Are Tertiary Students in South Africa Conscious of Environmental Sustainability? A Durban University of Technology Case Study

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ABSTRACT

Environmental sustainability is a topical issue around the world. The drastic effects of climate change and global warming make it every citizen's responsibility to look after the environment. South Africa is a committed global partner in the promotion of environmental sustainability. This study contributes to the efforts made by South Africa towards environmental sustainability by assessing the attitude, knowledge and behaviour of students towards environmental sustainability and their views on the role of the government in this regard. The study uses undergraduate students from the Durban University of Technology as a case study. A self-administered questionnaire comprising 21 five-point Likert scale questions on environmental sustainability and policy is used to collect data from a sample of 401 students across five of the six faculties. Results from the study show that students are aware of environmental sustainability. Furthermore, the study finds that age, type of qualification, and the home area students come from are significant determinants of students' perception.

1. Introduction

Environmental sustainability is a topical issue around the world. It is key to mitigating the drastic effects of climate change and global warming. The concept of environmental sustainability encompasses aspects such as the need to use water sparingly (Vloerbergh et al. 2007), solid waste disposal and recycling (Ehrampoush et al. 2005), conservation of fauna and flora (Infield et al. 2001), energy conservation (Koballa 1984; Vlahov et al. 1988) among others. As part of the global community, South Africa has a long-standing involvement in international environmental issues. In 2011, the country hosted the 17th session of the Conference of the Parties (COP 17) to the United Nations Framework Convention on Climate Change (UNFCCC). This gesture highlighted South Africa's commitment towards environmental sustainability. The South African government has placed increasing emphasis on the "Green Agenda

Commitments towards environmental sustainability by the government can only yield positive results if citizens buy into the government's efforts. To create and nurture an environmentally sustainable economy, every citizen should play a role. There are several studies in the literature that examine the behaviour, attitudes, perceptions and opinions of citizens towards environmental sustainability (Berberoglu et al. 1995; Infield et al. 2001; Koballa 1984; Newhouse 1991; Vlahov et al. 1988). Most importantly, there is a new trend in the literature, of studies that examine the behaviour, attitude, perception, and awareness of students towards environmental sustainability (Aini, Nurizan and Fakhru'l-Razi 2007; Boiyo, Koech and Manguriu 2015; Ehrampoush et al. 2005; Estrada 2013; He et al. 2011; Kagawa 2008; Lee 2008; Mtutu & Thondhlana 2016; Petersen et al. 2007; Robertson & Jaris 2009; Said et al. 2007; Zarrintaj et al. 2013). Growth in literature that examine the perceptions and opinions of tertiary students towards environmental sustainability is essential because they are at the frontier of knowledge and are supposed to lead in sustainability issues, both in the present and future. Therefore, it is essential to examine their perceptions and subsequently develop them to possess the right mindsets towards environmental sustainability.

The role of students towards environmental sustainability is taken seriously in the literature and various studies recommend that the concept of environmental sustainability be introduced in the curriculum. Boiyo, Koech and Manguriu (2015) recommend that Kenyan schools fund and promote the capacity of environmental clubs which should also be enshrined in the curriculum. In separate studies, Aini, Nurizan and Fakhru'l-Razi (2007) and Zarrintaj et al. (2013) recommend

that Malaysian education system should introduce a subject on environmental education. For tertiary students, Ehrampoush and Baghiani-Moghadam (2005) recommend that students in Iran should take part in formal and informal education classes to promote their knowledge in environmental sustainability. He et al. (2011) reveal that levels of awareness in tertiary students vary according to students' backgrounds and the areas they grew up in. Students from developed areas are more aware of sustainability relative to those from less developed areas, regardless of their shared exposure to institutionalized environmental education (He et al. 2011).

