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Assessing Pro-Environmental Behaviour towards Plastics among Staff and Students at a South African University

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Abstract: Plastic pollution is a global issue of concern, with all environmental realms contaminated by plastics. Human consumption as well as management of daily plastics use can play a significant role to control this global environmental problem. Thus, understanding public perceptions about plastic consumption and pollution is vital to engage society in solutions to reduce the associated environmental impact. This study explores the perceptions, attitudes, and beliefs of a university community towards plastic consumption and pollution. We employed online questionnaires, which had 248 respondents in the end, and data was analysed using a combination of Chi-Squared and Spearman correlation tests. We observed that staff members (i.e., lecturers) had a greater awareness of long-term plastic waste impacts and were more likely to take steps to reduce their plastic use in their daily routines. About 50% of staff members and 14.8% of students indicated that their main source of information was scientific publications, followed by Google (8.3% of staff members, 24% of students). Furthermore, they were also more likely to implement policies and procedures that promote sustainability and reduce waste. Approximately 54.5% of staff members and 56.4% of students highlighted that they did not know of any tools to help reduce plastic pollution, with 36.4% of staff members and 20.5% of students indicating that they did not know of any intervention methods. In comparison, students were more focused on convenience and did not have the same level of understanding or concern about the environmental impact of plastics as they were more likely to use single-use plastics, without considering the potential environmental harm. Hence, to bridge this gap in perception, educational institutions should take proactive steps to educate both staff and students about the importance of reducing plastic waste and promoting sustainability through the provision of educational materials, organising awareness campaigns and events, and implementing policies that encourage responsible plastic use.

Keywords: attitude; higher education; human perceptions; plastic pollution; pro-environmental behaviour; waste management

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1. Introduction

Plastic pollution is considered a global issue, with all environments currently being contaminated by plastics [1]. This environmental issue is a result of poor domestic and industrial waste management [2]. Plastic-packaged products for everyday usage are widely distributed, unavoidable and used within our communities, e.g., grocery bags made of polythene, polyvinyl chloride pipes, plastic kitchenware, and polyethylene terephthalate bottles [3,4]. These plastics enter the environment through a variety of routes, with the land-based route accounting for approximately 80% of the global plastic waste; in most instances, aquatic environments are the final recipients of these materials [5,6]. Approximately 79% of all the manufactured plastic products end up in landfills and/or the natural environment due to human behaviour, acts, and inactions [7,8].

Pro-environmental behaviours are activities that contribute or are seen to contribute to environmental conservation, whereas environmental conservation can be defined as either the reduction of negative impacts or the increase of positive impacts on the environment [9]. Therefore, reducing plastic pollution while also promoting sustainable consumption may necessitate a greater focus on understanding human behaviour rather than relying solely on economic incentives and disincentives [8]. Exploratory studies [9–11] reveal that age plays an important role in influencing human pro-environmental behaviour. According to Oturai et al. [12], moral reasoning about environmental issues, such as littering, changes with demographics such as age. While younger children between 6 and 8 years old reason using an anthropogenic approach based on human interests or activities, older children (>11 years old) reason in a biocentric manner based on the idea that nature has intrinsic value; however, even when older children adopt biocentric reasoning, they rarely act on it [12].

Despite pro-environmental behaviour's significance, Ertz et al. [13] highlighted that this behaviour may not be adopted by individuals for a variety of reasons, such as time, money, and effort. Individuals' intentions to be environmentally friendly may be influenced by their views, motivations, and dedication to the natural environment [14]. Thus, human behaviours are linked to awareness, perception, attitude, and level of concern about environmental issues. These have been seen to motivate individuals to participate in solutions at an individual level, and this behaviour can be influenced by laws and legislation at the societal level [15]. Furthermore, Vicente-Molina et al. [16] highlighted that public-sphere pro-environmental behaviour can influence public policies, as these are mostly based on education levels and place of residency. Consumption of green products, use of public transport, and recycling are all instances of pro-environmental behaviour that can be directly influenced by the private and public spheres [5]. Individuals' intentions to conduct environmentally responsible behaviour are impacted not just by their own views but also by the behaviours and actions of others [5]. Thus, as a result, it is important to understand the driving forces behind plastic pollution and a lack of environmental awareness, forecast changes over time, and eventually try to change the system to prevent harmful environmental consequences [17,18].

Understanding pro-environmental behaviour and how to promote it is critical when it comes to issues of environmental concern, such as plastic pollution, on the environment, where there is widespread agreement that human behaviour is the primary cause. Despite the known potential dangers of plastics on aquatic and terrestrial biota [19–22], the most effective way to reduce the risk to these organisms is to promote the sustainable use and disposal of plastics, thereby reducing their possible environmental impacts, given that simply stopping using plastics currently does not appear to be a viable solution owing to a lack of alternatives [5,23].

