

The Perception of the People in Malaysia on the Relation between Science and Human Problems

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Abstract

This paper reports a study on the perception of the respondents toward assumption that science is the prime factor for environmental problem. 644 respondents male and female from all over Malaysia participated in the study. The respondents from the age of 20 to 55, from different ethnic and religion were given booklets of questionnaire, containing statement in the form of Likert style scale, from 1 (strongly disagree), 2 (disagree), 3 (not sure) 4 (agree), 5 strongly agree. The booklets were collected after 30 minutes, and the raw data was analysed using the SPSS to obtain the mean response, the percentages, the difference of mean were tested using the t-test and one-way ANOVA. The responses to the statement "Science will ultimately detrimental to the world" were analysed. The results of the study show that 31.5% of the respondents rejected the statement, 34.9% were undecided and 33.4 % accepted the statement. The study has also shown that the respondents whose background education was in science were more sympathetic to science compared to the respondents whose background educations were non-science. The mean response for the respondents whose academic background was science was 2.9742 and those non-science background was 3.1840, and the difference of mean is significant.

Keywords: Perception; Malaysia; Human; Education; Problem.

1. Introduction

Science plays great role in human civilisation since it started to be developed thousands of years ago (Fara, 2009). The achievement of science since the last 400 years was immensely beneficial for human being (Atkins & Black, 2003), enabling human being to exploit the resources to be used by human being (*Bulletin of the Atomic Scientists*, 1963). However, the problems which are being faced by human being today, such as the global warming, the ozone depletion, and weapon of mass destruction (WMD) can be used to gauge the positive and the negative aspects of science (Pelton, Oslund & Marshall, 2004). Recently the idea that science could annihilate the human race through the creation of Artificial Intelligence started to take a Central stage among scientists. Human race now are entering the 4th industrial revolution and poised to enter the age of Artificial Intelligence which will have profound effect on human race itself (Zarkadakis, 2015). The issue of the extermination of the human race has been discussed by scientists and writers such as Bostrum (2014) who said that if scientists manage to create Artificial Intelligent which is far better than the human intelligence, the fate of our species then would come to depend on the actions of the machine super intelligence. Trans-human which was envisaged by Mercer and

Trothen (2014) is a formed of 'altered' human being different from the present human race and although it is just like science fiction, it might be possible and probably one day it will take over and dominate the human race.

Thus, the research which is being reported in this paper therefore very relevant. The study attempts to know whether the respondents were aware of the positive and the negative aspect of science. The findings of the study may be used by the related government agencies to plan future science education in Malaysia so that it could give maximum benefits to the people.

2. Literature Review

Since scientific method was discovered by Ibn al-Haytham (Steffens, 2006) and later brought to the western world through the knowledge transfer (Rashid, 2013), it continue to benefit humanity. Science has helped human being to understand the world better than before (Sprung, 1994), and is used to create technologies for human being to live a better life. Thus science has always been seen as good and beneficial to human being, and as science progresses and developed further, experts in various field began to realize the possibilities of science as the agent of destruction to the world.

One of the biggest damaged done by science was the destruction of the Japanese town Hiroshima and Nagasaki, where more than 80,000 people were killed instantaneously. The Atomic bombs were developed by scientists, among who was Julius Robert Oppenheimer and others (Kelly, 2006). The decision to develop the atomic bombs was however in the hand of the politicians, not the scientists. The radioactive materials, not only can be used to create the atomic bombs, but it can also be used for the benefit of human being for example for medical purposes as well as the source of cheap energy. In this aspects science could be seen as double edged sword, in which it can be used for good as well as could be used to destroy. The threat to the environment which was caused directly or indirectly by science was regarded to be serious and that prompted the United Nation through agency Unite Nation Environmental Programme (UNEP), to convene a convention in 1985 in Geneva to formulate a framework for the international cooperation in research, environmental monitoring and information exchange (Gillespie, 2006).