There is still a gap in the literature on studies that examine students' awareness, attitudes and behaviour towards environmental sustainability in South Africa. Some efforts to bridge the gap have been made by Mtutu and Thondhlana (2016) and Amutenya et al. (2009). These studies investigate perceptions and awareness of environmental sustainability at Rhodes University. There is need for several rigorous studies to examine the behaviour and awareness of tertiary students across universities in the country. The main reason is that different universities in South Africa attract students from different backgrounds. Students' backgrounds are suggested in He et al. (2011) as an important determinant of their levels of awareness and perceptions. Issues of environmental sustainability are greatly important in South Africa not only because of the country's mandate and commitment to global bodies. South Africa has huge environmental burdens such as water scarcity, persistent droughts, dumping of solid waste, pollution and other natural phenomena (Alberts 2015; Machethe 2011). As such, university students should take a leading role in environmental sustainability behaviour and campaigns. Cortese (1992) argues that universities are champions of environmental sustainability and should lead society.

This study contributes to the efforts made by South Africa towards environmental sustainability by assessing the opinions, perceptions and awareness of tertiary students towards environmental sustainability. Undergraduate students from the Durban University of Technology are used as a case study. The remainder of the study is organised into three sections. Section 2 reviews some empirical literature on students' awareness of environmental sustainability. Section 3 discusses the methodology. Section 4 presents and discusses the results. Section 5 concludes the study and suggests recommendations.

2. Literature review

The United Nations' Report on the World Commission on Environment and Development, defines sustainable development as 'that which meets the needs of the present without compromising the ability of future generations to meet their own needs'. This interpretation focuses on the concept of 'needs', giving priority to the essential needs of the world's poor. As a result, limitations should be imposed so that the environment possesses the ability to meet both the present and future needs. In this regard, the goals of economic and social development must be defined in terms of sustainability in all countries. Interpretations on environmental sustainability will vary, but there should be consensus on certain general features with respect to the basic concept of sustainable development as well as a broad strategic framework for achieving it. However, if the citizens are not educated on environmental sustainability along with a change in attitude and behaviour, there will be no significant change in the mitigation of the damage caused by climate change. For this reason, much has been written on the knowledge, attitudes and behaviour of people towards environmental sustainability. Most of the studies have been conducted around the world, but very few studies have been undertaken in South Africa, particularly amongst tertiary students.

Literature on environmental attitudes and behaviour rose to prominence in the 1980s (Koballa, 1984; and Vlahov and Treagust, 1988), it continued into the 1990s (Newhouse, 1991; and Berberoglu and Tosunoglu, 1995) and the early 2000s (Infield and Namara, 2001). Recent studies on the knowledge and attitude of students towards environmental sustainability include Boiyo, Koech and Manguriu (2015), Zarrintaj, Sharifah, Abdul and Mahyar (2013), He, Hong, Liu and Tiefenbacher (2011), Aini, Nurizan and Fakhru'l-Razi (2007), as well as Ehrampoush and Baghiani-Moghadam (2005). This section briefly reviews some of the recent studies on students' knowledge, attitudes and behaviour towards conservation.

Boiyo, Koech and Manguriu (2015) examine the relationship between attitudes and the level of participation in environmental activities among 320 secondary school students randomly selected from schools in Kasarani and Kibera Divisions in Nairobi, Kenya. Using the Analysis of Variance, the study reveals that there were no significant differences between the attitude and level of participation in environmental activities of secondary school students in the sample area. It was recommended in the study that the management of schools should consider building the capacity of clubs through funding, technical support and creating time for students to engage in club

activities to enhance member participation. The study also recommends schools to enshrine the role of clubs in the curriculum.

Zarrintaj et al. (2013) examine the relationship between awareness, knowledge and attitudes towards environmental education among 470 secondary school students in Kajang City, Selangor, Malaysia. The study reveals a significant but weak relationship between awareness and knowledge on environmental issues while a strong relationship was observed between awareness and attitudes among respondents. Results also showed a negligible relationship between knowledge and attitude and concludes that a high level of awareness and knowledge plus positive attitude of students may come from their families, teachers, media, private reading and school curriculums. The study recommends a subject on environmental education as an independent syllabus in the Malaysian education system.

