Hypothesis 2.5: The passengers with different income levels will have different attitudes towards global warming in relation to choosing the airline service.

Multivariate Analysis of Variance was used to analyze with income as independent variables and the three components of attitudes (beliefs, evaluation, behavioural intention) as dependent variables and there is a significant difference in the overall attitudes ($\lambda = 1.798$, $p < .05$). That is, the respondents of different income groups perceived the three components of attitudes towards global warming in relation to choosing the airline service differently (see Table 53).

Table 53 Multivariate Analysis of Variance (MANOVA) results of overall attitudes of passengers by income

Effect		Value	F	Hypothesis df	Error df	Sig.
Income	Pillai's Trace	.107	1.788	24.000	1568.000	.011
	Wilks' Lambda	.897	1.798	24.000	1358.269	.010
	Hotelling's Trace	.112	1.805	24.000	1550.000	.010
	Roy's Largest Root	.063	4.136(b)	6.000	392.000	.000

Note: * Level of significant at $p \leq .05$

Univariate results revealed that the passengers of different income groups expressed no difference of each component of the attitudes (see Table 54).

Table 54 Univariate results of overall attitudes of passengers by income

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Income	Beliefs	.754	4	.188	.708	.587
	Evaluation	1.188	4	.297	.863	.486
	Behavioral Intention	1.395	4	.349	1.077	.368

Note: * Level of significant at $p \leq .05$

All income groups of respondents revealed no significant attitudes on impacts of airlines on global warming; for overall beliefs, evaluation, and behavioural intention ($\bar{X}$ = 4.10 vs. $\bar{X}$ = 4.12 vs. $\bar{X}$ = 4.07). The result indicates that all income groups perceived agree on their overall attitudes towards airlines' attempt to alleviate impacts on global warming (see Table 55).

Table 55 Descriptive statistic of overall attitudes of passengers towards airlines' attempt to alleviate impact on global warming by income

	Income (per month)	$\bar{X}$	S.D.
Beliefs	Less than $ 1,500	4.00	0.45
	$ 1,500 - $ 3,000	4.09	0.55
	$ 3,001 - $ 4,500	4.14	0.54
	$ 4,501- $ 6,000	4.12	0.44
	Over $ 6,000	4.08	0.57
	Total	4.10	0.52

Table 55 (Cont.)

	Income (per month)	$\bar{X}$	S.D.
Evaluation	Less than $ 1,500	4.01	0.50
	$ 1,500 - $ 3,000	4.14	0.63
	$ 3,001 - $ 4,500	4.15	0.60
	$ 4,501- $ 6,000	4.14	0.46
	Over $ 6,000	4.01	0.74
	Total	4.12	0.59
Behavioural Intention	Less than $ 1,500	3.94	0.58
	$ 1,500 - $ 3,000	4.07	0.59
	$ 3,001 - $ 4,500	4.12	0.59
	$ 4,501- $ 6,000	4.08	0.38
	Over $ 6,000	4.17	0.75
	Total	4.07	0.57

Note: 1 – 1.80 = strongly disagree, 1.81 – 2.60 = disagree, 2.61 – 3.40 = neither agree nor disagree, 3.41 – 4.20 = agree, and 4.21 – 5.00 = strongly agree

Hypothesis 2.6: The passengers with different nationalities will have different attitudes towards global warming in relation to choosing the airline service.

Multivariate Analysis of Variance was conducted with nationality as independent variable and the three components of attitudes (beliefs, evaluation, behavioural intention) as dependent variables and there is a significant difference in the overall perception ($\lambda = 2.850$, $p < .05$). The respondents of different nationalities perceived the three components of attitudes towards airlines' attempt to alleviate impacts on global warming differently (see Table 56).

Table 56 Multivariate Analysis of Variance (MANOVA) results of overall attitudes of passengers by nationality

Effect		Value	F	Hypothesis df	Error df	Sig.
Nationality	Pillai's Trace	.125	2.847	18.000	1176.000	.000
	Wilks' Lambda	.879	2.850	18.000	1103.572	.000
	Hotelling's Trace	.132	2.848	18.000	1166.000	.000
	Roy's Largest Root	.063	4.147	6.000	392.000	.000

Note: * Level of significant at $p \leq .05$

Univariate results revealed that the passengers of different nationalities expressed different level of beliefs (F= 5.660; $p < .01$), behavioural intention (F=4.208; $p < .01$), and evaluation (F= 2.972; $p < .05$) (see Table 57).

Table 57 Univariate results of overall attitudes of passengers by nationality

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Nationality	Beliefs	4.351	3	1.450	5.660	.001
	Evaluation	3.017	3	1.006	2.972	.032
	Behavioral Intention	3.996	3	1.332	4.208	.006

Note: * Level of significant at $p \leq .05$

Post-hoc analysis (LSD) revealed that the beliefs of the Scandinavians ($\bar{X}$ = 3.96) expressed different levels from the Europeans ($\bar{X}$ = 4.15) and the North Americans ($\bar{X}$ = 4.17). Besides, the Europeans presented different levels of beliefs from the group of other nationalities ($\bar{X}$ = 4.15 vs. $\bar{X}$ = 3.77). Moreover, the passengers whose nationality is North American group showed different levels of beliefs from the group of other nationalities ($\bar{X}$ = 4.17 vs. $\bar{X}$ = 3.77).

