PEAT

A Study on the Perception of Climate Change and its Awareness Level Among the Students in UTHM Pagoh Campus

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Abstract: Climate change refers to long-term shifts in temperature and weather patterns. Since the industrial revolution, human emissions of greenhouse gases from fossil fuel combustion, deforestation, and agricultural practices have led to climate change occur. Therefore, the purpose of this research is to explore the consumer perception of climate change among UTHM Pagoh students. The first objective is to identify the relationship between consumer perception and climate change and the second objective is to analyse the level of awareness of the consumer on climate change. This study was conducted using a questionnaire instrument. The questionnaire was distributed in google form to 341 respondents. The data were collected and analysed using the Statistical Packages for Social Science (SPSS) Version 26 software. Data will be calculated using the descriptive analysis method to obtain the frequency, percentage and mean score. The results of the study show that the frequency of respondents' answers for knowledge and understanding of consumer regarding climate change among UTHM Pagoh students is at a high level. Meanwhile, the mean level interpretation results for awareness of consumers on climate change are at a high level. However, the results for behavior and attitude of consumers on climate change are at a moderate level. Therefore, the findings of the study show that consumers are aware of the causes of climate change but they are not contributing their part in how to reduce the effect of climate change in their daily life. This study is expected to provide input and help the consumer in raising awareness about climate change.

Keywords: Climate change, Consumer's Perception, Awareness Level

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1. Introduction

Climate change is a globally acknowledged issue that needs to be recognized in the early stage of it. It is a significant, current, and persistent issue. As this is particularly true in the Arctic [1]. If you are not familiar with the term, climate change refers to a long-term modification of weather patterns that takes place either worldwide or regionally. Climate change is largely a result of increased atmospheric carbon dioxide caused by the combustion of fossil fuels, which includes emissions from manufacturing, the burning of garbage, and the exhaust from cars and trucks [2]. The general temperature of the Earth's atmosphere has been shown to rise over time due to these processes, which is known as global warming. Some of the effects of global warming include rising temperatures in the air and sea around the Arctic. Sea ice loss and ice sheet melting are other effects of warming temperatures [3]. Meanwhile, in terms of both life expectancy and life satisfaction, the tremendous increase in global production and consumption during the past 200 years will improve the lives of billions of people [4]. Thus, fossil fuel combustion releases greenhouse gas emissions that serve as a blanket around the planet, trapping heat from the sun and causing temperatures to rise [2]. The Earth has become warmed by around 1.1°C since the late 1800s century.

Therefore, the most important challenge of the modern era is climate change. It becomes more certain than ever because there is evidence that humans are changing the earth's climate by conducting activities such as deforestation and burning of fossil fuels and these activities contribute to an increase in the average temperature of the Earth [5]. Since the beginning of the industrial revolution, in the early 20th century, burning fossil fuels has increased atmospheric carbon dioxide concentrations by more than 40% [2]. Due to this, unprecedented flooding, heat waves, and wildfires have cost billions of damages to human and natural resources. Furthermore, technology usage becomes widely used in every activity, which contributes to fossil fuel combustion being more influenced by climate change [7]. The global greenhouse gas emissions stated that 65% of the carbon dioxide gas comes from the usage of fossil fuel and industrial processes [6]. On the other factors, the extraction and production of materials can also increase greenhouse gases. Therefore, the consequences of disasters on the environment should not be underestimated, it happens because humans are more influenced by the use of technology. The objective of this study is to identify the relationship between consumer perception and climate change. The second objective is to analyse the level of awareness of the consumer on climate change.

2. Methodology

The flow of the research methodology that is carried out in this research is illustrated in Figure 1.

Issues and problem statement
Climate change has become increasing nowadays which were affect the environment and human health

Aim of Research
To study the consumer perception and their level of awareness on climate change

Method

Identify the best method to do the research study by quantitative method

Data Collection
  i.   Literature Review
  ii. Questionnaire
  iii. Pilot testing
Data Analysis
  i.   SPSS
  ii. Google Form

Outcome: A pilot test will be conducted on 34 respondents to ensure that data collection can be carried out smoothly

The questionnaire will be distributed to 341 respondents through a google survey form

Data will be collected and analysed using SPSS Software

Discussions will be made based on the feedback of the respondents to achieve the target of the study.