Although research on the effects of distinct types of plastic properties (i.e., polymers, sizes, form) is critical, it is also important to analyse human perceptions and behaviours towards plastics, as these factors might influence the prevalence of plastics within the natural environment. However, there is a lack of such research within the Global South on human pro-environmental behaviour towards plastic pollution, particularly among educators and university students. This study aimed to assess pro-environmental behaviour (i.e., attitudes, beliefs, and values) among university students and staff members (i.e., lecturers) towards plastics and how it affects environmental ethical behaviours through knowledge and skill development among diverse groups, which will enable individuals to participate in supporting an ecologically and socially just society. We hypothesised that (i) staff members would understand plastic pollution better and would have more positive pro-environmental behavioural attitudes towards plastics compared to students because of differences in education level, attitudes, beliefs, and values, and (ii) staff members would play a significant role in mitigating plastic pollution compared to students due to a better understanding and perception towards plastic pollution within the natural environment, as indicated in the previous hypothesis. The study findings will help provide a better

understanding of the pro-environmental behaviour towards plastic pollution, determine how to improve pro-environmental behavioural attitudes, and contribute to the reduction of plastic pollution within the natural environment.

2. Methods

2.1. Human Ethical Considerations

A human ethics permit was applied for at the University of Mpumalanga and granted under ethical clearance number UMP/Dalu/1/2022. The respondents were told that they were allowed to withdraw at any time during the study when they no longer wanted to take part. Anonymity was ensured among the respondents, and everyone was treated with respect and confidentiality. No minors under the age of 18 were included in the current study. The study was conducted online; every participant was informed about their rights and that they could withdraw at any time, and no personal details were captured online.

2.2. Study Area

The study was conducted at the newly established (est. 2013) University of Mpumalanga, Mbombela campus. The University of Mpumalanga (coordinates: –25.43715, 30.98160) is in the Mpumalanga Province capital city Nelspruit (Mbombela). Currently, the university has three officially established faculties (i.e., Agriculture and Natural Sciences (FANS), Education (FE), and Economics, Development, and Business Sciences (FEDBS)). The student population has increased from the first cohort of 169 students in 2014 to over 7100 students in 2022 studying in more than 64 qualifications (https://www.ump.ac.za/About-us/Welcome-Message.aspx, accessed on 23 August 2023). The student population is as follows; African (Black)—7071 (99.6%); Coloured—15 (0.2%); Indian—5 (0.007%); and White—9 (0.09%). Of these students, 2732 (38.4%) students are male and 4368 (61.5%) are female. There is a diversity of home languages (n = 17), with the majority of students speaking the local siSwati followed by isiZulu and sePedi. The university also has 184 permanent academic staff, with 90 (49%) and 68 (37.0%) staff having PhD and MSc degrees, respectively. Most of the academic staff are African (83.0%), mixed race (i.e., Coloured in South Africa) (0.62%), Indian (1.86%), or White (14.2%), with males and females making up 58.4% and 41.6%, respectively [24].

2.3. Research Design

The study was cross-sectional, and it adopted a qualitative and quantitative approach, as the data was collected once and was limited to 1 year. A qualitative approach is a valuable method that aims to explore, understand, and interpret complex social phenomena, human experiences, and context. It further prioritises the voices and perspectives of respondents and involves understanding how the respondents themselves view and experience plastic in their lives. With quantitative data, one can apply data analysis techniques to identify correlations, relationships, and significant differences in perceptions, as this helps one to uncover deeper insights and relationships within the data. Furthermore, the study adopted a qualitative approach because this study aimed to understand perceptions and views toward plastic pollution. We adopted a purposive sampling procedure because of the large number of staff members and students.

2.4. Data Collection

An in-depth, semi-structured online questionnaire (https://docs.google.com/forms/d/1qIdlFC2WheEtQdta1YcCW67EZ7lg61x36Iop2pb7Amk/prefill, accessed on 23 August 2022) was used to describe and explore interviewees' perspectives on plastic pollution and education; it was open from 19 July to 30 August 2022. Based on the new environmental paradigm approach, a general evaluation of the staff and students' general environmental values, knowledge, and attitudes was also conducted [25]. The online questionnaire (Google Forms) used open- and closed-ended questions to obtain feedback on the university's plastic

use practices. The raw transcription was organized under different thematic levels using open coding [26] and further analysed.

At least 850 students (i.e., undergraduate and postgraduate) and 80 staff (i.e., lecturers) were invited to participate in this online questionnaire study within the university, to help better understand their pro-environmental behaviour towards plastic pollution. The questionnaire was divided into two sections. The first section was aimed at obtaining the general socio-demographic information of the respondents, i.e., age, gender, and level of education. The second section was intended to obtain information regarding respondents' (i) general knowledge of plastic pollution, (ii) perception of plastic pollution, (iii) willingness to pay for plastic, and (iv) possible interventions in reducing plastic usage. Respondents were given a hypothetical situation and asked to choose a hypothetical price increase at which they would start reducing their plastic usage as a follow-up question on willingness to pay (if the current price doubled, tripled, quadrupled, or more than quadrupled). The inquiry sought to determine whether altering the price at which plastic products are now sold might result in modifications to consumer behaviour.