He et al. (2011) examine the environmental knowledge, attitudes and behaviour among Chinese university students aged between 16 and 20. Based on the hypothesis that regional economic development affect university students' environmental awareness, the study uses nonparametric tests to compare students from developed regions against those from less-developed regions. Results show that although students from both samples possessed low levels of environmental knowledge, those from developed regions had significantly different levels of general environmental awareness relative to those from less-developed areas. This was despite their shared exposure to institutionalized environmental education.

Aini, Nurizan and Fakhru'l-Razi (2007) examine the levels of environmental understanding, awareness, knowledge, and involvement in sustainable consumption practices in 306 students from four secondary schools in the state of Johor, Malaysia. Results from the study reveal that students were aware of, but only moderately concerned with, environmental issues. It is also shown that although environmental education in Malaysia managed to raise environmental consciousness among students, it was ineffective in changing action and behaviour patterns. The study recommends ways of enhancing understanding and participation of Malaysian school students in environmental education and sustainable development.

Ehrampoush and Baghiani-Moghadam (2005) examine the knowledge, attitude and practice of 237 students from the Yazd University of Medical Sciences (Iran) in respect of disposal of solid wastes and the important factors. Results show that the difference between the knowledge of males and

females was significant and that many students did not have any action in segregation and recycling of solid wastes. The study recommends all students to take part in formal and informal education classes to promote their knowledge in the disposal of solid waste.

3. Methodology

3.1. Data collection

A questionnaire is used to collect information on the behaviour, opinions and perceptions of students towards environmental sustainability. The questionnaire used had two sections. The first section had questions designed to capture biographical data such as age, gender, faculty etc. The second section comprised 21 five-point Likert scale questions on environmental sustainability. Questions in the second section were on behaviour, opinions and perceptions, and responses ranged from 'Strongly disagree' to 'Strongly agree' on a five-point Likert scale. Studies that also use the five-point Likert scale to collect information on awareness of environmental sustainability include Mtutu and Thondhlana (2016) and Kua and Wong (2012). Prior to the survey, the draft questionnaire was pre-tested on 60 Accounting and Informatics students. Reliability was ascertained using Cronbach's alpha. Content and construct validity were maintained by basing the items on internationally accepted notions of sustainability, other questionnaires used in similar research and information released by various provincial municipalities in South Africa pertaining to environmental issues.

To address ethical issues, informed consent was obtained by making verbal announcements explaining the research and requesting participation prior to dissemination of questionnaires in class. Participation was voluntary and students not willing to participate indicated indicate by leaving the room. The questionnaires were anonymous and students were informed not to include any information that would result in them being identified. The population of the study comprises all full-time students studying at the Durban campuses of the Durban University of Technology. A total of 600 questionnaires were distributed across all the 6 faculties and 441 questionnaires were successfully completed, representing a response rate of 74%.

The average age of the sample is 22 years while the youngest student interviewed was aged 17 years and the eldest was aged 41 years. A summary of the descriptive statistics of the sample is presented in Appendix Table 1. Male respondents were slightly more at 52% than female

respondents whose proportion was 48%. Most of the respondents were from the Faculty of Accounting and Informatics (42%) and Management Sciences (30%) and no responses were obtained from the Arts and Design faculty. We managed to collect information from all the Durban campuses except for the City campus which houses the faculty of Arts and Design. Most of the respondents are first year students studying towards a three or four-year diploma. Those who reside in private accommodation during the semester make 69% of the respondents while those staying in campus residences are 31%. We acknowledge findings from He et al. (2011) that the development of the area students come from play a role in shaping their perceptions, attitudes and opinions. As such, we collected information on where the type of settlement the students come from. The proportion of respondents who come from rural areas or farms was 36% while 35% come from townships and 29% come from the city or urban suburbs.

