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COMPARATIVE STUDY BETWEEN GENDER IN CHOOSING THE EFFECTIVE WAY TO SUPPORT THE GO GREEN CAMPAIGN AMONG HIGHER EDUCATION LEVEL STUDENTS

Muhammad Hasifullah Ibrahim*, Lee Siu Ping, Nor Adibah Asmi and Nurul Amira Shamsuddin and Amir Hamzah Sharaai

Department of Environmental Management, Faculty of Environmental Studies, Universiti Putra Malaysia, 43400 UPM Serdang

* Corresponding Author: hasifullah@aol.com

Abstract

The present study is to identify the effective way to support the Go Green campaign among higher education level students based on their gender. The targeted population for this research is the students of Universiti Putra Malaysia (UPM) in Serdang. Currently, in Malaysia, there are a lot of initiatives taken to increase the awareness of environmental issues among the public. Thus, UPM has joined in with the effort of trying to save the environment in many possible ways. Among the activities that are being carried out in UPM are promoting to use bicycles instead of cars, reducing the uses of polystyrene and also reducing the uses of plastic bag by constantly reminding the students about the effects that they have on the environment. In determining the most effective way to support the Go Green campaign, a group of students is selected randomly to be the sample of this study. The amount of sample taken is 269 students to represent the whole population. They were to choose what activity that they mostly prefer to do in supporting the campaign through the questionnaire distributed based on the objective of the research. The data collected are analyzed using Chi Square test which shows that there is a significant difference ($X^2 = 23.149$, $df = 7$, $p < 0.05$). Finally, the difference in choosing the effective way in supporting the Go Green campaign based on the gender of the students have been determined and it showed that the male students chose car pooling with standard residual value of 3.5, which is the highest value of the results.

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Keywords: Go Green campaign, gender, UPM, environmental issues, Chi Square test

Abstrak

Kajian ini adalah untuk mengenal pasti cara yang berkesan untuk menyokong kempen *Go Green* dalam kalangan pelajar peringkat pendidikan tinggi berdasarkan jantina. Sasaran utama untuk kajian ini adalah pelajar-pelajar Universiti Putra Malaysia (UPM) di Serdang. Sehingga hari ini, di Malaysia, terdapat banyak inisiatif yang diambil dalam meningkatkan kesedaran mengenai isu-isu alam sekitar kepada orang ramai. Oleh itu, UPM turut bersama dalam usaha menyelamatkan alam sekitar dengan pelbagai cara yang telah dikenalpasti. Antara aktiviti-aktiviti yang sedang dijalankan di UPM adalah mempromosikan penggunaan basikal dan mengurangkan penggunaan kereta, mengurangkan penggunaan polistirena dan juga mengurangkan penggunaan beg plastik dengan cara sentiasa mengingatkan pelajar tentang kesan-kesan yang berlaku terhadap alam sekitar. Dalam usaha bagi menentukan cara yang paling berkesan untuk menyokong kempen *Go Green*, sekumpulan pelajar yang telah terpilih secara rawak untuk menjadi sampel dalam kajian ini. Jumlah sampel yang diambil adalah sebanyak 269 pelajar untuk mewakili keseluruhan populasi. Para pelajar di UPM perlu memilih salah satu aktiviti yang mereka lebih gemar jalankan dalam menyokong kempen ini melalui soal selidik yang telah diedarkan yang direka mengikut objektif kajian. Mereka dikehendaki memilih aktiviti yang mereka gemar dalam menyokong kempen tersebut melalui soal selidik yang diedarkan kepada mereka. Data yang dikumpul dianalisis melalui ujian Khi Kuasa Dua yang menunjukkan perbezaan signifikan ($X^2 = 23.149$, $df = 7$, $p < 0.05$). Akhir sekali, perbezaan dalam memilih cara yang paling berkesan bagi menyokong kempen *Go Green* berdasarkan jantina pelajar telah dikenalpasti dengan keputusan pelajar lelaki yang telah memilih kaedah berkongsi kenderaan dengan nilai *standard residual* sebanyak 3.5 dan ini merupakan kadar yang tertinggi bagi keputusan tersebut.

