

Ethics and Global Climate Change: Voices of the Young

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Abstract Climate change is a most important issue facing the world today that requires urgent international co-operation. Despite the seriousness of the issue, very little concrete global action has been taken as of to-date to address climate change. The business and social sciences need to play a more active role to complement the natural sciences to tackle the climate change problem. Climate change is not only a technological issue but is also an ethical and business sustainability issue. It is important to create awareness and include all stakeholders including young people in discussions on climate change policy formulation as emissions of the current generation will cause problems for future generations. This study employed a mixed method approach to engage business under-graduates and examine their views on climate change responsibility and the ethical dimension of climate change mitigation issues.

Keywords Climate change, Climate responsibility, Distributive justice, Business ethics

1. Introduction

Climate change is among the most important issues facing the world today. For a seemingly very long time, the climate change discourse has been rather narrow, focussing on the assessment of technological evidence to confirm the occurrence of human induced climate change. In recent years, a consensus has been reached in the global scientific community that global climate change (GCC) is indeed occurring. Nearly all climate scientists, estimated at 97%, are convinced that human-caused or anthropogenic climate change is indeed occurring [1]. Since the existence of anthropogenic climate change has been confirmed, it is important now to focus on measures that should be undertaken to halt human induced climate change.

Global action to address climate change is important as the dangerous consequences due to climate change are projected to get much worse in the decades to come [2]. Despite the seriousness of the issue, very little concrete global action has been taken as of to-date to address climate change. Climate change is a complex issue which involves not only technological and economic considerations but also has ethical or moral dimensions which are often overlooked ([3], [4]). Climate change is also an ethical issue as emissions of the current generation cause problems for future generations, and richer countries emit more greenhouse gasses while poorer countries will suffer more damage [5].

1.1. Motivation of the Study

Although efforts are made to ensure that the views of all stakeholders of climate change are taken into account, not all stakeholders are adequately represented in discussions on climate change mitigation policy design. While some stakeholders such as the fossil energy business sector may be over represented [6], other stakeholders such as the poor, rural communities, women and young people appear to be *under-represented* in climate change decision-making fora. Procedural justice requires that the views of all stakeholders particularly those who are most impacted by climate change to be taken into account in climate change policy formulation. This study aims to examine the views of young adults on issues related to climate change responsibility and climate change mitigation measures.

2. Methodology

This study employed a combination of quantitative and qualitative approaches in order to achieve a better understanding of the perceptions of business undergraduates on the moral dimensions of climate change. The data presented in this paper is part of a larger study aimed to gain insights on the dominant ethical orientations employed by business undergraduates when considering important climate change issues, i.e whether their moral reasoning are based on religious ethics, utilitarianism, ethics of care, virtue ethics, principles of justice or moral rights considerations. The research instrument was a self-administered survey questionnaire containing open-ended and close-ended questions. Valid responses were obtained from 111 business undergraduates enrolled in a business ethics course at a public university in Malaysia which specializes in management education. The profile of the respondents are presented in table 1.

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Published online at <http://journal.sapub.org/economics>

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Table 1. Respondents' profile ($N = 111$)

	Classification	Number	Percentage
Gender	Male	26	23.4
	Female	85	76.6
Program	B.Acct.(Hons)	7	6.3
	B.Banking(Hons)	1	0.9
	B.Fin(Hons)	2	1.8
	B.Int.Aff.Mgt(Hons)	1	0.9
	B.POM (Hons.)	6	5.4
	BBA(Hons)	24	21.6
	BBA(Log.&Tpt.)(Hons)	4	3.6
	BHRM(Hons)	63	56.8
	BIFB(Hons)	3	2.7
Semester No	Second	3	2.7
	Third	1	0.9
	Fourth	83	74.8
	Fifth	1	0.9
	Sixth	22	19.8
	Eighth	1	0.9

3. Results

The results of four research questions are presented in this section. The data was coded and analyzed using SPSS. The Chi-square test for proportion was used as test of statistical significance. The Chi-square (χ^2) test was used to test hypotheses H_0 for equal proportion.

3.1. Climate Change Victims

The results on the following close ended research question are presented in table 2.

