

Environmental Sustainability and International Students: Some Empirical Evidence of Their Perceptions

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This study has revealed some of the positive and long term impacts of sustainable development. It was also determined that the demographic factors affects an individual's thinking patterns to a great extent, and the social and cultural impacts are found to be positive. Some similarities are discussed and differences of opinion identified, between the three categories of international tertiary students at UUNZ Institute of Business. The research is based on the assumption that positive attitudes lead to positive behaviours and aims to establish what international students' attitudes towards sustainability and the environment are. The results show the development of a positive trend in terms of thinking and the behaviour towards environment conservation Recommendations for tertiary institutions form the last section before the conclusions.

Field of Research: Management

1. Introduction

It is claimed by scientists that an accumulation of heat-trapping gases from fossil-fuels burnt in power plants, factories, and cars is warming the earth and this human action could cause harmful changes involving the melting of icecaps and the raising of sea levels. Coal consists mainly of carbon and is the primary cause of carbon dioxide emissions, accounting for about a third of the fossil-fuel combustion worldwide. Oil and natural gas also contribute to greenhouse gases but not as much as coal. Deforestation and forest degradation are the second major sources of carbon dioxide emissions. The greenhouse gases causing climate change includes carbon dioxide, methane, nitrous oxide, and chlorofluorocarbons (Lockyer & Du Plessis 2007).

According to some researchers the planet's average temperature has increased by 0.5 degrees Celsius in the last century. Although the temperature increase seems small, it is a great change for the planet and the consequences are noticeable through the melting polar ice. There are schools of thought saying that this is only a cycle that the earth is going through and they refer to the "ice-age". Sustainability refers to utilising the earth's natural resources wisely to meet the necessities; also to save the resources for future generations. The ever increasing world population and free trade policies have resulted in the exploitation of resources and has increased effluence stresses as well (Du Plessis et al 2012).

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Bearing the foregoing in mind, a survey was conducted to explore and understand international students' perceptions and attitudes towards environmental sustainability and other related issues in UUNZ, Institute of Business, Auckland, New Zealand. The objective is therefore a comparison between different age groups, backgrounds (origins) and different religions, which would result from the 2011 study to identify trends in student approaches to environmental sustainability issues.

Which factors affect the international students' 'green' behaviour, and how are their perceptions formed, with specific consideration to the demographic factors? International students have certain perceptions about sustainability and they could be some of our leaders of tomorrow, so what are their views and perceptions on sustainability? The results show the development of a positive trend in terms of attitudes and the behaviour towards environment conservation. It was also determined that the demographic factors affect an individual's thinking patterns to a great extent, and the social and cultural impacts are found to be positive.

According to Du Plessis et al (2012) sustainability is an economic, social, and ecological concept that was derived from the term sustainable development and includes conservation of natural resources through recycling, waste and water management, using renewable energy resources and developing environmental friendly land and property assets.

The value add of this research is the recommendations that were formed that international tertiary institutions should pay attention to the outcome of this study to alter / amend / or add to their curricula a paper for international tertiary students on every level with facts on environmental sustainability and how to preserve the limited resources especially in New Zealand, for future generations.

The first section of this paper discusses a literature review in the research area. The next section of the paper reviews the literature containing the attitudes and responses of the respondents towards sustainability and its impacts. The paper then narrates the problem statement, followed by aims and the purpose of the study with the expected benefits of the research. In the following section, the methodology, with research design and data collection of the empirical exercise is presented. A discussion follows on the comparative analysis of the data collected and correlations identified. The next section presents the authors' recommendations from the study and finally the paper provides a conclusion followed by references.

2. Literature Review

Little research among international tertiary students has been done to identify and determine their perceptions, attitudes and behaviour towards sustainability. Whether previous studies answered their research questions is unclear to the researchers of this study because little research has been done and even more so among exclusively international students. In a study done in 2011 at UUNZ Institute of Business among international tertiary students it was found that they are concerned about the environment, that they do recycle material and that they are aware of their contribution to the future of the environment in New Zealand (Rahman, Chen & Toh 2011). The recent global economic

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downturn, the uncertainty of the financial future, the war on terrorism, the war for talent, the progress in e-business and e-media and others all add to the tough times that people are experiencing in the every-day environment. Organisations and communities are looking up to strong leaders to take charge during these rapid environmental changes to ease out the negative impact it could have on businesses.