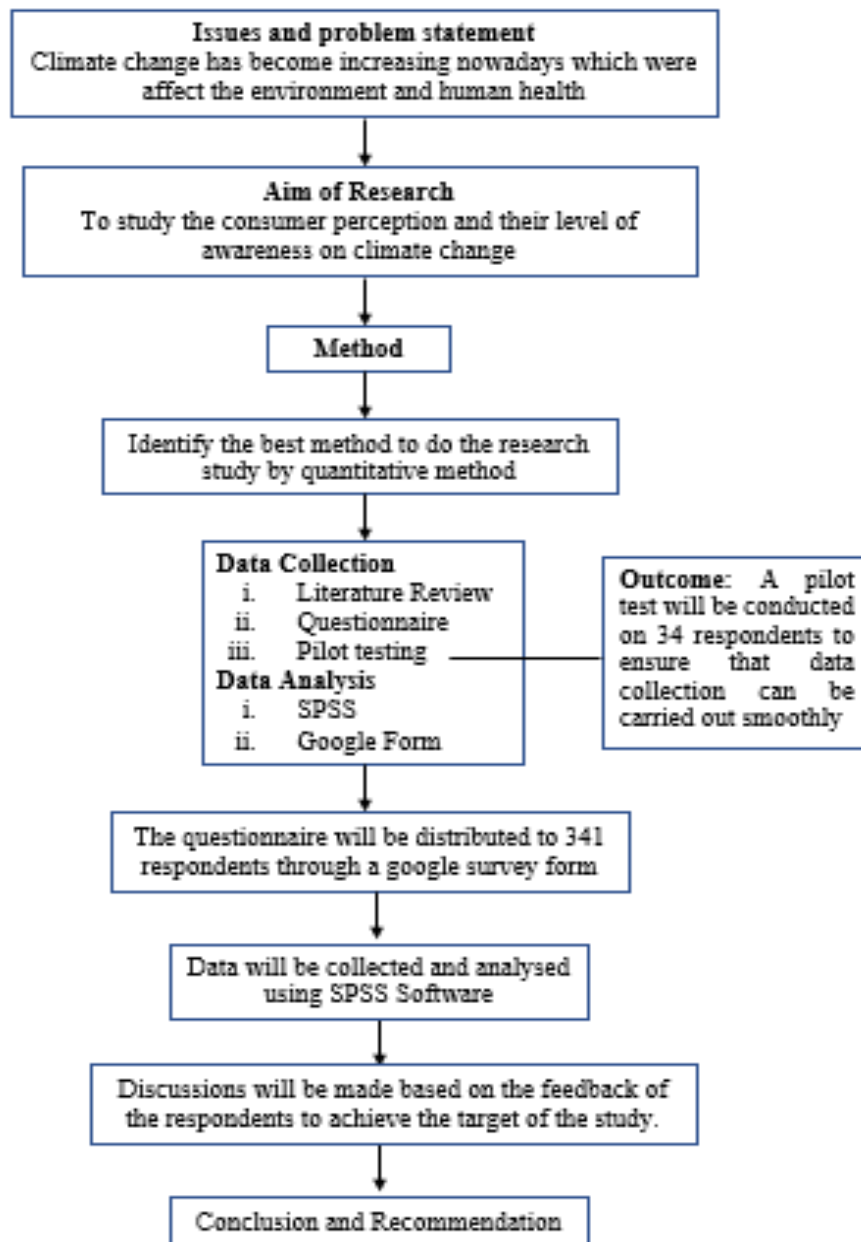Conclusion and Recommendation

Figure 1: Methodology of the process

2.1 Research design

The purpose of research design is to provide an appropriate framework for a study. Besides that, selecting a research approach is a key step in the research design process since it decides how pertinent data for a study will be gathered. Therefore, it plays an important role to the researchers for obtained the results of the study. The data collection methods in descriptive research will be done by using the survey research method.