2.5. Data Analysis

This study adopted a descriptive analytical technique, including the use of figures and tables. Questionnaire outcomes were coded for analysis using Chi-Squared tests to assess for significant differences between staff and students. A Spearman correlation was performed to explore the relationships among education level, age, and gender among staff and students with pro-environmental behaviour variables such as the importance of properly disposing waste, environmental knowledge, environmental consciousness, environmental awareness, plastic pollution interventions, the importance of recycling plastic waste, environmental attitudes, plastic alternatives, plastic resource consumption, willingness to pay for plastics, and plastic uses and purposes.

3. Results

3.1. Socio-Demographic Data

Most of the 248 respondents were students (95.5%), with 4.5% being staff members. This corresponds with the ratio of staff and students at the university in general. Furthermore, most of the respondents were females (68.1%), then males (31%), with (0.8%) choosing not to specify gender. Approximately 87.1% of the respondents were in the age group 18–24 years, 8.1% in the age group 25–30 years, 1.2% in the age group 30–36 years, 1.6% in the age group 37–42 years, and only 2% in the age group 43–48 years.

Students indicated that they were currently studying towards a Certificate/Diploma (35.9%), Bachelor of Science (29.4%), Bachelor of Arts or Social Sciences (12.9%,), Bachelor of Commerce (6.9%), or Advance/Postgraduate Diploma (6.5%). Approximately 6.5% were studying towards or had an MSc, and only 2% had PhDs. Of the undergraduate respondents, 50.0% indicated that they were in first year, 28.6% were enrolled in second year, and 15.0% and 6.3% were in third and fourth years, respectively.

3.2. Knowledge about Plastic Pollution

The Chi-square test indicated no significant differences ($X^2 = 0.431$, d$f = 1$, $p = 0.512$) in respondent answers between staff and students in terms of where they see plastic pollution in their area (Figure 1), with similarities ($X^2 = 1.003$, d$f = 1$, $p = 0.317$) also being observed in respondents' knowledge of microplastic size. Furthermore, the Chi-square test indicated no significant differences ($X^2 = 0.701$, d$f = 1$, $p = 0.403$) in responses between staff and students regarding plastic pollution and concerns about the problem of plastics based on one's current understanding (Figure 2). About 50% of staff members and 14.8% of students indicated that their main source of information was scientific publications, followed by Google (i.e., 8.3% of staff members, 24% of students) (Figure 3).

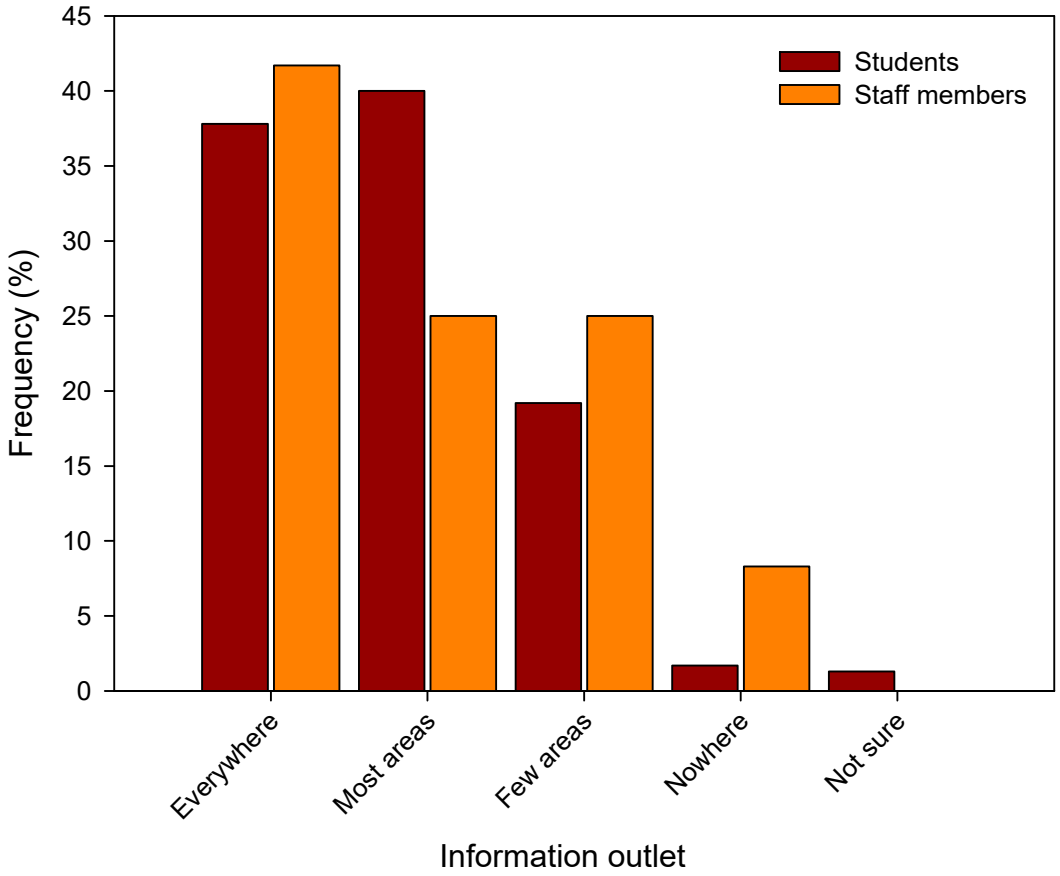

Figure 1. Staff and student (%) responses regarding where they see plastic pollution in their communities.

