Exploring Enablers and Barriers to Student Engagement in University Sustainability Transitions in Africa: A Case Study of the University of Cape Town

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Plagiarism Declaration

I hereby declare that I understand the meaning of plagiarism and declare that all work in this dissertation, unless otherwise properly acknowledged, is my own.

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Abstract

Universities are widely recognised as key actors in sustainability transitions, with students positioned as pivotal drivers of environmental responsibility and institutional transformation. Whilst sustainability grows in prominence, there remains a research gap on universities within the Global South, leaving a gap in understanding how students engage with sustainability within regions including Southern Africa. This study explores the enablers and barriers to student engagement in sustainability at the University of Cape Town (UCT), one of the few institutions in Sub-Saharan Africa actively pursuing a sustainability transition. The research approach is embedded in Social Practice Theory (SPT) which conceptualizes student engagement as both an individual and structural process shaped by institutional culture, governance, and social norms. Using a multi-methods approach, incorporating online surveys, interviews, and a focus group discussion to investigate student perspectives on sustainability awareness, engagement motivators, and factors acting as barriers to student engagement in the university's sustainability transition.

Findings reveal that while students generally demonstrate an awareness of sustainability issues, knowledge of university-specific sustainability policies and initiatives remains limited. Key enablers of engagement include self-motivation, social norms, environmental knowledge, and convenience-driven factors such as institutional support and infrastructure. Conversely, barriers to engagement include competing academic priorities, lack of project visibility, poor communication, and perceived slow action and lack of "buy-in" of university management and staff. The study underscores the importance of fostering a sustainability culture through enhanced institutional leadership, collaborative governance, and structured student engagement mechanisms.

This research advances understanding of sustainability transitions in the Global South by revealing the context-specific enablers and barriers influencing student engagement. It contributes original insights into how institutional leadership, culture, and governance shape sustainability participation—providing practical implications for policy and institutional reform in African higher education contexts.

List of Abbreviations

CWUR	Centre for World University Rankings
GCI	Green Campus Initiative
HEI	Higher Education Institution
IPCC	Intergovernmental Panel on Climate Change
ND-GAIN	The Notre Dame Global Adaptation Initiative
SPT	Social Practice Theory
SSA	Sub-Saharan Africa
UCT	The University of Cape Town
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention for Climate Change
USA	United States of America

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Chapter 1: Introduction

1.1 Background

Universities capacity to generate knowledge, engage in cutting-edge research and foster intellectual growth of future sustainability leaders has led to a consensus that universities are key institutions needed to advance sustainability goals (Mawonde & Togo, 2019; Žalėnienė & Pereira, 2021). The concentration of learning and research facilities, expert knowledge and skills amongst staff and students further enables universities to discover, test, and implement innovative solutions for the globe's most pressing sustainability challenges (Purcell *et al*., 2019; Žalėnienė & Pereira, 2021). Additionally, by creating opportunities for young people to learn about sustainability, universities contribute towards equipping students who are future leaders with the necessary knowledge, attitudes and skills required to solve the world's most pressing sustainability challenges (Abdullahi *et al*., 2024).

Serving as hubs of innovation, education and research, with strong local ties and strategic global partnerships; universities are well positioned to act as agents of change and positively influence transformation on a local, regional and global scale (Mustafa *et al*., 2022). As "anchor institutions", which are defined as 'entities that anchor the surrounding urban community in a fluid but stable geographical manner' (Birch *et al*., 2013); with greater autonomy than state institutions to allocate resources to more localised sustainability issues, universities demonstrate their unique and critical advantage in addressing climate and sustainability challenges (Harris & Holley, 2016; Žalėnienė & Pereira, 2021).

This role is particularly crucial for countries in the Global South, where climate vulnerabilities are disproportionately high (IPCC, 2022). For instance, according to the latest ND-GAIN index which ranks countries exposure, sensitivity and ability to adapt to the negative impacts of climate change; nine out of 10 of the world's most vulnerable countries are in Sub-Saharan Africa (SSA), with Chad ranking the lowest globally (ND-GAIN, 2024).

Evidence of this disproportionate vulnerability is further confirmed in the Sixth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC) which revealed that the continent is warming up faster than the global average and as a result

will experience more intense and frequent extreme weather events that are damaging ecosystems, and threatening biodiversity, food security, human health and livelihoods (IPCC, 2022). The impacts of climate change are widely felt in South Africa as it is considered a severely climate stressed country (Johnston *et al*., 2024; ND-GAIN, 2024). For example, climate change has resulted in more frequent and intense extreme weather events such as droughts, heatwaves and floods which are having cascading impacts on the country's agricultural systems, livelihoods, ecosystems and infrastructure which ultimately negatively impact biodiversity, wildlife, economic growth and livelihoods (Johnston *et al*., 2024). In Cape Town, climate change has increased fire risks and created a water drinking crisis as evident by the recent "Day Zero" crisis brought by a severe drought between 2015 and 2018 (Johnston *et al*., 2024). Other impacts in the city include rising sea temperatures, rising sea levels, ocean acidification and coastal erosion that are having negative impacts on fish stocks, coastal ecosystems and local fishing communities (Johnston *et al*., 2024).