2.2 Population and sample

In this study, the population of the respondents was students from UTHM Pagoh that were responsible for nature with a total of 3000. The rationale for choosing students as a consumer is to determine the student's perception and awareness of the climate change phenomenon. The sampling procedure of this study refers to a group of subjects who will have certain characteristics selected as study respondents. In this study, the sample size of the research is 341 respondents. The pilot study sample should be 10% of the sample project which were 34 samples for the larger parent study. In this study, the sample size was 341 from 50%. In this research, the consumer perception may represent by the students from UTHM Pagoh. The questionnaires will send via google survey form and the link will be sent to the respondents via WhatsApp Messenger and Telegram. In such a way, the sample could be collected without any hesitation and it would encourage the respondents to fill up it out at any time.

2.3 Pilot test

A pilot test will conduct before the questionnaire is distributed to the respondents. It is an essential part for evaluate the questionnaire as stated by Matt Wright. The pilot test will ensure that researchers conduct rehearsals with a small number of groups before conducting the main study. In addition, the advantage of conducting a pilot test will be to analyse the context and language of the questionnaire, the time the respondents fill out the survey form and also be able to determine the demographic characteristics of the respondents. It will improve the research design and can ensure that the research runs smoothly and dramatically improve the output of the study.

After the pilot test is complete, the questionnaire will be distributed to the respondents. The questionnaire to be conducted is divided into four parts, namely part A, part B, part C and part D as shown in Table 1. Part A is related to the profile and demographic characteristics of the respondents. In part B is to identify basic knowledge and understanding of consumers regarding the climate changes. Meanwhile, in part C is to analyse the awareness of the consumer regarding the climate change. Finally, in part D the question is related to analyse the behavior and attitude of the consumer. The design for this questionnaire is using 5-point Likert Scale which will be applied for the questionnaire of part C and D.

In this study, the researchers used a Likert scale where it will be used to analyse the questions. Likert scales which evaluate the human attitudes are examples of psychometric scales that are commonly utilized in social science and educational research. The Likert scale used is a five-point type as per mention in Table 2 and Table 3.

Table 1: Questionnaire section

Part	Title
A	General information of respondents
B	Identify the basic knowledge and understanding of consumer
C	Analyse the awareness of the consumer
D	Analyse the behavior and attitude of consumer

Table 2: Likert scale of 5 point

Consumer Satisfaction	Score
Strongly Disagree	1
Disagree	2
Neither Disagree nor Agree	3
Agree	4
Strongly Agree	5

Table 3: Likert scale of 5 point

Consumer Satisfaction	Score
Never	1
Rarely	2
Sometimes	3
Often	4
Always	5

2.4 Reliability of the research instrument

Once the data is collected and after undergoing validation, the results of the study will be able to be viewed and evaluated. In this study, the researcher used Cronbach's Alpha table to see the level of reliability of the study instrument. It stated that the values of validity and reliability of the acceptable research instruments were in the score range of 0.61 to 0.70. While the reliability is at a good level, high and effective if the score value is close to 1.0 while scores less than 0.6 are non-acceptable and the reliability of the constructed items is low. Table 4 shows the value of Cronbach's Alpha coefficient.

Table 4: Cronbach's Alpha coefficient value

Consumer Satisfaction	Score
0.90 – 1.00	Excellent
0.81 – 0.90	Good
0.71 – 0.80	Good and Acceptable
0.61 – 0.70	Acceptable
0.01 – 0.60	Non-acceptable

2.5 Descriptive analysis

Data analysis is vital to ensure that all of the essential information is gathered and do the comparison based on the survey form. Descriptive analysis is used to characterize the fundamental characteristics of study data. In a descriptive method, the number and diagrams will indicate the information to make it easier for people to read and understand it. Besides that, the researcher will examine the data with Statistical Packages for Science and Social Science (SPSS) software. It gives quick summaries of the sample and the metrics. They are the foundation of practically every quantitative data analysis, along with simple graphical analysis. This is the best method of analysis for this research.