Science in itself is neutral but when science is used as Trojan horse by Capitalism, which bent on excessive exploitation of the natural resources for the benefit of the capitalists, then science lead to damaging end to the world (Korten, 2010). The depletion of the ozone layer was discussed in Montreal, Canada in 1987 (UNEP, 1998). Atomic bomb and Chlorofluorocarbon are the products of science, and they were made by scientists. The greatest threat to human being existence may come from the Artificial Intelligence which could match and then surpass human intelligence has attained it. Once Artificial Intelligence has attained, scientists argue, it will have survival drives much like our own. We may be forced to compete with a rival more cunning, more powerful, and more alien than we can imagine (Barrat, 2013).

3. Method of the Study

The respondents who participated in the study consisted of 644 respondents, male and female from the age of 20 to 55. They were obtained randomly from all over the Malaysia. Each respondent was given booklet of questionnaire containing statement on the issue of the relation between Science and the environment, which include the statement "*Science will ultimately detrimental to the world*". The statement was provided with responses in the form of Likert type scale, ranging from 1 (strongly disagree), 2 (disagree), 3 (not sure), 4 (agree), and 5 (strongly agree).

The raw data which was obtained through the questionnaire was analysed using the Statistical Package for the Social Sciences (SPSS) according to the following sequences; First, the mean responses of the respondents. Second, the percentages of the responses. Third, the mean response of the respondents based on their religion. Fourth, the percentages of the responses based on the religion of the respondents and the academic background. The responses to the statement "*Science will ultimately become detrimental to the world*" were analysed. The result of the analysis is shown in table 1.

Table 1. The percentage of the responses for all respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	42	3.3	6.5	6.5
Disagree	161	12.5	25.0	31.5
Not sure	225	17.4	34.9	66.5
Agree	143	11.1	22.2	88.7
Strongly agree	72	5.6	11.2	99.8

Table 1 shows that the percentage of the respondents who strongly disagreed with the statement "Science will ultimately detrimental to the world" is 6.5%, those who disagreed is 25%. The percentage of the respondents who did not accept the statement is 31.5% (i.e. response 1 and 2), those who were not sure is 34.9% and those who agree was 22.2% and those who strongly agreed was 11.2%. The percentage of the respondents who accepted the statement is 33.4% (i.e. response 4 and 5). The percentages of the responses were plotted to form a line graph, as shown in diagram 1.

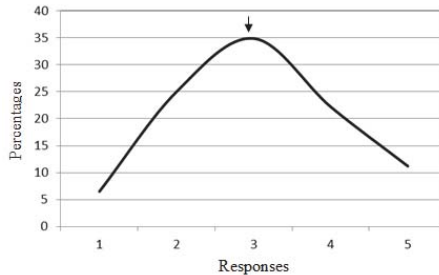


Diagram 1. The line graph of the respondents responses.

Diagram 1 shows that the graph was close to normal graph. The response of no 3 shows the highest percentage. The next analysis was to obtain the mean response for all the respondents, and the result of the analysis is shown in table 2.

Table 2. The mean responses of the respondents

	N	Minimum	Maximum	Mean	Std. Deviation
Valid N	644	1.00	5.00	3.0652	1.08522

Table 2 shows that the mean response was 3.0652. The mean response is very close to 3 (not sure), indicating that the respondents could not make up their mind on the issue that science will ultimately become detrimental to the world.

The data was also analysed according to the academic background i.e. science background or non-science, and the result of the analysis is shown in table 3.