Katakunci: kempen Go Green, jantina, UPM, isu-isu alam sekitar, kempen Go Green, ujian Khi Kuasa Dua

1.0 INTRODUCTION

Malaysia was not always hot in the past. With the growing development and technology expanding, the greenhouse has affected the world's climate tremendously with the increase in temperature and ocean water level. By using a lot of sources which may have caused the rise in temperature, such as deforestation, it greatly reduces the intake of carbon dioxide. Greenhouse gas emissions have risen more rapidly than predicted and consequently the world is getting warmer much more quickly. Global warming will have catastrophic effects such as accelerating the sea water level, droughts, floods, storms and heat waves. As a result, in 1998, the highest temperature recorded in Perlis was 40.1°C [1]. Rising to this degree had made an impact of some of the state's poorest and most vulnerable people, disrupting food production, and threatening vitally important species, habitats and ecosystems.

Therefore, in 2009, the government that governed over Pulau Pinang launched the 'No Plastic Bags Day' where there would be no more free plastic bags to shoppers on Mondays. Over 300 hypermarkets, mini-markets, departmental stores, pharmacies, pet stores and other participating stores and shops in the state pledged their support for the initiative with the objective of cutting down what the state estimates to be 2.1 million plastic bags distributed in the state each month [2]. In 2010, The 'Colour Me Green' campaign is a call for youths all over Malaysia to take environmental action besides spreading awareness regarding various environmental issues [3]. In, 2013, Japanese ICT solutions firm, Fujitsu has just launched its latest Go Green campaign across peninsular Malaysia offering trade-in and disposal initiatives through a partnership with major PC retailers in the country [4].

These recent years, there are so many ways that have been done by people in Malaysia to show their awareness towards global warming. However, among the people, what steps did they use that is the most effective to give an impact to the community? The question remains in between two different genders, in what way did they think that can actually reach out to the community? In performing this research, the activities that have been done by the students can be identified. Lastly, by having that sort of information, this research would be able to know which one is the best way to support the Go Green campaign.

Go Green campaign is basically known as the effort of the public in maintaining the earth's good quality. A lot of things can be related to Go Green campaign from job opportunities in producing environmentally friendly items to engineering, energy efficiency and enhancing the economy entirely [5]. Thus, in fighting all sorts of pollution, this effort plays a big role in offering and reminding while providing information regarding the status quo of the earth's quality. In the Go Green campaign, everyone is encouraged to support it by doing something good to the earth by recycling, car pooling and many more. Hence, as the Go Green campaign is being carried out, it is best to evaluate whether there is any difference between the most effective way to support it based on different genders.

There are two variables involved because the Chi Square test is being used as the statistical test in knowing the difference between these two variables. It was expected that, the female would have higher awareness, thus, they would be performing a direct approach in supporting the campaign.

2.0 LITERATURE REVIEW

There were many experiments related to the research that was being conducted, but the best four articles were chosen to be summarized as the closest reference for the research are presented in Table 1. However, there were still many other mediums that were referring to for this research and had been cited under References.

Table 1: Literature Review Summary Table

Author/s	[6] Hausbeck, et.al (1990)	[7] Larijani (2010)	[8] Ibrahim, et.al (n.d.)	[9] Morgil, et.al (2004)
Problem Statement	To know the level of environmental awareness among the students.	To know whether the higher primary school teachers of Mysore City in India aware about the environment.	To know the levels of environmental knowledge and environmental practices among the students.	To determine the level of environmental knowledge and awareness among the students.
Population and Sample	Population 3200 students Sample 341 students	Population 1400 teachers Sample 302 teachers	Population 78000 students Sample 382 students	Population 112 students Sample 86 students
Data Analysis	Television coverage of environmental problems has increased dramatically in the past few years; newspaper and magazine coverage also has risen significantly. It is possible for people to learn that	Since the government initiated to make Environmental Education an integral part of formal education through its national curriculum framework, considerable work is being done in the direction of	The globe being highly prone to destruction due to human interference, there is an urgent need to educate the public regarding the phenomena like global warming, environmental degradation, etc. The hypothesis null is rejected.	Environmental interest was observed to be correlated with the environmental attitudes and awareness as a result. Therefore, the environmental attitudes of the students are indicators of their