2.6 T-test

A t-test is a statistical test that is used to compare the means of two groups. It is often used in hypothesis testing to determine whether a process or treatment actually has an effect on the population of interest, or whether two groups are different from one another. The difference in consumer perception based on gender factor will be analyse using the t-test because there are two groups of the gender which are male and female. The determination of the difference between two groups being compare based on the value obtained from the data SPSS software.

3. Results and Discussion

3.2 Results

The demographic information will be analysed in this section. There are four questions about the demographic information in Part A such as respondent's gender, age, current year of study and respondent's level of study. Hence, the data collected from the respondents were tested using Statistical Packages for the Social Sciences (SPSS). The result of the data will be analyse using descriptive analysis. The data collected from the respondents were tested using SPSS software. Table 5 shows the data collected from the respondents.

Table 5: Demographic Section

Demographic Section		Frequency	Percentage (%)
Gender	Male	129	52.4
	Female	117	47.6
Age	20 and below	26	10.6
	21 – 25	85	34.6
	26 - 30	84	34.1
	31 – 35	40	16.3
	36 and above	11	4.5
Current year of study	1	45	18.3
	2	47	19.1
	3	98	39.8
	4	56	22.8
Level of study	Diploma	62	25.2
	Bachelor Degree	151	61.4
	Postgraduate	33	13.4

According to Table 5, the highest number of respondents to the survey are male with 129 (52.4%), while the majority of respondents to the survey are from the age 26 -30 with 84 (34.1%). Moreover, most of the respondents are year 3 students 98 (39.8%) and the highest frequency level of study are bachelor degree with 151 (61.4%).

Table 6: General knowledge and understanding on climate change

	Items	Description	Frequency	Percentage (%)
B1	Have you ever heard about climate change?	Yes	246	100
		No		
B2	What do you know about climate change?	It is the weather condition	188	76.4
		It is the change of weather at a particular time	58	23.6
		None		
B3	Do climate changes are caused by human beings?	Yes	246	100
		No		
		Maybe		
B4	Do humans need to be concerned about the effects of climate change?	Yes	223	90.7
		No		
		Maybe	23	9.3
B5	Do you think an individual's action causes climate change?	Yes	223	90.7
		No		
		Maybe	23	9.3
B6	How do the causes of climate change could affect you?	Causes ill health	103	41.9
		It causes pollution of the environment	143	58.1
		None		
B7	Do you think the problem caused by climate change can be solved?	Yes	246	100
		No		
		Maybe		

Table 6 shows the respondents' data regarding their perception of general knowledge. In this part, the question is analyse based on the frequency and percentage. From the data collection, the students are aware of the knowledge and understand well the climate change that occurs the last 10 years.

Table 7: Analyse on awareness of students

	Items	Frequency Score (%)					Mean	Mean Score Interpretation
		1	2	3	4	5		
C1	I have noticed some particular changes in the environment (climate) in the last 10 years.				60 (24.4)	186 (75.6)	4.76	High
C2	Climate change causes rise in sea levels.				111 (45.1)	135 (54.9)	4.55	High
C3	The effects of climate change are likely to be catastrophic				97 (39.4)	149 (60.6)	4.61	High
C4	I am always aware of the climate change that is happening nowadays.			2 (0.8)	108 (43.9)	136 (55.3)	4.54	High
C5	I always participate in the climate change campaign to gain knowledge.		41 (16.7)	99 (40.2)	72 (29.3)	34 (13.8)	3.40	Moderate
C6	I will promote a greener environment to reduce climate change.		6 (2.4)	136 (55.3)	88 (35.8)	16 (6.5)	3.46	Moderate
Total Mean							**4.22**	

There are 6 items that have been constructed that has been shown in Table 7. To evaluate the item the researcher used Likert Scale such as strongly disagree, disagree, neither disagree nor agree, agree and strongly agree. The analyse interpretation of the mean score of the data shows that 4 items in the questionnaire are in a high score while 2 items are in a moderate score.