3.2. Data analysis

Collected raw data was first coded and captured in a Microsoft Excel spreadsheet. The data was then exported to the Stata software for analysis. Analysis was categorised into various sections. Firstly, the frequency distribution of students' behaviour was estimated and tabulated. Secondly, frequency distributions of students' opinions about environmental sustainability were analysed. This was done in two phases. The initial phase groups all questions we expected students to either 'Agree' or 'Strongly agree'. The latter phase involved questions on students' opinions where we expected students to either 'Disagree' or 'Strongly disagree'. For each question in the two phases, we tabulate the frequency distributions, the modal and mean responses. Thirdly, estimated and illustrate the frequency distributions of students' perceptions on environmental issues. The frequency distributions for students' perceptions were presented in the form of a bar graph.

The study also examines factors determining students' perceptions on environmental issues. A simple Ordinary Least Squares regression is estimated to establish the most important biographical characteristics determining students' preferences. The following linear OLS regression model was estimated:

$$Q_i = \beta_0 + \beta_1 Age_i + \beta_2 Fac_i + \beta_3 Cam_i + \beta_4 Qua_i + \beta_5 Year_i + \beta_6 Emp_i + \beta_7 Accom_i + \beta_8 Home_i + \varepsilon_i$$

Where:

Q_i = response by student i on students' perceptions on environmental issues.

Age_i = age of student i.

Fac_i = academic faculty of student i.

Cam_i = campus for student i.

Qua_i = qualification of student i.

$Year_i$ = year of study of student i.

Emp_i = employment status of student i.

$Accom_i$ = accommodation for student i during the semester.

$Home_i$ = home area where student i comes from.

$\beta_0 .... \beta_8$ = coefficients of variables.

ε_i = random error term.

There were two questions used to capture perception. As such, two OLS regression equations were estimated for each. The first one was on students' perceptions on climate change and the second one was on students' perceptions on drought in South Africa. Since data on these variables were collected using a five-point Likert scale, we created dummies for the responses where 1 was for either 'Strongly disagree' or 'disagree' and 0 otherwise. The dummy created allowed for a simple binary OLS regression. Finally, the study tests for correlation between the dependent variable in each OLS regression (Q_i) and the various explanatory variables. The Kendall's and Spearman's rank correlation tests were performed to examine if the dependent variables (Q_i) are independent of the various explanatory variables used in the regression models.

4. Results

As alluded to earlier in the data analysis section of the methodology, results will be presented and discussed in four steps. Firstly, the frequency distribution of students' behaviour is presented and discussed. We present only responses of students who either 'Strongly agreed', 'Agree' or were 'Neutral' to practicing environmentally sustainable behaviour. Secondly, frequency distributions of students' opinions about environmental sustainability are presented and discussed. We first present and discuss responses to questions we expected students to either 'Strongly agree' or 'Agree'. Subsequently, we present and discuss results to questions we expected students to either

'Disagree' or 'Strongly disagree'. Thirdly, we illustrate and discuss results on students' perceptions on environmental issues. Fourthly, we present estimation results on the determinants of students' perceptions on environmental issues. Finally, in this section we present and discuss results on the Kendall's and Spearman's rank correlation tests.

The study collected information regarding the daily behaviour of students of students. Students were asked five behavioural questions on a five-point Likert scale ranging from 'Strongly disagree' to 'Strongly agree'. If students either 'Agreed' or 'Strongly agreed' teach of the five behavioural questions, such results will be interpreted to mean students are practice environmentally sustainable behaviour. Frequency distribution results for the five behavioural questions are presented in Table 1. Since our focus is to determine the percentage of students who agreed to practicing sustainable behaviour, we present only the proportion of those who either 'Strongly agreed' or 'Agreed'. We also include the proportion of those who were neutral about adopting environmentally sustainable behaviour in their daily lives. Additionally, we present the modal and mean responses for each behavioural question.