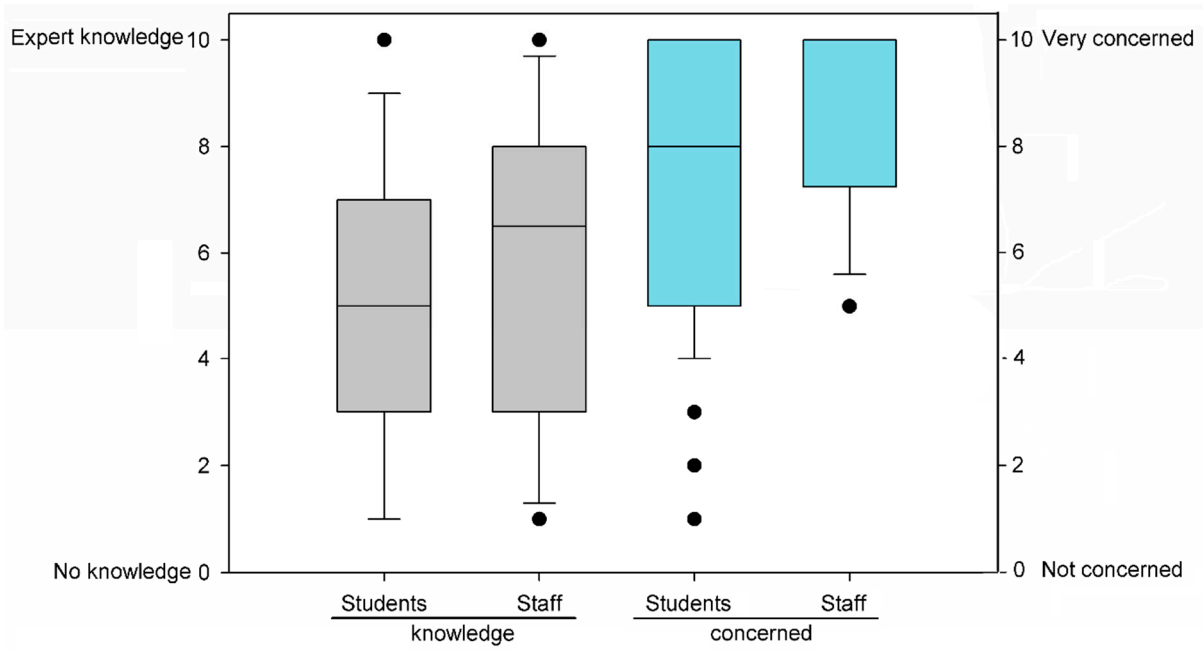

Figure 2. A box and whisker plot of the responses on plastic pollution and concern about the problem of plastics based on one's current understanding.