The devastating impact of this reality highlights the need for influential institutions such as the University of Cape Town (UCT) to act as forerunners of climate action both locally, regionally and globally (Žalėnienė & Pereira, 2021). This role is particularly crucial for a country like South Africa that is among the top 25 highest emitting countries globally, and the highest carbon emitter in Africa (International Energy Agency, 2022).

The great potential and sizable carbon footprints, coupled with the urgency to drive progress towards sustainable development has led to a growing number of universities embarking on sustainability transitions (Helmers *et al*., 2021; Mutinda & Liu, 2021). UCT, as a leading African university has also pledged its commitment to sustainability over the past decades through signing the Talloires Declaration of 1990, adopting a Green Campus Policy Framework in 2008 and becoming a signatory member of the International Sustainable Campus Network in 2012. More recently, the university established a Sustainability Directorate office which enacted an Environmental Sustainability Strategy (ESS) that sets out UCT's intention to become a net-zero carbon, water and waste-to-landfill campus by 2050 (Braune & Morar, 2020; UCT, 2021). The university's strategy largely draws from a "Living Labs" approach which essentially leverages immersive learning techniques and research to drive sustainability transformation within the university and its surrounding communities (Verhoef &

Bossert, 2019; UCT, 2021). The goal of this approach is to create a “community of practice” where the UCT community (students, staff and management) actively engage in sustainability practices and initiatives that contribute towards the university’s broader sustainability goals which are to create a “net-zero” campus by 2050 (Braune & Morar, 2020; UCT, 2021).

1.2 Problem statement and rationale

Despite committing to several international and national policies related to environmental sustainability since the 1990s, UCT largely remains unsustainable with the greatest reductions coming as a result of the strict lockdown regulations brought by the COVID-19 pandemic (Braune & Morar, 2020). According to the university’s latest carbon footprint report, UCT’s average greenhouse emissions over the years have totalled approximately 100 000 tons of carbon dioxide equivalents with annual energy costs reaching more than ZAR100 million (US$5.53 million) (UCT, 2019). Energy use within buildings make up the bulk of the university’s carbon footprint, particularly since UCT depends on the city's energy infrastructure which is still largely fed by coal fired power stations (Braune and Morar, 2020). For the university to achieve its target of net zero by the year 2050, carbon emissions need to be reduced by an average of 2% to 5% annually (UCT, 2019). Approximately 10% of carbon emissions have been accounted for by behaviour change, an indication that social buy-in and participation are key to achieve the university’s transition goals (UCT, 2019). This supports the need to ensure extensive and meaningful engagement of the approximately 30 392 UCT students in realising a sustainable campus (Braune & Morar, 2020).

Whilst the literature highlights emerging challenges such as a lack of resources, lack of stakeholder buy-in, contradicting social norms, and poor governance that threaten universities ability to successfully transition, it is worth noting that the literature on university sustainability transitions is biased towards universities in the Global North (Mawonde & Togo, 2019; Mutinda & Liu, 2021; Droubi *et al*., 2023; Jimu & Rennkamp, 2024). This geographic bias leaves significant gaps in understanding how universities in the Global South, such as those in Africa, navigate sustainability transitions amidst unique socio-economic and resource-related challenges, more especially because these universities may experience unique challenges and socio-economic conditions

that make their sustainability transitions fundamentally different than their Global North counterparts (Mawonde & Togo, 2021; Mutinda & Liu, 2021).

Furthermore, whilst students form a central component of university ecosystems and play a critical role in achieving university sustainability goals, there is limited literature examining the enablers and barriers to student engagement in sustainability transitions, particularly within universities in the Global South (Mawonde & Togo, 2021; Mutinda & Liu, 2021). Addressing this gap is particularly important for universities such as UCT where behavioural change is predicted to contribute 10% towards the university's carbon reduction goals (UCT, 2021). Additionally, considering that students greatly influence university culture as well as drive resource usage; understanding the enablers and barriers to student engagement is crucial (Droubi *et al*., 2023; Abdullahi *et al*., 2024). Therefore, by focusing on the enablers and barriers to student engagement in UCT's sustainability transition, the study contributes towards closing this gap and provides insight into how the dynamics of student engagement play out in an African context.

The reasons for students being a target group is due to various factors including that the majority of students are young[1] people which is crucial as they are the most vulnerable population to climate change whilst at the same time will bear the brunt of its impacts and responsibility (Benkenstein *et al*., 2020; UNICEF, 2021). Other reasons include that they are the future decision-makers, leaders and researchers and therefore have great potential to influence progress towards sustainability goals both in the short and long term (UN, 2022). The great potential of young people who drive progress towards sustainability goals are evident in their general passion, energy, creativity, and adaptable nature as many are in the process of actualising their identity, values and worldviews, and therefore are arguably more open to new knowledge and are more willing to adopt new ways of thinking and doing that align with sustainability principles (Zhanda *et al*., 2021).