Sustainability can be defined as the preservation of the global resource base through conservation of natural resource consumption. In simpler words, sustainability is utilizing the natural resources wisely and to meet the necessities of our lives, considering the need for the resources for the future generations to survive (Johnson, 2009). Sustainability also emphasises the importance of a clean environment and protection of the natural assets available to us.

Roth (2004) is of the opinion that our planet's average temperature has increased by 0.5 degrees Celsius in the last century. Although the number seems small however it is a great change for a planet to experience and the consequences can be seen through the melting polar ice. Other researchers are of the opinion that it is only due to a cycle that the earth is going through as it happened before. Such extreme conditions pose a great threat in the form of natural water-related disasters. Speculations by scientists are that the recent floods in Europe, Tsunami in the Indian Ocean and Japan, Hurricane Katrina and Sandy in the US could be the result of a disrupted environmental atmosphere.

Population growth increased industrialisation and improper utilisation of resources have negatively impacted the ecosystem which resulted in a disrupted natural cycle of global resources and have destabilised environmental sustainability (Orimoogunje, Adegboyega, Banjo & Funmilayo 2011). Scientists also fear that if unchecked, the impacts of unpredictable climatic conditions will be gruesome and the ecosystems and human society will not be able to cope with it (Sibbel 2009). This is significant because our health and the quality of life are greatly influenced by the veracity of the environment we live in (Orimoogunje, Adegboyega, Banjo & Funmilayo 2011). The human-nature relationship has changed and experienced a reversal according to Abedi-Sarvestani & Shahvali (2008). However, the social-sciences do not yet fully understand what people's perceptions towards sustainability are.

This research intends to identify the differences between different groups of people in terms of their perceptions, attitudes and self-reported behaviours if any because it is not clear how people make decisions about environmentally 'friendly' behaviour, this research sheds light on people's perceptions and attitudes towards sustainability and the environment, how they approach environmentalism, water conservation, energy conservation, recycling, reducing waste (e.g. composting) and using green energy sources (e.g. solar and wind power). It is also not clear whether or not there are any voluntary modifications in their behaviour at all in relation to environmental issues.

According to Du Plessis et al (2012) people who are sociable and friendly have positive interactions with others and make positive contributions to the neighbourhood making it more affable and organised. Therefore positive community relationships have a major role to play when dealing with the environmental crises. People in a community get influenced

by other's actions, so when one person or a small group of people change their ways to eco-friendly, others tend to learn by their examples and start following. The process that assists a behavioural change is very intricate. Therefore, a joint effort by communities is very important in order to attain the environmental sustainability as there are relatively very few problems that can be effectively addressed through individual effort.

The environmental issues have several aspects and cannot be addressed by the traditional and conventional educational system for international tertiary students. It needs professional guidance from experts on the subject and a positive approach towards environmentalism (Sibbel 2009). There is an increasing influence by governments across nations to mainstream the sustainability in the educational institutions with an emphasis on developing people aptitudes to construct a sustainable society (Kagawa 2007). The current literature discusses the importance of student's learning about sustainability.

An attitude can be defined as an individual assessment of an object of thought in the person's mind towards people, environment, situations or ideas (Bohner & Dickel 2011). In order to determine the inevitable effects of sustainability issues on a population and people perceptions on that, it is important to understand their reactions and analyze their attitudes towards sustainable development and environmentalism (Brida, Osti, & Faccioli 2011). Understanding people perceptions and their approach towards sustainability would allow us to understand if they support or oppose the 'green' behaviour (Rahman, Chen & Toh 2011).

The term environmental sustainability is developed from sustainable development of the natural resources available to us. This involves keeping a check on our current consumption patterns and saving the resources and assets for future generations, according to the literature.