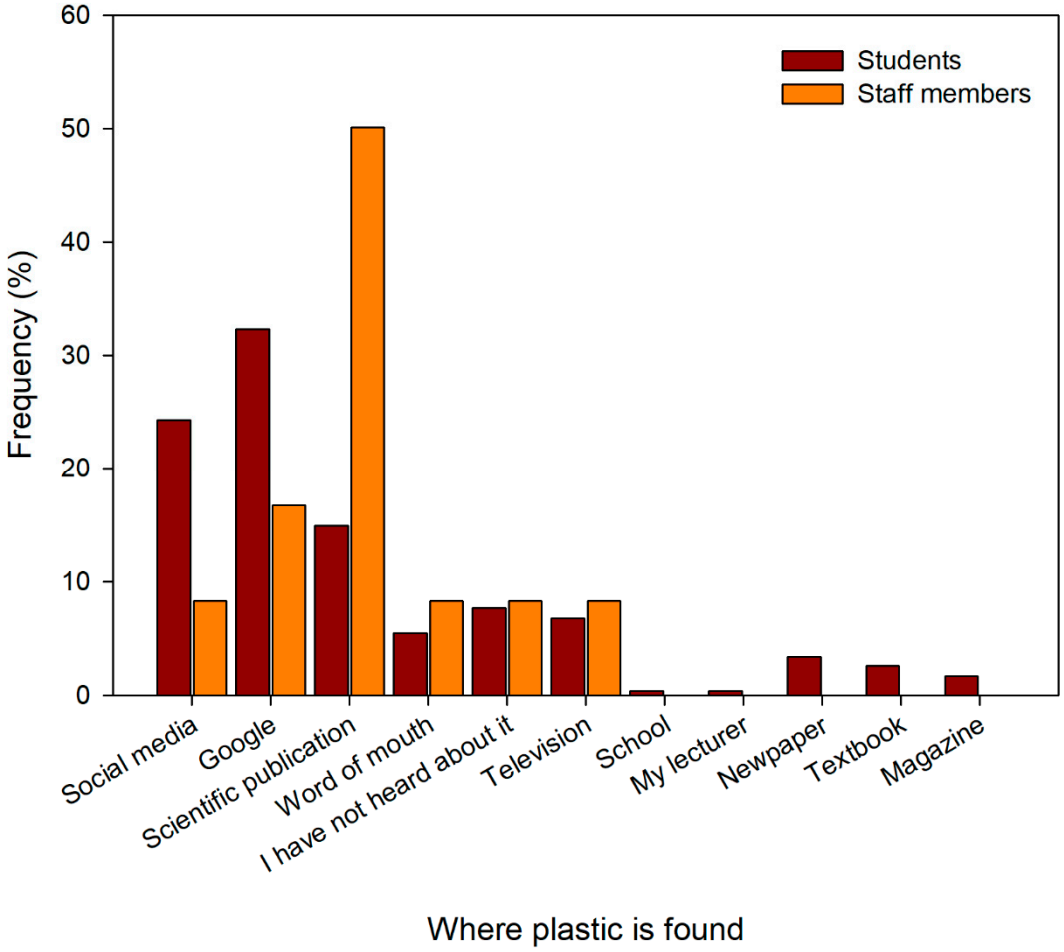

Figure 3. Responses regarding the main source of information on plastic pollution.

3.3. Perception of Plastic Pollution

Only 38.7% of students and 25% of staff members indicated that they do recycle sometimes, followed by 22.5% of students and 25% of staff members who highlighted that they never recycle plastic waste. Approximately 15.7% of students and 25% of staff members indicated that they do recycle but not often, whereas 22.1% of students and 25% of staff members indicated that they always recycle. About 30.6% of students and 16.6% of staff members indicated that they agree with the statement that humans have the right to modify the natural environment to suit their needs. Only 6.3% of students strongly agreed, approximately 29.7% of students and 49.9% of staff members disagreed, and only 31.9% of students and 33.3% of staff members were neutral. Approximately 77.9% of students and 83.3% of staff members agreed that they are worried about plastic waste polluting the areas where they live, including rivers and the sea. No significant differences were observed across respondents (i.e., staff and students) with regards to recycling their own or someone else's plastic waste (Chi-square, $X^2 = 0.134$, d$f = 1$, $p = 0.710$), if humans have the right to modify the natural environment to suit their needs (Chi-square, $X^2 = 0.527$, d$f = 1$, $p = 0.468$), and worries about plastic waste polluting the areas where they live and the aquatic environment (Chi-square, $X^2 = 3.387$, d$f = 1$, $p = 0.064$). However, significant differences (Chi-square, $X^2 = 5.159$, d$f = 1$, $p = 0.023$) were observed among respondent groups regarding whether plastics were harmful to the environment. For example, 100% of staff members and 71.2% of students indicated that they agreed with the statement, while 17.3% and 5.5% of students disagreed and indicated that they did not know, respectively.

Regarding whether humans were seriously abusing the environment, no differences (Chi-square, $X^2 = 0.367$, df = 1, $p = 0.539$) were observed in the two study groups, with 83.4% and 77.5% of staff members and students agreeing. No significant differences in

responses were observed regarding whether staff members and students had a choice regarding reusing, recycling, or throwing away plastics (Chi-square, $X^2 = 3.208$, d$f = 1$, $p = 0.073$), with reuse for other reasons being the most common response for all groups (>75%). On average, staff members made many trips (2–3 trips, 58.3%) to the supermarket per week compared to students, who went at least once a week (45.8%), with non-significant differences (Chi-square, $X^2 = 3.871$, d$f = 1$, $p = 0.450$) being observed. Regarding whether there is a plastic bag problem in South Africa, significant differences were observed (Chi-square, $X^2 = 6.315$, d$f = 1$, $p = 0.012$) among the two groups, with 100% and 71.6% of the staff members and students agreeing with the statement, respectively. About 22.0% of the students remained neutral.

3.4. Willingness to Pay for Plastic Bags

No significant differences were observed among staff and students when the price of plastic was doubled ($X^2 = 1.258$, $p = 0.262$), tripled ($X^2 = 0.624$, $p = 0.430$), and quadrupled ($X^2 = 1.099$, $p = 0.295$). The number of individuals who will buy plastic bags if the price continuously increases showed a decreasing trend (Figure 4).