- Which party is MOST HARMED by climate change?
- Which party is SECOND MOST harmed by climate change?
- Which party is THIRD HARMED by climate change?
- Which party is LEAST HARMED by climate change?

For each of the above questions respondents were given four options as follows:

- Plants and animals
- Future generations
- Poor people
- Rich people

Table 2. Perception on climate change victims

Intensity	Most harmed	Second most harmed	Third most harmed	Least harmed
Victims	Observed *	Observed *	Observed *	Observed *
Plants and animals	68	32	7	7
Future generations	33	41	24	12
Poor people	8	35	65	1
Rich people	2	3	15	91
Hypotheses tested	H_0 : All four stakeholders are equally most harmed	H_0 : All four stakeholders are equally second most harmed	H_0 : All four stakeholders are equally third most harmed	H_0 : All four stakeholders are equally least harmed
Chi-Square	97.324	30.946	71.883	194.405
df	3	3	3	3
Asymp. Sig (p).	.000($p < 0.5$)	.000 ($p < 0.5$)	.000 ($p < 0.5$)	.000 ($p < 0.5$)
	Reject H_0	Reject H_0	Reject H_0	Reject H_0
	Observed frequency is highest for plants and animals. This indicates that plants and animals are most harmed	Observed frequency is highest for future generations. This indicates that future generations are second most harmed	Observed frequency is highest for poor people. This indicates that poor people are third most harmed	Observed frequency is highest for rich people. This indicates that rich people are the least harmed
Score computation	Plants & animals: $(68*1) + (32*2) + (7*3) + (7*4) = 181$ Future generations: $(33*1) + (41*2) + (24*3) + (12*4) = 235$ Poor people: $(8*1) + (35*2) + (65*3) + (1*4) = 277$ Rich people: $(2*1) + (3*2) + (15*3) + (91*4) = 417$			

*Expected frequency is 27.75

The data provide statistical support for the alternative hypothesis, i.e effects of climate change are unevenly distributed among stakeholders. The results of hypothesis tests and score computation are in line with each other. The most harmed are plants and animals followed by, in decreasing order, future generations, poor people and rich people are the least harmed.

3.2. Climate Change Responsibility

The results on the following close ended research question are presented in table 3.

- Who is MOST RESPONSIBLE to take action on climate change?
- Who is SECOND MOST RESPONSIBLE to take action on climate change?
- Who is THIRD RESPONSIBLE to take action on climate change?
- Who is FOURTH MOST RESPONSIBLE to take action on climate change?
- Who is the LEAST RESPONSIBLE to take action on climate change?

For each of the above questions respondents were given five options as follows:

- Individuals
- Government
- Business
- Universities
- Media

The data provide statistical support for the alternative hypothesis, i.e various stakeholders are viewed to have different degree of responsibility. The results of hypothesis

tests and score computation are in line with each other. Those viewed to be most responsible to take action on climate change are individuals, followed by, in decreasing order, governments, businesses, media rich and lastly universities.

3.3. Funding Climate Change Mitigation

The result on the following close ended research question is presented in table 4.

- Who should pay the cost of climate change mitigation?

For the above question respondents were given four options as follows:

- Polluters
- Rich people
- Everyone
- Other

The data provide statistical support for the alternative hypothesis, i.e Not all options are equally preferred. Observed frequency is highest for the polluters should pay option. The observed frequency distribution indicates that business students most prefer the option that polluters pay the most for the cost of climate change mitigation. Out of the 111 responses, 71.2% are of the view that cost of climate change mitigation should be funded mostly by polluters. As pointed out by one student, "...based on distributive justice, the cost burden of climate change mitigation should be based on proportion of responsibility for causing climate change...the more one pollutes the more he should pay. Countries that pollute more than their share should pay more for clean-up costs."