3. Problem Statement

This study is different from previous studies findings as the respondents were from four different countries and they were all international tertiary students in New Zealand. Current international tertiary students could be the future leaders or managers of New Zealand. They could be the leaders of tomorrow and it is important for a tertiary institution to determine what their perceptions, attitudes and behaviours are towards environmental sustainability. A research study could shed some light on any changes in their perceptions and behaviours so that curricula could be altered or upgraded to include environmental sustainability papers.

4. Aim of the Study

This paper focuses on a comparative analysis of an international tertiary student survey executed in 2011 at UUNZ Institute of Business to understand student approaches and current trends towards environmental sustainability. Which factors affect their 'green' behaviour, and how perceptions are formed, with specific consideration to the demographic factors? This paper also discusses any similarities and differences of opinion identified, between the groups. The research is based on the assumption that positive attitudes lead

to positive behaviours and aims to establish what people's attitudes towards environmental sustainability are.

5. Methodology

5.1 Research Design

The quantity and quality of the responses collected in the form of questionnaires warranted a quantitative research. A quantitative study helped in keeping the results unbiased and irrelevant to the circumstances under which the research was carried out. The comparative analysis of the respondent's perceptions and attitudes confirmed the existence of different groups where members had similarities and variation in the thinking patterns.

The target population were international tertiary students of UUNZ Institute of Business, Auckland. UUNZ have only international students and therefore the study was executed amongst the students present on a specific day in different classes. The questionnaire distributed and 92 usable questionnaires returned. A survey was distributed to undergraduate and post graduate students studying business at the institute. The choice of business students is deliberate because the researchers believed they'll get a cohort of people with similar background, and age in addition to materialistic aspirations. In future some of these students may perhaps become senior managers who could have a deciding standpoint on these issues.

The revelation of the identity of respondents was not required and the respect for rights and confidentiality and preservation of anonymity is present throughout the questionnaire. There is no harm, cultural or social sensitivity nor deception in the questionnaire or study. There was no conflict of interest and the intellectual and cultural property ownership was respected.

This study provides an insight on international students' beliefs about sustainability. An improvement is that the study was done on a specific day and the questions answered by the respondents on the same day, so the climate or environment was the same for everybody during the study.

5.2 Questionnaire Design

A questionnaire was designed with 52 questions (using a Likert scale from 1 very strongly disagree to 7 very strongly agree) regarding some important characteristics about the views of people towards environments, culture, self feelings towards life regarding money and health, human and their interaction with natural resources. Including in this amount were six questions asked about some personal information of the participants in the survey.

5.3 Data Collection

Questionnaires were distributed in the classes through the lecturers. Students completed the surveys anonymously and returned it to a box in their respective classes without the lecturer being present. Participation of all business students in the study was voluntary and

through informed consent. Questionnaires are locked in the primary researcher's cabinet for a period of five (5) years.

6. Analysis

The data was entered in Excel and then transferred into SPSS to get some descriptive statistics and also to apply some statistical tests. Results are analysed using the SPSS package. The researchers compare six closely related questions in regards to age, background (origin) and religion. Only six questions are discussed in this paper due to length limitation.

We used six closely related items or where the one could have an influence on the next question, as in the six questions below. Short and easy to understand questions were asked to the respondents and they had to indicate their preferred answer from 1 to 7 where 1 is strongly disagree and 7 is strongly agree. The six questions from the questionnaire (statements) are:

Q 11 We must protect our natural resources

Q 23 As long as I feel good now, I don't have to worry about what happens in the future

Q 36 Humans cause natural disasters by depleting natural resources (both recyclable and non-recyclable)

Q 39 I do not save energy because people will think that I am poor

Q 43 I want to be physically healthy

Q 45 I want to keep myself healthy and well

In Table 1 below, it is evident that there is a significant difference between the two age groups. The under 20 years of age group has no intention to protect natural resources (20%) or to worry about the future (11%) and even less concerned that humans destroy natural resources (10%). What is a huge concern is that they are not even interested in their health (Q43, 18% and Q 45, 18 %). It can be deduced that the 18 percent who are concerned are the international students who participate in sport or attend a gym in New Zealand. In a case such as this, students have to be made aware of how important physical health is for their future otherwise we will just have more people who depend on government funding for their health problems if they become citizens later on.