Table 1: Participants who agreed to sustainable behaviour (N = 441)

Sustainable behaviour	Response	No. of respondents	% of respondents	Modal response	Mean response
Separate waste for recycling	Strongly agree	51	12%	Neutral	Neutral
	Agree	98	22%		
	Neutral	149	34%		
Switch off lights and electrical appliances when not in use	Strongly agree	181	41%	Strongly agree	Agree
	Agree	154	35%		
	Neutral	72	16%		
Do not keep tap running when brushing teeth	Strongly agree	240	54%	Strongly agree	Agree
	Agree	124	28%		
	Neutral	57	13%		
Take a shower rather than fill the bath tub	Strongly agree	221	50%	Strongly agree	Agree
	Agree	146	33%		
	Neutral	39	9%		
Reuse plastic bags for shopping	Strongly agree	183	42%	Strongly agree	Agree
	Agree	114	26%		
	Neutral	67	15%		

Table 1 shows that the modal response for four of the five behavioural questions was 'Strongly agree' while 'Agree' is the average response for the same four questions. The results suggest 'Neutral' as both the mean and modal response when students were asked if they separate waste for recycling. The total percentage of those who 'Agreed' and 'Strongly agreed' is 34% and another 34% is 'Neutral'. This result could be because recycling bins are not common at DUT and student would neither agree nor disagree. However, in general, the results on students' behaviour show that students do practice environmentally sustainable behaviour at DUT.

We also tested for the opinions of students on sustainable development and the environment. The 5-point Likert scale with responses ranging from 'Strongly disagree' to 'Strongly agree' were asked. In analysis of student responses, we grouped questions where we expected students to agree separately from the questions where we expected students to disagree. In the former, if students 'Agreed' or 'Strongly agreed', we assume that their opinions show awareness to environmental sustainability, 'Disagreeing' or 'Strongly disagree' would be interpreted as otherwise. In the latter set of questions, if students 'Disagreed' or 'Strongly disagreed' we interpret the result to mean that students are aware of issues around environmental sustainability, otherwise they are not. Responses for questions that we expected students to agree are presented in Table 2.

Table 2: Students opinions on sustainable development and the environment (N = 441)

Opinion	Response	% of respondents	Modal response	Mean response
The important concern in sustainable development is the environment	Strongly agree Agree Neutral	20% 53% 22%	Agree	Agree
Sustainability meets the needs of this generation without compromising the needs of the next generation	Strongly agree Agree Neutral	18% 32% 31%	Agree	Agree
Economic growth is necessary for sustainable development	Strongly agree Agree Neutral	36% 47% 13%	Agree	Agree
We should radically change our way of living to offset the damage to the environment	Strongly agree Agree Neutral	35% 44% 13%	Agree	Agree
DUT cafeterias should only buy locally produced foods	Strongly agree Agree Neutral	25% 28% 28%	Agree	Agree
Lecturers at DUT should use electronic not paper handouts	Strongly agree Agree Neutral	24% 20% 25%	Neutral	Neutral
If recycling bins were available on campus, I would use them	Strongly agree Agree Neutral	52% 33% 11%	Strongly agree	Strongly agree
Energy saving bulbs should be used in DUT residences and lecture rooms	Strongly agree Agree Neutral	53% 32% 9%	Strongly agree	Strongly agree
More gardens and "green spaces" are needed at DUT	Strongly agree Agree Neutral	49% 27% 17%	Strongly agree	Strongly agree

We expected students' opinions to 'Strongly agree' or 'Agree' to nine questions on environmental sustainability. Table 2 shows that except for only one question where both the modal and mean responses were 'Neutral', students either 'Agreed' or 'Strongly agreed' to the rest of the questions. This result reveals that students at DUT are aware of the need to be environmentally sustainable. Subsequently, we present results on the responses that students were expected to either 'Disagree'

or 'Strongly disagree'. Students were asked five questions on their opinions regarding environmental issues and sustainability. Results are presented in Table 3.