Table 3. The percentages of the respondents based on the academic background

	Science		Non-Science	
Strongly disagree	32	9.2	9	3.1
Disagree	91	26.1	69	23.6
Not sure	121	34.7	104	35.6
Agree	64	18.3	79	27.1
Strongly agree	41	11.7	31	10.6
	349	100	292	100

Table 3 shows that the percentage of the respondents whose academic background was science was 9.2% strongly disagree, 26.1% disagree. Altogether 35.3% of the respondents reject the statement (i.e. the combination of response 1 and 2) 34.7% not sure, 18.3% agree and 11.7% strongly agree. Altogether 30% of the respondents accept the statement (the combination of response 4 and 5). For the respondents whose academic background was non-science, 3.1% strongly disagree, 23.6% disagree. Altogether the percentage of the respondents who reject the statement is 26.7% (the combination of response 1 and 2), 35.6% not sure, 27.1% agree and 10.6% strongly agree. Altogether the percentage of the respondents who accept the statement is 37.7% (combination of response 4 and 5). Hence, the percentages of the responses was plotted to form the line graphs as shown in diagram 2.

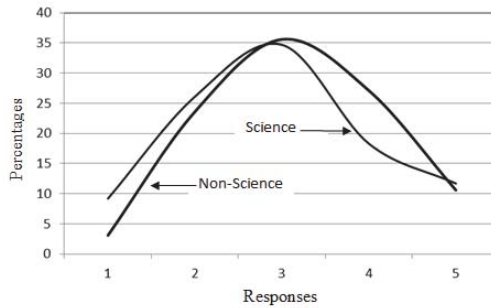


Diagram 2. The line graph of the respondents based on academic background.

Diagram 2 shows the line graph of the percentages of the response of the respondents whose academic background was science and non-science. The mode for the respondents was located smaller than 3 (not sure). The next analysis was to obtain the mean based on the academic background of the respondents, and the result of the analysis is shown in table 4.

Table 4. The mean responses according to the academic background of the respondents

Academic background	Mean	N	Std. Deviation
Science	2.9742	349	1.13306
Non-Science	3.1849	292	1.01198

Table 4 shows the mean response of the respondents whose academic background was science was 2.9742 and the mean response of the respondents whose academic background was non-science was 3.1849. The respondents whose academic background was in science seemed to have smaller mean response compare to the respondents whose academic background was non-science. The difference of mean was tested using the t-test to see if the difference of mean is significant or otherwise, and the result of the analysis is shown in table 5.

Table 5. T-test between the mean responses of the respondents based on academic background

F	Sig.	t	df	Sig. (2-tailed)
.689	.407	-2.461	639	.014
		-2.486	636.261	.013

Table 5 shows that the p value is 0.014 and the value is less than the critical value of 0.05. This indicated that the difference of mean between the responses of the respondents based on their academic background was significant. The next analysis was to the percentages of the responses based on the religion of the respondents, and the result of the analysis is shown in table 6.

Table 6. The percentages of the responses based on the religion of the respondents.

	Islam		Christianity		Buddhism		Hinduism	
	Freq	%	Freq	%	Freq	%	Freq	%
Strongly disagree	32	7.2	4	6.8	2	2.2	4	8.3
Disagree	111	25.1	14	23.7	26	28.9	8	16.7
Not Sure	156	35.2	22	37.3	30	33.3	18	37.5
Agree	91	20.5	16	27.1	23	25.6	12	25.0
Strongly agree	53	12.0	3	5.1	9	10	6	12.5

Table 6 shows the percentages of the responses based on the religion of the respondents. The pattern of the response can be well seen from the diagram 3 which shows the curves of the responses based on the religion of the respondents.

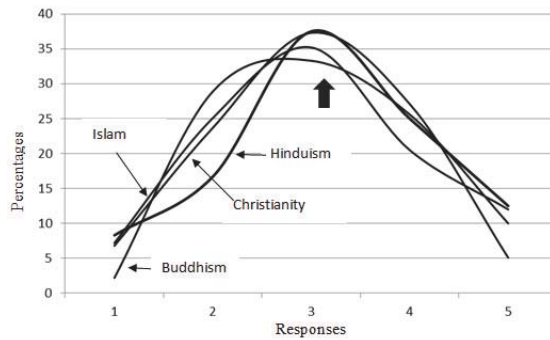


Diagram 3. The line graphs percentages of the responses based on the religion of the respondents.