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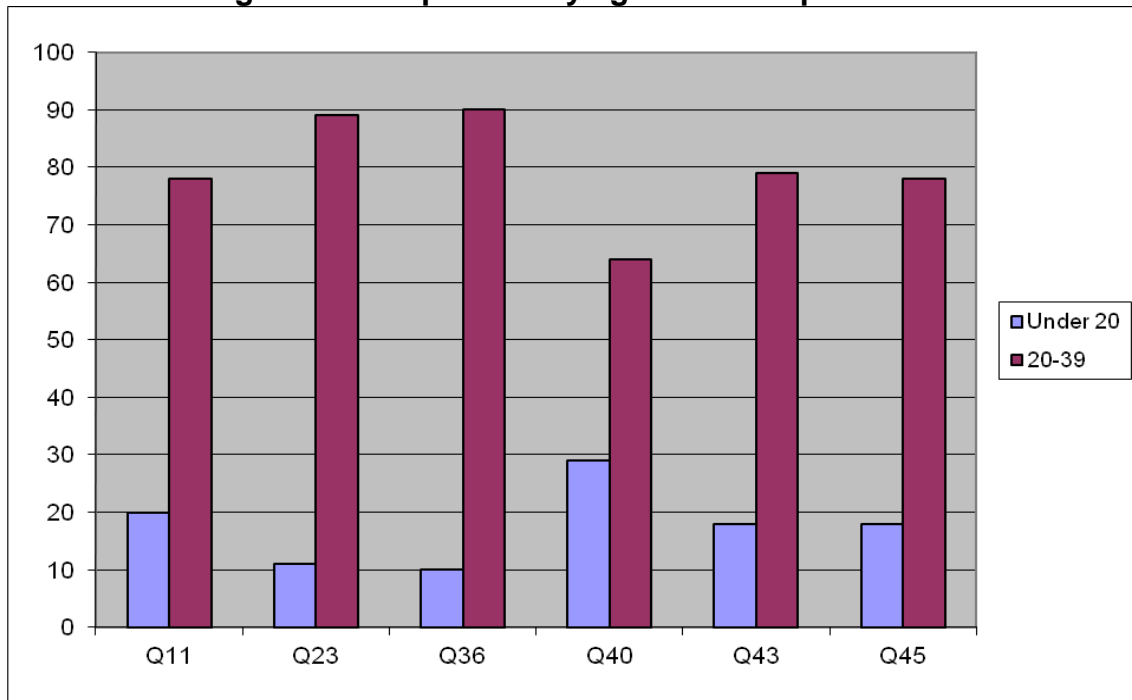
Table 1: Comparison of age

| | Q11 | Q23 | Q36 | Q40 | Q43 | Q45 |
|----------|---------------------------------------|--|---|---|---------------------------------|--|
| | We must protect our natural resources | I don't have to worry about what happens in the future | Humans cause natural disasters by depleting natural resources | I do not save energy because people will think that I am poor | I want to be physically healthy | I want to keep myself healthy and well |
| Under 20 | 20 | 11 | 10 | 29 | 18 | 18 |
| 20-39 | 78 | 89 | 90 | 64 | 79 | 78 |

The age group 20-39 has a total and complete different outlook on all six questions and they are much more positive towards environmental sustainability. It could be deduced that the fact that they are older, they are more concerned about their future. It is also possible that they have seen or experienced how others are abusing natural resources.

In this study the findings and results are unique as it was executed in an international institute among international tertiary students. It furthermore shed light on their perceptions and attitudes towards environmental sustainability. In analysing the results the researchers are convinced that the respondents were honest and gave their honest opinions mirroring their background and country of origin and how they live back home. It is therefore deduced that this new information is adding value to the research project and the body of knowledge.

Figure 1: Comparison by age of the respondents



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In Table 2, below, the perceptions of the different age groups were compared with their nationality (country of origin). For Q 11, it seems that the Chinese students are well aware of protecting their resources and they have to be in the 20-39 age group (see Table 1 above). In contrast to this the Indian and Russian respondents do not care as they are on 20 and 206% respectively for the same question. Therefore it could be deduced that they also fall in the under 20 group.