	environmental problems urgently need a solution, without learning much about environmental concepts and subject matter. The null hypothesis is rejected.	integrating environmental concepts into the existing curriculum. Other than that, it, developing new strategies, preparing instructional material for effective implementation of Environmental Education in the formal system. The null hypothesis is rejected.		environmental interests and this awareness is related to environmental knowledge. The null hypothesis is rejected.
Method	The quantitative and the statistical test used is a Chi Square test.			
Result	The environmental knowledge is low, but their environmental awareness is high	The majority of the teachers had moderate levels of environmental awareness.	The level of awareness towards environmental issues and protection among students in tertiary level is at a moderate level.	The environmental knowledge and awareness among the students were increased.

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The global environmental crisis has caused many researchers to come up with the studies to help and solve the issues. From the literature review, many ways can be done to support the Go Green campaign with different background. Most of which, show that their awareness level is high. However, this research would want to find the significant difference in gender and how do they support the campaign itself. Based on the findings, they have shown a lot of studies or research mainly based on a group of people. It reflects on how the studies are targeted to identify the awareness level of the population based on the activities around them that are related to the environment. So, this research is different from those mentioned above in term of finding the respondent's preferred activity to help the environment based on their gender. Nonetheless, the literature reviews have helped in setting the guideline on what is the objective of certain things, for example; the awareness and the education level of a student where they are supposed to help with the research. Lastly, they also helped in determining the test that was about to use, which is the Chi Square test, which they used to compare the results between individuals in the group of people [13].

3.0 OBJECTIVES OF RESEARCH

The following are the objectives of the research.

i. To know the best solution to help the environment based on the different gender's opinion. For example, the male students, mostly prefer cycling more than the female students or the female students use food container more than the male.

ii. To determine the preferable activity that is being chosen based on gender to support the campaign. This is because there are many ways that can be carried out, so, this is to differentiate between the male and female students.

iii. To find out which is the best way in the campaign to solve the environmental problem. They may try to practice their own ways to support the Go Green campaign, but at the same time they can get to know which other activities that they also can do to support the campaign

4.0 RESEARCH QUESTION

Is there any significant difference in choosing the best way to support the Go Green campaign based on the different gender among higher education level students?

5.0 RESEARCH METHODS

The following are the steps taken in executing the research.

5.1 Pilot Study

Before conducting the actual research, a pilot study was conducted. In the pilot study, the questionnaire was designed. The questionnaire consists of only one part which is related to the best ways to support the Go Green campaign. Among the questions made were to investigate which of the activities that the students were more likely prefer to perform. The pilot study focused on students of UPM who stayed in one of the colleges known as 'Kolej 13'. Respondents who answered were among undergraduate and foundation students at the college. A total of 20 respondents was used as a sample in the pilot study. Feedback was also received during the pilot study. Feedback was also received during the pilot study, which was used as a reference to improve the questionnaire before it is being distributed during the actual study. After retrieving the questionnaire, reliability tests were conducted. The reliability test used was internal consistency reliability. This test is used to determine the reliability of data obtained. The results were negative for the Cronbach's Alpha (-.094)

Table 2: Reliability Statistics

Cronbach's Alpha[a]	N of Items
-.094	11

a. The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item codings.

This indicates an invalid value for the data. For the actual test, questionnaires were repaired and the number of respondents also increased by the population.

5.2 Research Instrument

In every research that involves statistical analysis, it is crucial to have an instrument in collecting the data. So, the instrument that was chosen as to collect the data was a questionnaire which the questions have been improvised. There were 40 numbers of items in the questionnaire, and it is divided into two parts as in Table 3. With the numbers of items, there were few activities listed to know the best way to support the Go Green campaign.