Regarding evaluation, the Scandinavians expressed different levels of evaluation from the Europeans ($\bar{X}$ = 4.01 vs. $\bar{X}$ = 4.16). Moreover, the Europeans showed different levels of evaluation from the group of other nationalities ($\bar{X}$ = 4.16 vs. $\bar{X}$ = 3.83). In addition, the passengers whose nationality is North Americans presented different levels of evaluation from the group of other nationalities ($\bar{X}$ = 4.20 vs. $\bar{X}$ = 3.83).

Regarding the behavioural intention, the Scandinavians ($\bar{X}$ = 3.91) expressed different levels of behavioural intention from the Europeans ($\bar{X}$ = 4.12) and the North Americans ($\bar{X}$ = 4.19).

There is a significant difference among the passengers of different nationalities who revealed high levels of beliefs, evaluation, and comprehension towards global warming in relation to choosing the airline service (see Table 58 and Table 59).

Table 58 Descriptive statistic of overall attitudes of passengers towards airlines' attempt to alleviate impact on global warming by nationality

	Nationality	$\bar{\chi}$	S.D.
Beliefs	Scandinavian	3.96	0.54
	European	4.15	0.52
	North American	4.17	0.43
	Other	3.77	0.37
	Total	4.10	0.52
Evaluation	Scandinavian	4.01	0.54
	European	4.16	0.61
	North American	4.20	0.54
	Other	3.83	0.44
	Total	4.12	0.59
Behavioural intention	Scandinavian	3.91	0.56
	European	4.12	0.55
	North American	4.19	0.59
	Other	3.98	0.70
	Total	4.07	0.57

Note: 1 – 1.80 = strongly disagree, 1.81 – 2.60 = disagree, 2.61 – 3.40 = neither agree nor disagree, 3.41 – 4.20 = agree, and 4.21 – 5.00 = strongly agree

Table 59 Post-hoc tests of overall passengers' attitudes towards airline's impacts on global warming by nationality

LSD

Dependent Variable	(I) Nationality	(J) Nationality	Mean Difference (I-J)	Std. Error	Sig.
Beliefs	Scandinavian	European	-.1899(*)	.06110	.002
		North American	-.2081(*)	.08701	.017
		Other	.1916	.14046	.173
	European	Scandinavian	.1899(*)	.06110	.002
		North American	-.0182	.07758	.815
		Other	.3816(*)	.13482	.005
	North American	Scandinavian	.2081(*)	.08701	.017
		European	.0182	.07758	.815
		Other	.3997(*)	.14837	.007
	Other	Scandinavian	-.1916	.14046	.173
		European	-.3816(*)	.13482	.005
		North American	-.3997(*)	.14837	.007
Evaluation	Scandinavian	European	-.1446(*)	.07021	.040
		North American	-.1890	.09999	.059
		Other	.1796	.16141	.267

Table 59 (Cont.)

LSD

Dependent Variable	(I) Nationality	(J) Nationality	Mean Difference (I-J)	Std. Error	Sig.
	European	Scandinavian	.1446(*)	.07021	.040
		North American	-.0445	.08916	.618
		Other	.3241(*)	.15493	.037
	North American	Scandinavian	.1890	.09999	.059
		European	.0445	.08916	.618
		Other	.3686(*)	.17050	.031
	Other	Scandinavian	-.1796	.16141	.267
		European	-.3241(*)	.15493	.037
		North American	-.3686(*)	.17050	.031
Behavioral intention	Scandinavian	European	-.2113(*)	.06790	.002
		North American	-.2817(*)	.09669	.004
		Other	-.0671	.15609	.667
	European	Scandinavian	.2113(*)	.06790	.002
		North American	-.0703	.08622	.415
		Other	.1442	.14982	.336

Table 59 (Cont.)

LSD

Dependent Variable	(I) Nationality	(J) Nationality	Mean Difference (I-J)	Std. Error	Sig.
	North American	Scandinavian	.2817(*)	.09669	.004
		European	.0703	.08622	.415
		Other	.2145	.16489	.194
	Other	Scandinavian	.0671	.15609	.667
		European	-.1442	.14982	.336
		North American	-.2145	.16489	.194

Note: * The mean difference is significant at the .05 level.

H3: There is a positive relationship between passengers' perception and attitudes towards global warming relating to the airline services.

Pearson's product moment correlation coefficient was used to analyze the relationship between passengers' perception and attitudes towards global warming relating to the airline services. The results revealed a significantly positive and high correlation between passengers' perception and attitudes ($r = .715$; $p < .01$, See Table 60). The passengers who have positive perception will be more likely to develop positive attitudes towards global warming relating to the airline services.

Table 60 Pearson's Product Moment Correlation Coefficient results of relationship between passengers' perception and attitudes

	Perception	Attitude
Perception	1	.715(*)
Attitude		1

Note: *Correlation is significant at the 0.01 level (2-tailed).

Conclusion

The findings of this research revealed that age, income, and nationalities of passengers relating to their level of perception and attitude towards airlines' impact on global warming in choosing airline service. Moreover, the findings also indicated that there is a positive relationship between perception and attitudes towards global warming relating to the airline service (see Table 61).

Table 61 Conclusion of hypotheses

Hypothesis	Statistic	Result
Hypothesis 1	MANOVA	Partially confirmed
Hypothesis 2	MANOVA	Partially confirmed
Hypothesis3	Pearson's Product Moment Correlation Coefficient	Positive Relationship