Table 3: Students opinions on sustainable development and the environment (N = 441)

Opinion	Response	% of respondents	Modal response	Mean response
Sustainability is concerned with human rights and social justice	Strongly disagree Disagree Neutral	4% 9% 31%	Agree	Agree
There must be equity across generations for sustainability to occur	Strongly disagree Disagree Neutral	2% 6% 19%	Agree	Agree
The earth has plenty of natural resources for future generations	Strongly disagree Disagree Neutral	14% 29% 25%	Disagree	Neutral
Technological progress will overcome all environmental problems	Strongly disagree Disagree Neutral	10% 29% 33%	Neutral	Neutral
Humans have the right to use natural environment as they see fit	Strongly disagree Disagree Neutral	10% 21% 25%	Agree	Neutral

The mean responses in Table 3 were either 'Agree' or 'Neutral' while the modal responses were mostly 'Agree'. These findings are contrary to our prior expectations as we expected students to either 'Disagree' or 'Strongly disagree', denoting awareness to environmental sustainability. The current findings in Table 3 suggest otherwise.

Students were also asked for their perceptions on climate change and drought in South Africa. We asked students if climate change and drought in South Africa are exaggerated issues. Responses for these questions are presented in Figure 1.
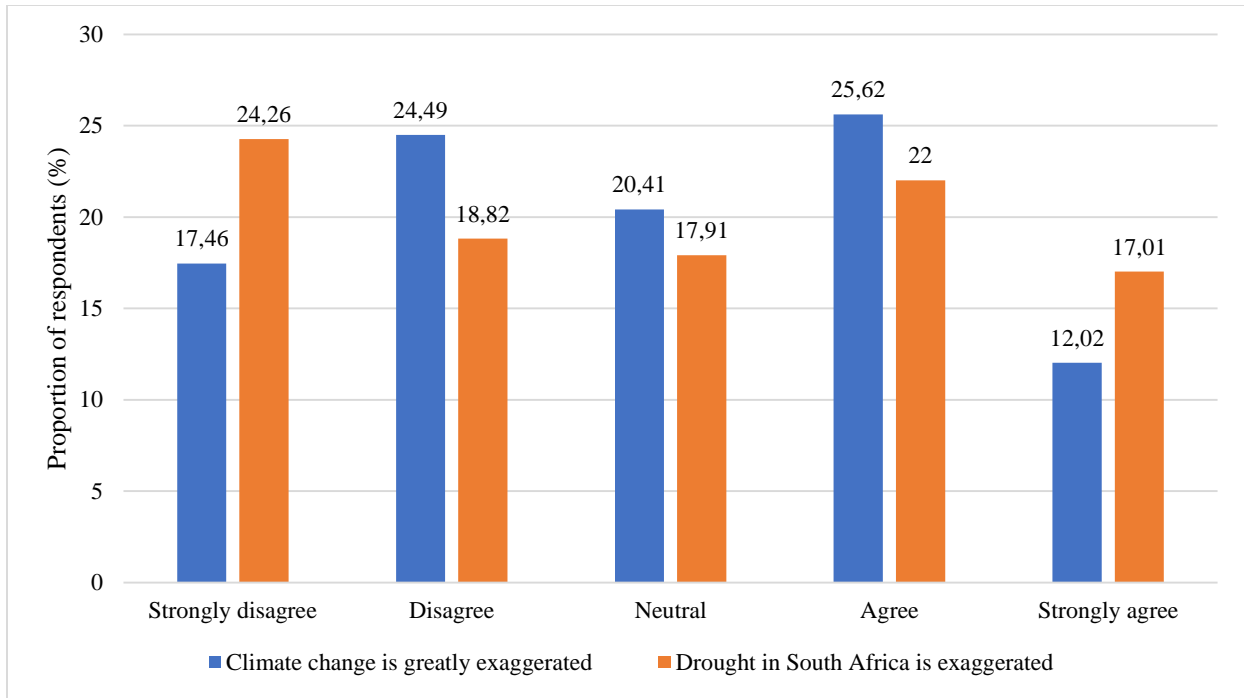
Figure 1: Perceptions of students on environmental issues

Even though Figure 1 shows that the modal response for the climate change question is 'Agree', about 42% of the students either 'Strongly disagreed' or 'Disagreed' that climate change is an exaggerated issue. A significant proportion (20%) were 'Neutral' on the climate change question. This result suggest that students are aware of the seriousness of climate change. Figure 1 also shows that a larger proportion of the students 'Strongly disagreed' (24%) and 'Disagreed' (19%) while 18% were 'Neutral' that drought in South Africa is an exaggerated issue. Although most of the students disagreed that drought is an exaggerated issue in South Africa, it is alarming and worth noting that about 39% of the students think drought in South Africa is an exaggerated issue. This is equally the case with the number of students who think climate change is an exaggerated issue (about 37% of the responses). Such responses make it important to investigate the possible reasons behind these perceptions.