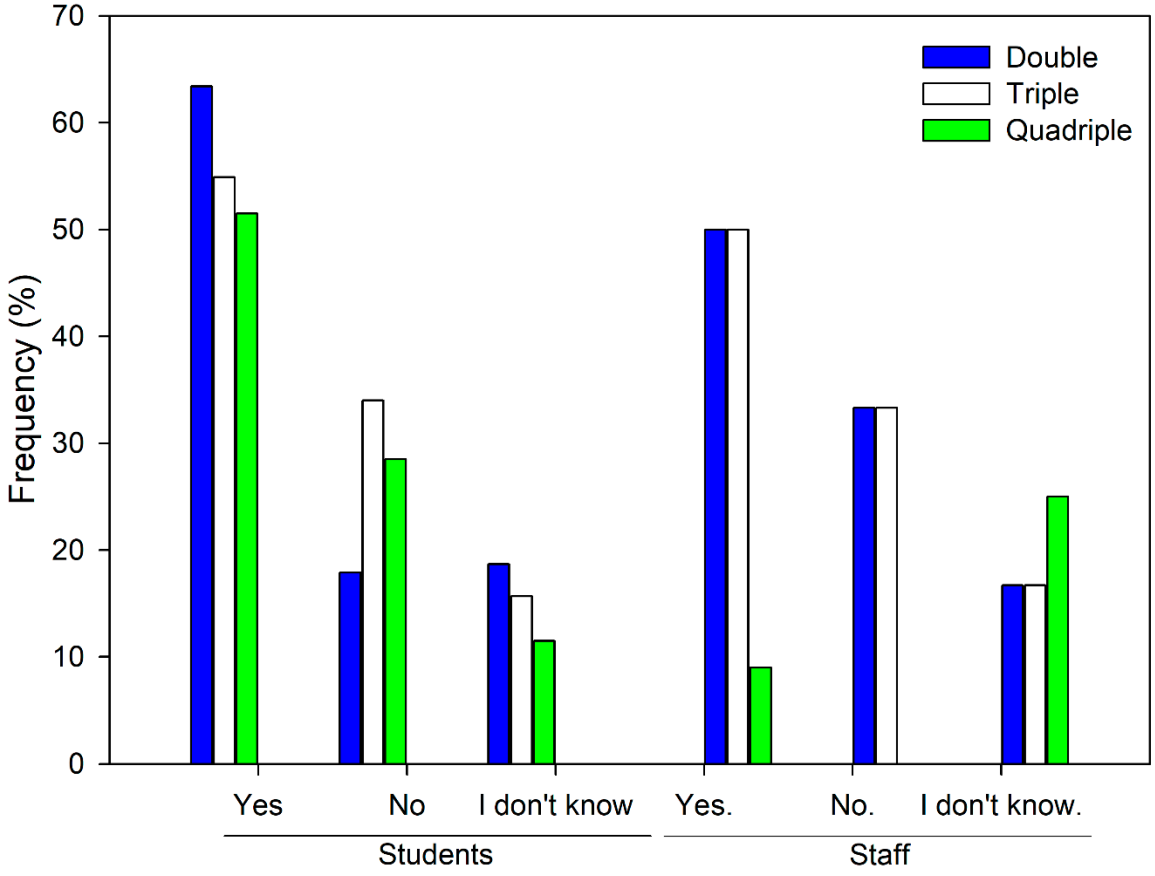

Figure 4. Responses regarding whether plastic-use habits would change if the current price doubled (blue), tripled (white), or quadrupled (green).

3.5. Possible Interventions

Approximately 54.5% of staff members and 56.4% of students highlighted that they did not know of any tools to help reduce plastic pollution, with 36.4% of staff members and 20.5% of students indicating that they did not know of any intervention methods. All staff members indicated that it is important to put plastic waste in bins, compared to 95.3% of students. The most common intervention (i.e., 66.7% of staff members, 65.0% of students) to help reduce plastic pollution found in the study was that we should take care of the environment and recycle the plastic we do use. About 25.0% and 13.0% of the staff

members and students indicated that the government should make laws to stop the use of single-use plastics (e.g., plastic bags). Only 10.8% indicated that we should pay for recycling our plastic rubbish, and lastly, 11.2% and 8.3% of staff members and students highlighted that the government should pay someone to collect our plastic rubbish and recycle it. Approximately 10.8% of students indicated that alternatives are not easily available, while 50.0% and 29.9% of staff members and students indicated that they know about plastic alternatives (Table 1).

Table 1. Respondent's perceptions of alternatives to plastic shopping bags.

Why Do You not Make Use of These Alternatives?	Students	Staff
They are not easily available	10.8	
I do not know about them	9.8	
I use the plastic bags for other purposes after I have used them for shopping	22.7	16.7
I do make use of these alternatives	29.9	50.0
They are too expensive	11.3	
Plastic bags are easier to use	4.6	16.7
I have these alternatives but forget to use them	10.8	16.7

3.6. Relationship between Selected Social Demographics and Pro-Environmental Behaviour Variables

Table 2 shows Spearman correlation results for determining the relationships between staff and student social demographic profiles and selected pro-environmental behaviour variables. For staff members, a negative and significant relationship was observed for environmental knowledge (r = –0.61), willingness to pay for plastics (r = –0.35), and plastic uses or purposes (r = –0.67). The latter two variables were also found to be negatively and significantly correlated with age, with environmental consciousness being positively correlated with age (Table 2). For students, the importance of properly disposing of waste (r = 0.21), environmental knowledge (r = 0.16), the importance of recycling plastic waste (r = 0.23), environmental attitude (r = 0.22), plastic resource consumption (r = 0.16), and willingness to pay for plastics (r = 0.17) had a weak positive and significant relationship with education level. Similarly, student age also had a weak and positive relationship with environmental knowledge (r = 0.18) and consciousness (r = 0.18). Student gender had a weak positive correlation with environmental awareness (r = 0.13) and plastic pollution interventions (r = 0.19), whereas a weak negative correlation with plastic alternatives (r = 0.16) and plastic uses or purposes (r = –0.15) was found (Table 2).