Table 3: The Distribution of Instruments

Section	Number of Items	Description Section
Section A	30	The best ways to support Go Green campaign
Section B	10	General Knowledge

There are many questions in the questionnaire, however, only one answer was obtained from each answer sheet given. The preferable activity based on the gender was determined by looking at the tendency of each student that was answering the questions. For example, out of five questions about cycling, how many 'yes' or 'no' each person would pick, which should be placed under the 'yes' or 'no' section. For multiple choice questions, the person would choose only one from the activities listed. Usually, the person who has answered five out of five for cycling would choose cycling from the multiple choice question when asked which is the best way to support the Go Green campaign. If and only if the answers do not match, then, the next step taken was to look at the second best tendency.

5.3 Population and Sampling

The population for this research are 26,000 students who are studying in UPM but the targeted group was 'Kolej 13', with a total number of up to 900 students. The sample used was 269 students, according to the Krejcie and Morgan's sampling table [11]. Krejcie and Morgans' sampling is a formula used to depict the exact sample number needed to represent the whole population. The table shows how many respondents are needed to be investigated and the following is the formula on how the values in the table are obtained.

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$$s = X^2NP(1-P) \div d\,2(N-1) + X^2P(1-P).$$

s = required sample size

X^2 = the table value of Chi Square for 1 degree of freedom at the desired confidence level (3.841)

N = the population size

P = the population proportion (assumed to be .50 since this would provide the maximum sample size)

d = the degree of accuracy expressed as a proportion (.05).

That was the amount needed to obtain a good result to represent the whole population [10]. The type of probability used in this research is random sampling. Random sampling is when the individual is chosen randomly and is used as a subject to represent the whole population. It differs from the simple random population regarding how each member of the random population has a known, but possibly non-equal, chance of being included in the sample. While in simple random sampling, each member has an equal chance of being chosen. The sampling was carried out by randomly distributing questionnaires among students in 'Kolej 13'. The respondents consisted of 78 male students and 191 female students. They come from various races (Malay, Chinese and Indian) as well as various courses and programs (Engineering, Forestry, Environmental Management and Foundation students). This explains why the ratio of male and female are 1 : 2 as the sample has the chance of being chosen regardless of gender. The questionnaires were distributed in the population randomly and the amount is perceived to represent the population entirely as there are more female than male in it.

6.0 RESULTS AND DISCUSSION

6.1 Hypothesis

Prior to the Chi Square test, the hypotheses are developed. The research hypothesis mainly states that both genders have their own opinions and preferences in determining which is more effective in supporting the 'Go Green' campaign. While null hypothesis show that there is no significant relationship between male and female, it can also mean that the distribution in choosing the activity to support the campaign is equally chosen. Hence, the test is being carried out to determine the chances of obtaining the expected results.

H_a : There is a significant difference between the most effective way to support the Go Green campaign based on gender.

H_o : There is no significant difference between the most effective way to support the Go Green campaign based on gender.

The data collected from the respondents were transferred into the SPSS and the results were generated and tabulated in the following table.

Table 4: Data Collected Based On Questionnaire

Activity	Male	Female	Total
Reduce Electricity	23	58	81
Tree Planting	11	43	54
Seminar	10	41	51
Recycling	10	18	28
Food Container	7	11	18
Cycling	4	11	15
Car Pooling	10	2	12
Solar Energy	3	7	10
Total	78	191	269

The following are the results obtained after SPSS have processed the data.

Table 5: Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Effective Ways * Gender	269	100.0%	0	0.0%	269	100.0%

Table 5 shows the total number of respondents involved in this research. All of them managed to answer all the questions and there were no missing number of items for the respondent.

In Table 6, the exact amounts of respondents who have chosen their preferred activity in supporting the Go Green campaign are shown under the 'count' section. The expected count on the other hand, is the results expected under the assumption that there is no association between the row and column classifications. Since the expected counts are high, it shows that if there is no association, then the expected results would be higher. In order to determine the highest value for the activities concerned, the results were obtained from the standard residual. The highest value obtained were 3.5 (male students-car pooling) and 0.8 (female students-attending seminars).