As such, we used a binary OLS regression to examine the possible determinants of students' perceptions. Dummies were separately created for students' responses regarding their perceptions on climate change and drought in South Africa. The value of 1 was assigned where responses were either 'Strongly disagree' or 'disagree' and 0 otherwise. Two binary OLS regressions were then estimated with the dummies regressed against the students' socio-demographic details. Estimation

results are presented in Table 4. Model 1 shows the regression of students' responses on whether climate change is an exaggerated issue while Model 2 regresses students' responses on whether drought in South Africa is an exaggerated issue.

Table 4: OLS regressions of perceptions against the biographical characteristics

	Model 1			Model 2		
	Coef.	Std. Err	P>|t|	Coef.	Std. Err.	P>|t|
Gender	-0.034	0.047	0.472	-0.049	0.046	0.280
Age	0.015*	0.008	0.067	0.006	0.008	0.414
Faculty	-0.003	0.015	0.863	0.007	0.014	0.641
Campus	0.015	0.040	0.710	-0.039	0.039	0.315
Qualification	-0.059	0.052	0.264	-0.111**	0.051	0.030
Year of study	-0.003	0.033	0.919	-0.016	0.032	0.611
Employment	0.085	0.099	0.392	0.149	0.096	0.120
Accommodation	-0.019	0.055	0.392	-0.073	0.054	0.177
Home area	-0.059**	0.032	0.058	-0.114***	0.031	0.000
Constant	0.143	0.360	0.692	0.652*	0.349	0.063
N	441			441		
R²	0.027			0.097		
Adj R²	0.007			0.078		
Root MSE	0.483			0.469		

Note: ***, **, * Significance at 1%, 5%, 10% level

Model 1 which shows results on the regression of climate change perceptions against biographical characteristics of respondents reveal that only Age and the Home Area of students are significant in determining perceptions about climate change. Home Area is still significant Model 2 where students' perceptions on drought in South Africa were regressed against biographical characteristics. Student's qualification is also an important determinant of students' perceptions in Model 2. The significant constant in Model 2 suggests that other variables not included in the regression also determined students' perceptions. The consistence in the significance of Home Area across the two models confirms findings in He et al. (2011) that regions where students come determined their levels of awareness of environmental issues. The positive and significant of the Age coefficient in Model 1 shows that the older students are, the more they could disagree to climate change being and exaggerated issue. Even though the coefficient of Age is not significant in Model 2, the sign is still consistently positive. This suggests that students become more aware of environmental sustainability with age. The result on qualification suggests that students from certain qualifications are more aware than the other.

The adjusted R-squared for both models in Table 4 are weak. Due to these weak model fitness results, we tested for correlation between the perception variables and the biographical characteristics of students. This was performed using Kendall's and Spearman's rank correlation tests. The two tests examine the probability of the null hypothesis that the dependent variable (perception variables in the case of this study) and each explanatory variable (biographic characteristics in the case of this study) are independent of each other. A significant probability value shows that the dependent variable is independent of the explanatory variable, otherwise it is not. Results are presented in Table 5.