Diagram 3 indicates the different line graphs of the percentages of the responses, it shows clearly that the responses are more concentrated in the middle of the curves, which means that most of the respondents are neutral, i.e. they were not sure whether science is ultimately detrimental to the world.

The next analysis was to obtain the mean response based on the religion of the respondents. The result of the analysis is shown in table 7.

Table 7. The mean responses according on the religion of the respondents.

Religion	Mean	N	Std. Deviation
Islam	3.0497	443	1.10624
Christianity	3.0000	59	1.00000
Buddhism	3.1222	90	1.01481
Hinduism	3.1667	48	1.11724

Table 7 shows the mean of the response of the respondents according to the religion of the respondents. The mean response of the Muslim respondents was 3.0497, the Christian was 3.000, Buddhists was 3.1222 and the Hindu was 3.1667. The mean responses seem to be different from each other, but they were close to each other. ANOVA test was carried out to find out whether the difference of mean was significant or not, one-way ANOVA test was conducted and the results are shown in table 8.

Table 8. One-way ANOVA test for the difference of mean according to the religion of the respondents

	Sum of square	df	Mean square	F	Sig
Between Groups	6.395	5	1.279	1.087	.366
Within Groups	749.730	637	1.177		
Total	756.124	642			

Table 8 indicates that the p value obtained using the one way ANOVA test is 0.366. The p value is larger than the critical value of 0.05 which indicates that the difference of means between the mean responses of the respondents according to the religion is not significant.

4. Discussion

The results of the study indicate that the mean response of all the respondents for the statement "Science would ultimately detrimental to the world" was 3.0652 (See table 2). The value is very close to 3, which indicates that the respondents were not sure whether science will ultimately detrimental to the world.

The result shows that the respondents were uncertain about the nature of science which, the majority of the people think positively about. The negative side of science are not highlighted in many discourses because there was no

necessity for doing so. Science is regarded as an important tool for economic development of a nation so much so that many governments promoted science education (Cobern, 1998). Promoting the negative aspect of science, such as singling out science as the factors for the destruction such as the global warming, ozone layer depletion, the atomic bomb, etc. will shunned the people away from science. The attitude on science plays a great role in the achievement in science (Saleh & Khine, 2011).

The study discovered that the most of respondents chose to be neutral with regard to the issue that science will ultimately detrimental to the world. The finding can be used to plan science the approach of science education by emphasising the importance of ethic in science activities. It is extremely important to inculcate ethics education in science to prevent the people to forsaken science because of their false belief. The neutrality of the respondents on the statement "Science would ultimately detrimental the world" was seen from the percentages of the responses (see table 1 and diagram 1) where 39.4% of the respondents chose to be neutral. Therefore the study found out that respondents were not sure about the bad aspect of science. Should or should not the people be told that science will ultimately detrimental to the world?

The result of the study indicates that the mean response of the respondents whose academic background was science was 2.9742 and for the non-science background was 3.1849 (see table 4). The result of the also indicates that there was a significant difference of mean between the mean response of the respondents whose academic background was science and the respondents whose academic background was non-science (see table 5). The respondents whose academic background was science seemed be more sympathetic to science than the respondents whose academic background was non-science.

The New Scientist (1985) the magazine which is devoted to science and scientific research reported a survey made on what did people thought about science. According to the report, 45% of the respondents said that science and technology did more good than harm and 38% of the respondents said the good and the harm of science was balanced out. Surprisingly, the survey which was conducted in the United State and which was reported by *the New Scientist* thirty years ago was almost similar to the finding of this study. Similarly, *the New Scientists* also reported that the survey made showed that those respondents who have a higher level of science or those who have more contact with science in their work were likely to think that science "is good thing". The result of the analysis indicates that there were very small difference of mean responses between the respondents based on the religion and the difference of means were not significant (see table 6 and 7). The respondents have the same perception on the issue whether science will ultimately detrimental to the world. This mean that the religion is not one of the variable which determine the perception that science will ultimately detrimental to the world. The only variable which make the difference is the academic background of the respondents.

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