Table 2. Spearman correlation relationship for education level, age, and gender for pro-environmental behaviour variables among staff and students. Bold values indicate significance at $p < 0.05$.

Variable	Staff			Students		
	Education level	Age	Gender	Education level	Age	Gender
Importance of properly disposing of waste	0.24	0.19	–0.36	**0.21**	0.00	**0.16**
Environmental knowledge	**–0.61**	–0.57	0.17	**0.16**	**0.18**	–0.04
Environmental consciousness	0.47	**0.62**	0.39	–0.11	**0.18**	–0.07
Environmental awareness	–0.01	0.29	–0.24	0.05	–0.02	**0.13**
Plastic pollution interventions	0.20	0.07	0.33	0.08	–0.02	**0.19**
Importance of recycling plastic waste	0.26	0.02	0.36	**0.23**	–0.02	0.05
Environmental attitude	0.01	0.34	0.36	**0.22**	–0.08	0.06
Plastic alternatives use	0.01	–0.12	0.04	0.07	0.07	**–0.15**
Plastic resource consumption	–0.07	0.11	0.30	**0.16**	–0.05	0.03
Willingness to pay for plastics	**–0.35**	**–0.51**	–0.29	**0.17**	–0.04	0.07
Plastic uses or purposes	**–0.67**	**–0.82**	–0.10	–0.03	–0.02	**–0.16**

4. Discussion

The knowledge about plastic pollution varied between students and staff members. This study aimed to assess whether university students and staff members understand what plastic pollution is, as well as opinions and behaviours towards plastic pollution. The study generally found that most staff members had more knowledge about plastic pollution compared to students. However, it was observed that students' background played a big role in them being inclined to exhibit positive pro-environmental behaviour. Hammami et al. [27] highlighted that students whose families were more educated were more knowledgeable and inclined towards pro-environmental behaviour. This study further found that staff perceived plastic pollution negatively because a majority of them strongly agreed that plastics were harmful to the environment; similarly, students continued to show negative perceptions because most of them indicated that they strongly disagreed with the statement.

This study found that most staff members were very concerned about the problem of plastic pollution compared to the students, due to being more educated, which enhanced their perceptions. Dalu et al. [28] highlighted that university staff respondents had a more positive perception of the presence of wood than students, suggesting that this phenomenon was common across different scenarios. Furthermore, this study also found that staff members' main source of information regarding plastic pollution was scientific publications, while students' main source of information with regards to plastic pollution was the internet, which is concerning due to the large amount of unverified and false information online. The internet provides easy access to a vast amount of information from anywhere at any time; hence, students can quickly search for and find the information they need without having to visit a physical library or purchase expensive textbooks [29]. However, it is important to note that while the internet offers many advantages, students should also develop critical thinking skills to evaluate the credibility and reliability of online sources, as not all information found on the internet is accurate or trustworthy. Additionally, a balanced approach that combines internet resources with traditional published materials can often yield the most comprehensive and well-rounded educational experience. A study conducted by Adane and Muleta [30] reported that only 19.1% of students indicated that their source of information was published materials, with the bulk of the information coming from the internet; this clearly indicates that students do not really rely on published materials, similar to the current study. Arulnayagam [31] reported that most respondents indicated that their source of information was internet sources, followed by published materials.

We found that a majority of staff members had a high rate of recycling plastic waste compared to students, which suggests that staff were willing to change their lifestyles to protect the environment. However, we believe this trend might not apply to all staff members, as our sample number was low. We believe very few people "always" recycle and that demographic profiles such as education might play an important role. Similarly, Arulnayagam [31] reported that most study respondents were willing to make lifestyle changes; however, this was constrained by the lack a of proper and ongoing supply of plastic substitutes, similar to our study. Furthermore, it was observed that there was an increase in the students who replied that they always recycle compared to the ones who said they never recycle, which indicates that they perceive plastic pollution negatively, unlike staff members who were neutral. De Waard et al. [32] showed that avoiding plastic waste was rare or even absent in students' reasoning, highlighting the importance of some of the results observed here. Currently, in South Africa, there is no known government recycling services offered to citizens as part of refuse collection in waste management. Whilst there is evidence of recycling in certain communities and institutions, particularly private institutions, such initiatives are privately paid for and organised by companies such as Interwaste Environmental Solutions. Another common method of plastic recycling is carried out by unemployed individuals, who sort through domestic and commercial refuse

to collect different types of plastics that are then purchased by private recycling companies for a small amount of money.