Table 6: Effective Ways* Gender Crosstabulation

			Gender		Total
			Male	Female	
Effective Ways	Reduce Electricity	Count	22	59	81
		Expected Count	23.2	57.8	81.0
		Std. Residual	-.2	.2	
	Tree Planting	Count	11	43	54
		Expected Count	15.5	38.5	54.0
		Std. Residual	-1.1	.7	
	Seminar	Count	10	41	51

		Expected Count	14.6	36.4	51.0
		Std. Residual	-1.2	.8	
	Recycling	Count	10	18	28
		Expected Count	8.0	20.0	28.0
		Std. Residual	.7	-.4	
	Food Container	Count	7	11	18
		Expected Count	5.2	12.8	18.0
		Std. Residual	.8	-.5	
	Cycling	Count	4	11	15
		Expected Count	4.3	10.7	15.0
		Std. Residual	-.1	.1	
	Car Pooling	Count	10	2	12
		Expected Count	3.4	8.6	12.0
		Std. Residual	3.5	-2.2	
	Solar Energy	Count	3	7	10
		Expected Count	2.9	7.1	10.0
		Std. Residual	.1	-.1	
	Total	Count	77	192	269
		Expected Count	77.0	192.0	269.0

A difference of 2.7 between the two genders was identified, thus achieving the target of the research. Thus, the null hypothesis is rejected and there is a significant difference between the most effective ways to support the Go Green campaign based on gender.

Table 7: Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.149[a]	7	.002
Likelihood Ratio	21.326	7	.003
Linear-by-Linear Association	6.880	1	.009
N of Valid Cases	269		

a. 3 cells (18.8%) have expected count less than 5. The minimum expected count is 2.86.

The most important thing to look at is the Pearson Chi-Square results. The significant level of this research is p = 0.002 (p < .05), which means it is significant and the results can be accepted [14]. Thus, the Chi-Square value of the difference between the most effective ways to support the Go Green campaign based on gender was 23.149 with 7 degrees of freedom and a significant probability of less than 0.05 which means that the result is significant. Based on the data, it clearly shows the preferences of each of the 269 respondents regarding which method is more effective. Hence, the null hypothesis is rejected. The residual value of 0.2 (female-reduce electricity), 0.7 (female-tree planting), 0.8 (female-seminar), 0.7 (male-recycling), 0.8 (male-food container), 0.1 (female-cycling), 3.5 (male-car pooling) and 0.1 (male-solar energy) contributed to the significant differences. Thus, it can be significantly identified that male students would prefer to support the Go Green campaign through recycling, using the food container, car pooling and solar energy system. On the other hand, female students prefer to support the campaign by reducing electricity usage, promoting tree planting, attending seminars and also by cycling. However, results show that most males prefer car pooling while most females prefer attending seminars, as depicted from the data obtained. This means that

the male has a high distinguished a way to support the Go Green campaign and the research has a significant difference ($X^2 = 23.149$, df = 7, $p < 0.05$).

6.0 CONCLUSION

It is known that there are various alternatives that students can choose as to support the Go Green campaign [15]. The male students would prefer using food containers, car pooling, tree planting and cycling while female students are fonder of recycling, reducing electricity consumption, using solar energy and also attending seminars. As a conclusion, the null hypothesis is rejected. There is a significant difference between the effective ways to support the Go Green campaign based on gender. Thus, the research question; 'which is the best way to support the go green campaign, according to the gender among the students?' has been answered. The results have shown that males prefer car pooling (highest standard residual value of 3.5) which females highest standard residual value is 0.8 which is for attending seminars. This was based on the simple random sampling method that chooses male and female as the sample randomly, thus, getting 1 : 2 ratio. With this information, car pooling can be promoted to an upscale level for both male and female through development by creating entrepreneurs of the future through environmental activities as a whole [16]. Even though they have a different opinion in choosing what is best for the environment, research shows that car pooling would be the most suitable method as it is among the easiest to be performed. This is because the various options given to choose from based on female are mostly scattered and the highest value is only 0.8 compared to 3.5 in males. This result can be used to predict the response in supporting the Go Green campaign in another place as well [17]. In the future, Go Green campaign should promote a car pooling system by using the public transport provided which is capable of reducing carbon dioxide emission [18] and in creating the world in a better place, all activities must lead to sustainability [19]. Other than that, the random sampling samples can represent the whole population in supporting the campaign.

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