A significant difference is in Q43 where almost all Chinese respondents (97%) differ totally from the Indian (30%) and even more from the Russian (11%) respondents on the question if they want to be physically healthy. Again it is assumed that this low percentage respondents are in the under 20 years old age group.

An alarming figure is for Russian respondents in Q23 where they are of the opinion that they don't have to worry about the future. It is assumed that they are also in the under 20 age group as in Table 1, above, only 11 percent in this age group responded positively to his question.

The best response for Indian respondents is in Q40 (63%) as they don't feel that people would regard them as poor because they want to save energy. It is totally in contrast with their other responses and one could assume that they had monetary value in mind when they answered this question because all the others are negative and low percentages towards environmental sustainability.

Table 2: Comparison by age and nationality (origin)

| | Q11 | Q23 | Q36 | Q40 | Q43 | Q45 |
|----------|---------------------------------------|--|---|---|---------------------------------|--|
| | We must protect our natural resources | I don't have to worry about what happens in the future | Humans cause natural disasters by depleting natural resources | I do not save energy because people will think that I am poor | I want to be physically healthy | I want to keep myself healthy and well |
| Under 20 | 11 | 20 | 10 | 29 | 18 | 18 |
| 20-39 | 88 | 78 | 90 | 64 | 79 | 78 |
| Chinese | 78 | 53 | 67 | 89 | 97 | 94 |
| Indian | 20 | 50 | 43 | 63 | 30 | 34 |
| Russian | 26 | 0 | 24 | 14 | 11 | 10 |
| Other | 25 | 20 | 57 | 17 | 25 | 33 |

In Table 3, below, an alarming figure is in Q23 for the Buddhist religion (0%) as they don't seem to worry about the future and it could be deduced that it is directly because their religious beliefs that it will be provided for them and they don't have to contribute anything for the future environmental sustainability. For the other categories they have very low percentages as well. For the same question (Q23) the Christians are also not really worried about what happens in the future

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In Q11 the Christians regard protection of natural resources important (58%) and believe that humans are responsible for depleting natural resources (55%). This is consistent with Q 11 and close to Q43 (50%) and they want to keep themselves healthy (45%).

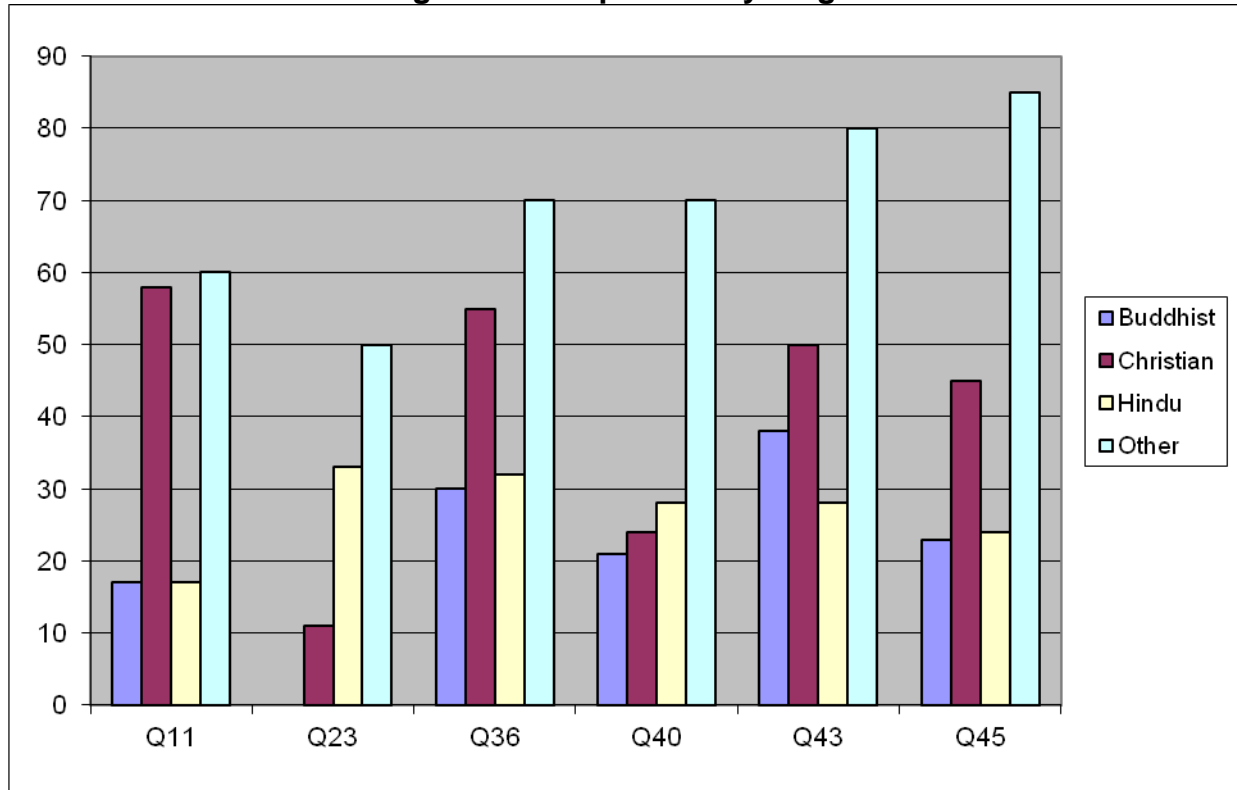
From the table below (Table 3) it is evident that the “other” includes non-religious respondents and their percentages for the different questions are unexpectedly high with Q43 and Q45 at 80 percent and 85 percent respectively. They are definitely taking their health as a serious issue. Comparing the Hindu religion with the Buddhist religion in Q45 it is interesting that they are so close in their responses regarding keeping themselves healthy and well. They are also very close in percentages for Q11, Q36 and Q40. There is a 33 percent difference between them for Q23 and the reason for it is unknown.