Most students indicated that they are aware of alternatives to plastic bags; however, the main concern was that the alternatives are not easily accessible and are expensive, which indicates that there should be more plastic alternatives as well as pollution awareness campaigns that will help educate people about possible plastic alternatives that are easily accessible and inexpensive, in order to promote pro-environmental behaviour. Pizmony-Levy [33], O'Brien and Thondhlana [34], and Boca and Saracli [35] reported that students have the chance to interact with complicated environmental concerns through education, which also helps them to acquire positive attitudes, knowledge, and the desire to take environmental action. Furthermore, Truelove et al. [36], Cheang et al. [37], and Situmorang et al. [38] reported that there is a desire and need to address these issues by promoting pro-environmental behaviours as a means of accomplishing sustainability objectives. The Millennium Ecosystem Assessment [39] reported on social and behavioural responses as solutions to threats to ecosystems. It proposed communication and education as promising interventions to environmental issues, including plastic pollution. Media campaigns that target a certain cohort of a population can be effective at instilling pro environmental behaviours. An example of this is the cartoon '*Captain Planet and the Planeteers*'. Captain Planet and the Planeteers was an American animated environmentalist superhero television series created by Barbara Pyle and Ted Turner and produced by Turner Program Services and DIC Enterprises, in syndication from 15 September 1990, to 5 December 1992. The program targeted pre-12th graders, and its legacy is reflected in the Captain Planet Foundation, which runs programs that empower children with the skills, knowledge, and relationships they need to create and contribute to a community of solutions for the planet's complex environmental challenges (www.captainplanetfoundation.org, accessed on 26 November 2023).

The study found that staff members play a significant role in promoting pro-environmental behaviour, because the majority of staff members indicated that they use plastic bags for other reasons, while a majority of students were found to say that they throw away plastics after one use. Oturai et al. [12] highlighted that when students had associations with plastic pollution from highly impacted environments within their communities, they appeared uninterested in ways to mitigate the problem and tended to have a negative perception of plastics. Hence, we speculate that it is plausible that the students in our study had similar scenarios, thus explaining the negative environmental behaviours observed.

It was found that most students indicated that they buy plastic bags every time they go to the shops, while fewer staff members indicated the same. This study found that students' behaviour and attitude towards plastics is highly influenced by the price of the plastic, because a majority of the students indicated that they would start to reduce and reuse plastic if the current price was doubled, while a majority of the staff members responded more positively to the question when the price of plastic was tripled. O'Brien and Thondhlana [34] and Arshad et al. [40] reported that most respondents would buy fewer plastic bags if the price of plastic bags was increased. This demonstrates that consumers are often responsive to price change, which suggests that raising the present plastic bag price could potentially be a successful intervention in reducing plastic bag consumption [41].

We observed that the majority of staff members compared to students indicated that they reused plastics as one of the possible interventions to reduce plastic pollution; however, there were few in the two groups that indicated that they use alternatives, because they were expensive and not easily available. Verghese et al. [42] and Chin et al. [43] indicated the same causes for the increased plastic bag usage but noted that the absence of substitutes was also a factor in their use. Similar, De Feo et al. [44] further highlighted that if Italian students were given a choice, they would choose the most environmentally friendly product and would not prefer plastic products.

Staff members mostly depended on scientific publications, which are a valid and verified source of information. There are fewer studies that focus on the pro-environmental

behaviour towards plastic pollution. Some of the studies focus on the awareness of plastic pollution as raised in primary schools and secondary schools, i.e., Dalu et al. [11] and Hammani et al. [27] focused on surveys of awareness and attitudes of secondary school students regarding plastic pollution.

5. Conclusions

This study found that in the two groups that participated in the study (i.e., students and staff members), they were aware of plastic pollution problems; however, staff members had more knowledge about plastic pollution compared to students. Therefore, we observed that staff members had a greater awareness of the long-term plastic waste impacts and were more likely to take steps to reduce plastic use in their daily routines. Furthermore, they were also more likely to implement policies and procedures that promote sustainability and reduce waste. In comparison, students were more focused on convenience and did not have the same level of understanding or concern about the environmental impact of plastic as they were more likely to use single-use plastics, without considering the potential environmental harm. Assessing the current state of behaviour provides information for a starting point towards intervention. This paper is relevant to South Africa's higher education context. The university is supposed to be the ground for social change in a country; thus, it is important to pay attention to what happens in universities in South Africa if the nation wants to move towards addressing the plastic crisis. However, it is important to note that there will always be some degree of variation in perceptions. Thus, the current study can serve as a starting point for further research and can inform the development of effective strategies to address plastic pollution in the country. This study aimed to fill a gap in knowledge that exists in South Africa, as there are no studies on this specific topic, in spite of the fact that plastic pollution is a global environmental crisis. This study, therefore, provides baseline data for South African academics and can be used as a comparative study in further research. Hence, to bridge the gap in perception, educational institutions should take proactive steps to educate both staff and students about the importance of reducing plastic waste and promoting sustainability through provision of educational materials, organise awareness campaigns and events, and implement policies that encourage responsible plastic use.

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