Table 5: Kendall's and Spearman's rank correlation coefficients for the perception variables and biographical characteristics (N = 441)

	Kendall's rank					Spearman's rank	
	Tau_a	Tau_b	Score	SE of score	p-value	Rho	p-value
Climate change perceptions							
Gender	-0.015	-0.030	-1411	2244.3	0.529	-0.030	0.530
Age	0.025	0.038	2390	2566.7	0.352	0.044	0.352
Faculty	-0.009	-0.015	-848	2451.8	0.729	-0.017	0.729
Campus	0.002	0.004	219	2345.2	0.926	0.005	0.926
Qualification	-0.024	-0.061	-2368	1805.1	0.189	-0.063	0.189
Year of study	0.005	0.011	498	2145.8	0.817	0.011	0.817
Employment	0.013	0.037	1254	1602.4	0.434	0.037	0.435
Accommodation	-0.026	-0.059	-2561	2074.5	0.217	-0.059	0.217
Home area	-0.064***	-0.115***	-6234	2440.9	0.011	-0.122***	0.011
Perceptions on drought in SA							
Gender	-0.011	-0.022	-1021	2259.4	0.652	-0.022	0.652
Age	-0.006	-0.009	-584	2584.0	0.822	-0.011	0.822
Faculty	-0.032	-0.055	-3061	2468.3	0.215	-0.059	0.215
Campus	-0.008	-0.014	-741	2361.0	0.754	-0.015	0.754
Qualification	-0.071***	-0.176***	-6868	1817.3	0.000	-0.180***	0.000
Year of study	-0.035	-0.072	-3385	2160.3	0.117	-0.075	0.117
Employment	0.053***	0.153***	5178	1613.3	0.001	0.153***	0.001
Accommodation	-0.077***	-0.171***	-7478	2088.5	0.000	-0.171***	0.000
Home area	-0.129***	-0.231***	-12598	2457.4	0.000	-0.244***	0.000

Note: ***, **, * Significance at 1%, 5%, 10% level

Results from both the Kendall's and Spearman's rank correlation coefficients show no evidence of multicollinearity. This suggests that the dependent variables and explanatory variables are independent of each other. However, for the climate change variable, only the probability of Home

Area is statistically significant at 1% significance level while the rest are not statistically significant. There is also no evidence of correlation between the dependent variable and all the explanatory variables. However, only Qualification, Employment, Accommodation, and Home Area are statistically significant at 15 significance level.

5. Summary

Environmental sustainability is a topical issue around the world. The drastic effects of climate change and global warming make it every citizen's responsibility to look after the environment. South Africa is a committed global partner in the promotion of environmental sustainability. Research on the attitude and behaviour of people towards environmental sustainability has been growing, both in South Africa and across the globe. Equally, there is tremendous growth in literature on the attitude, awareness and behaviour of students towards the environment. This study contributes to the efforts made by South Africa towards environmental sustainability by assessing the attitude, knowledge and behaviour of students towards environmental sustainability and their views on the role of the government in this regard. The study uses undergraduate students from the Durban University of Technology as a case study. A self-administered questionnaire comprising 21 five-point Likert scale questions on environmental sustainability and policy is used to collect data from a sample of 441 students across the six faculties. Descriptive and inferential statistical analyses are presented, including regression to ascertain the possible determinants of students' knowledge and attitudes towards environmental sustainability. Results from the study show that students are aware of environmental sustainability. Furthermore, the study finds that age, type of qualification, and the home area students come from are significant determinants of students' perception. Amongst the key policy implications, the study recommends that environmental sustainability be introduced as a General Education module in the tertiary curriculum.

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APPENDIX

Descriptive statistics of respondents (N = 441)

Variable	Category	Proportion (%) of respondents
Gender	Female	48%
	Male	52%
Faculty	Accounting & Informatics	42%
	Applied Sciences	14%
	Arts & Design	-
	Engineering & Built Environment	8%
	Management Sciences	30%
	Health Sciences	6%
Campus	City campus	-
	Steve Biko campus	27%
	Ritson Road campus	54%
	ML Sultan campus	19%
Qualification	3/4-year diploma	80%
	Bachelor of Technology	13%
	Other	7%
Year of study	First year	66%
	Second year	25%
	Third year	5%
	Fourth year	3%
	Fifth year	1%
Employed	Yes	15%
	No	85%
Residence	DUT accommodation	31%
	Private accommodation	69%
Home area	Rural/farms	36%
	Townships	35%
	City/Urban	29%