Table 3: Comparison by religion

| | Q11 | Q23 | Q36 | Q40 | Q43 | Q45 |
|-----------|---------------------------------------|--|---|---|---------------------------------|--|
| | We must protect our natural resources | I don't have to worry about what happens in the future | Humans cause natural disasters by depleting natural resources | I do not save energy because people will think that I am poor | I want to be physically healthy | I want to keep myself healthy and well |
| Buddhist | 17 | 0 | 30 | 21 | 38 | 23 |
| Christian | 58 | 11 | 55 | 24 | 50 | 45 |
| Hindu | 17 | 33 | 32 | 28 | 28 | 24 |
| Other | 60 | 50 | 70 | 70 | 80 | 85 |

In Figure 3, below, the graph makes the comparison user friendly and easy to read.

Figure 3: Comparison by religion



It is necessary to explain that traditional Chinese culture supports reciprocity, harmony, and stability in the working environment, and some cultural values such as collectivism, social obligations, loyalty, and respect for authority, are considered as key factors with employees (Ma & Trigo 2008).

7. Recommendations

UUNZ Institute of Business as well as other tertiary institutions should take cognisance of this study and “re-develop” their curricula to include at least one session in every paper presented in their programmes about sustainability. This session could only cover the basics of conserving our most important resources for future generations. It is further recommended that for international tertiary students special attention should be paid to New Zealand’s “clean green image” so that it could be valued and looked after by internationals visiting or even planning to stay in New Zealand.

8. Conclusion

It is evident that all the survey participants strongly associate the concept sustainability with their environment and it emphasises the need to link the sustainable development with the economic, social and cultural factors for the students to understand the complications and the challenges about the topic. It was also found in the research that international tertiary students with different cultures, backgrounds (origin) and religion have different perceptions towards environmental sustainability; to some extent they feel differently about the

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environment and behave differently when it comes to 'green' behaviours and have similar perceptions with others such as respecting of different cultures. Despite the differences there were many similarities that appeared constantly across the survey.

This research determined and exemplified the current trends and attitudes of international tertiary students within UUNZ across all courses. Furthermore, in order to explore several determinants sustainability behaviours were identified as well as trends in student perceptions to environmental sustainability issues. The study puts together some recommendations that could be used to develop and formulate future strategies (in curricula) to encourage sustainable consumptions.

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