Table 8: Analyse behavior and attitude of consumer

	Items	Frequency Score (%)					Mean	Mean Score Interpretation
		1	2	3	4	5		
D1	I am interested in sustainable products and I am willing to buy them			16 (6.5)	90 (36.6)	140 (56.9)	4.50	High
D2	I only buy what I need and don't replace it unless necessary		23 (9.3)	53 (21.5)	120 (48.8)	50 (20.3)	3.80	High
D3	I only buy products with the ecologic label.	14 (5.7)	76 (30.9)	115 (46.7)	37 (15.0)	4 (1.6)	2.76	Moderate
D4	I would seek information about the manufacturing process of products from additional sources (e.g., websites, discussion groups, friends)	44 (17.9)	94 (38.2)	86 (35.0)	19 (7.7)	3 (1.2)	2.36	Moderate
D5	I always use public transport rather than my own transport.	25 (10.2)	92 (37.4)	104 (42.3)	25 (10.2)		2.52	Moderate
D6	I always bring recycle bag when purchasing things.		21 (8.5)	64 (26.0)	136 (55.3)	25 (10.2)	3.67	High
D7	I always practice the 3R concept (reduce, reuse, recycle) in my life.		19 (7.7)	92 (37.4)	110 (44.7)	25 (10.2)	3.57	Moderate
Total Mean							**3.31**	

In this part, there are 7 items that the researcher analyse. To evaluate the item the researcher used the Likert Scale such as never, rarely, sometimes, often and always to determine the behavior and attitude of the consumer. To conclude, the interpretation of the mean score of the data shows that 4 items in a moderate score while 3 items are in a high score which shown in Table 8.

Table 9: Analyse of the Consumer Perception between the Male and Female

Item		N	Mean	Std. Deviation	T	Df	Significant (P)
PART B	Male	129	1.21	0.223	0.966	244	0.335
	Female	117	1.19	0.185		242.223	
PART C	Male	129	4.20	0.318	-0.839	244	0.402
	Female	117	4.24	0.312		242.500	
PART D	Male	129	3.31	0.533	-0.253	244	0.801
	Female	117	3.32	0.499		243.753	

Based on Table 9 shows that the value of p (significant) for the item in Part B which the general knowledge and understanding of the consumer on climate change is $p = 0.335$. As the value of $p > 0.05$, this means that there is no significant difference in consumer perception based on the gender factor.

The value of p (significant) for the item Part C where to analyse the awareness of the consumer based on gender is $p = 0.402$. As the value of $p > 0.05$, it means that there is no significant difference in consumer perception based on the gender factor.

The value of p (significant) for the item Part D where to analyse the behavior and attitude of the consumer on climate change is $p = 0.801$. As the value of $p > 0.05$, this means that there is no significant difference in consumer perception based on the gender factor.

4. Conclusion

In conclusion, climate change is an important thing that everyone needs to understand and know about it. The researcher distributed the questionnaire to the respondents to evaluate their perception of climate change. In this study, the researcher sent a survey to UTHM Pagoh students to analyse their level of perception of climate change. The result of this research paper was determining the consumer perception of climate change and the awareness of the consumer due to climate change increasing. Based on the questionnaire distributed among 246 respondents, the researcher believes that all of them know and hear about climate change but they are not aware of reducing it. Therefore, the study of climate change is an important part because it can save the environment and human beings from the dangers of climate change. In this way, the consumer will get to know more about climate change and its causes of it due to the climate change effect in the last 10 years which dramatically increase nowadays. Throughout this research study, consumers need to practice more sustainability and efficiency in their life as it can reduce the phenomenon of climate change. Hence, from this survey, the lessons about climate change can be understood by the consumers and from this way, there will be opportunities to minimize the climate change that is happening around the world.

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