Table 3. Climate Change Responsibility

	Most responsible	Second most responsible	Third most responsible	Fourth most responsible	Least responsible
	Observed*	Observed*	Observed*	Observed*	Observed*
Individuals	65	10	17	6	12
Government	34	54	16	7	1
Business	8	35	39	17	12
Universities	1	4	8	35	61
Media	3	8	31	46	25
Hypotheses tested	Ho: All stakeholders are equally most responsible	Ho: All stakeholders are equally second most responsible	Ho: All stakeholders are equally third most responsible	Ho: All stakeholders are equally fourth most responsible	Ho: All stakeholders are equally least responsible
Chi-Square	134.721	83.640	28.234	56.342	97.784
df	4	4	4	4	4
Asymp. Sig (p).	.000 (p< 0.5)	.000 (p< 0.5)	.000 (p< 0.5)	.000 (p< 0.5)	.000 (p< 0.5)
	Reject Ho	Reject Ho	Reject Ho	Reject Ho	Reject Ho
Score computation	Individuals : (65*1) + (10*2) + (17*3) + (6*4) + (12*5) = 280 Government : (34*1) + (54*2) + (16*3) + (7*4) + (1*5) = 223 Business : (8*1) + (35*2) + (39*3) + (17*4) + (12*5) = 323 Media : (3*1) + (8*2) + (31*3) + (46*4) + (25*5) = 421 Universities : (1*1) + (4*2) + (8*3) + (35*4) + (61*5) = 478				

*Expected frequency is 22.2

Table 4. Parties responsible for funding Climate Change Mitigation

Question: Who should pay the cost of climate change mitigation		
	Observed frequency	Expected frequency
Polluters	79 (71.2%)	27.8
Rich	16 (14.4%)	27.8
Everyone	14 (12.6%)	27.8
Other	2 (1.8%)	27.8
Ho: All four options are equally preferred		
Chi-square Test of proportion	Chi-Square	130.333 ^a
	df	3
	Asymp. Sig.	.000
Reject Ho ($p < 0.5$)		

As for those who chose the “other” option, it was suggested that companies could be a source of funding via a tax on carbon emissions, voluntary corporate contributions and fines imposed on companies arising from the violations of climate change laws.

3.4. Allocation of Greenhouse Gasses Emission Quotas

The result on the following close ended research question is presented in table 5.

- Which the best method to allocate quota on future emission of greenhouse gases?

For the above question respondents were given four options as follows:

- Allocate based on ability to pay
- Allocate based on past/total emissions to-date
- Same allocation for all persons
- Other

Table 5. Quota on future emission of greenhouse gases

Question: What should be the main consideration to allocate quota on future emission of greenhouse gases?		
	Observed frequency	Expected frequency
Allocate based on ability to pay	28 (25.2%)	27.8
Allocate based on total emissions to-date	24 (21.6%)	27.8
Same allocation for all persons.	57 (51.4%)	27.8
Other	2 (1.8%)	27.8
Ho: All four options are equally preferred		
Chi-square Test of proportion	Chi-Square	55.234 ^a
	df	3
	Asymp. Sig.	.000
Reject Ho ($p < 0.5$)		

The data provide statistical support for the alternative hypothesis, i.e Not all options are equally preferred. Observed frequency is highest for the “same allocation for

all persons”. The observed frequency distribution indicates that the most preferred option is based on egalitarian justice, i.e all persons be allocated the same quota on future emission of greenhouse gases. Out of the 111 responses, 51.4 % are of the view that that all persons be allocated the same quota on future emission of greenhouse gases. As pointed out by one student, “...each person should have the same entitlement to pollute... Everyone has the same right to possess or enjoy the resource in the world. Nobody has the more right to possess more than other. No matter rich or poor, everyone has the same right to enjoy the resource, just like the egalitarian justice”.

As for those who chose the “other” option, it was suggested that allocation should be based on “needs basis”, i.e based on developmental needs as “poorer countries need higher allocation to reach developed countries standard of living”.

4. Conclusions

This study provided some insights on the views of young adults in a developing nation on climate change responsibility and mitigation issues. While procedural justice requires the participation of all stakeholders particularly those who are most impacted by climate change, it has been difficult for *under-represented* stakeholders such as indigenous and young people in developing countries to participate in climate change mitigation policy discussions due to capacity, time and resource constraints. There is a need for creating greater awareness among *under-represented* stakeholders and holding more inclusive discussions on climate change policies. The business and social sciences need to play a more active role in providing insights on the social dimensions of societal response and adaption on climate change mitigation issues [7].

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