Therefore, universities have a unique opportunity and critical role to play by equipping young people with the knowledge and skills needed to effectively address sustainability challenges. This is particularly relevant in Africa, where 70% of the population is under

[1] In this dissertation youth and young people are defined according to the African Unions Youth Charter which defines youth as people between the ages of 15 to 35 years old.

the age of 30 (UN, 2022), and therefore are currently largely driving current consumer trends, with the potential of their consumer choices impacting sustainability goals. Therefore, young people form a critical component of the continent's ability to achieve its sustainable development goals.

Whilst young people are one of the most vulnerable groups to climate change and will largely bear the bulk of the responsibility of dealing with climate impacts now and in the future, they also hold great potential to act as changemakers and pioneers of the “new world” (UNICEF, 2021). Therefore, ensuring youth[2] engagement in sustainability efforts is key from an equity and justice standpoint (Benkenstein *et al*., 2021). Additionally, in the case of UCT and other universities alike, students often form the majority of the university population which means their behaviour and consumer choices drive and influence the university’s overall carbon footprint and environmental impacts which makes them key players needed to actualise the university’s sustainability targets (UCT, 2021). Therefore, it is critical for universities undergoing sustainability transitions to equip students with the necessary skills, knowledge and attitudes needed to drive transformation whilst also ensuring their active engagement in university-led sustainability initiatives.

Understanding students perspectives, attitudes, values and worldviews forms a crucial part of exploring their engagement in sustainable practices as the literature has found that the extent of engagement in sustainable practices is deeply influenced by factors such as perceptions, attitudes and worldviews (Hannsmann *et al*., 2020; Hamann *et al*., 2021; Azhar *et al*., 2022). For example, students who perceive solving sustainability challenges as important and have positive attitudes towards sustainability are more likely to develop a deep sense of commitment towards sustainability and therefore advocate for sustainable policies on campus and engage in sustainability initiatives Hamann *et al*., 2021; Azhar *et al*., 2022). Conversely, conflicting worldviews, lack of awareness and negative attitudes towards sustainability can hinder their interest and engagement in sustainability initiatives (Goldman, 2022; Vandaele & Stålhammar, 2022).

As one of Africa’s leading universities, UCT in many ways presents a unique opportunity to study student engagement as it has access to strong local and global partnerships,

[2] The terms ‘young people’ and ‘youth’ are used interchangeably.

resources, and good facilities. Lying at the foot of a historical, social and ecological significant landscape within a highly unequal society experiencing various socio-economic issues such as rising income inequality, poverty levels and unemployment further contribute to the university's unique setting and dynamic.

1.3 Aim and Research Questions

The aim of the research is to explore, through student perspectives, the enablers and barriers to student engagement in UCT's sustainability transition. By addressing critical gaps in the literature, this research enhances the understanding of how universities in the Global South can effectively engage students in achieving their sustainability goals. Furthermore, the research explores student engagement through both individual and collective action perspectives.

The research is led by the following main research question:

What are the key enablers and barriers to student engagement in the University of Cape Town's sustainability transition?

The research is also guided by the following sub-questions:

1) How do students at UCT perceive sustainability and their role in university-led sustainability initiatives?
2) What personal motivations and/or external factors enable student engagement in sustainability at UCT?
3) What factors limit student engagement in sustainability at UCT?
4) What interventions do UCT students propose would encourage their engagement in sustainability initiatives on campus?

The research addresses critical gaps in the literature by focusing on student perspectives on the enablers and barriers to student engagement within university sustainability transitions within an African context. Considering that students play a pivotal role in driving institutional culture and have been regarded as critical stakeholders in universities sustainability goals, it is crucial that effective strategies that ensure their meaningful participation are implemented. A critical part of this encompasses understanding how students are engaging in sustainability initiatives,

what role they envision themselves playing in university sustainability transitions and understanding the challenges and factors that act as barriers to their engagement in sustainability initiatives on campus. Therefore, the findings shed light on the challenges and opportunities associated with engaging students in sustainability transitions and assist in informing the development of tailored interventions to foster meaningful student engagement that contributes to the university's broader sustainability goals.

Chapter 2: Literature Review & Conceptual Framework

This chapter investigates the pivotal role of universities in driving sustainability transitions, with a particular emphasis on the critical contributions of student-led actions—both collectively and individually. The chapter begins by exploring the evolving narratives surrounding universities as agents of change, tasked with advancing global sustainability goals. Through this lens, the chapter highlights emerging trends in university sustainability practices such as curriculum transformation, the adoption of green technologies and the rise of immersive learning approaches such as “Living Labs”.

A central theme of the chapter is the examination of student engagement in university sustainability transitions. The analysis delves into the transformative potential of student-led movements and individual actions as key drivers of sustainability progress within universities. By unpacking the mechanisms through which students shape institutional and cultural change, the chapter identifies emerging enablers, such as institutional support structures, peer networks, social norms, attitudes and institutional culture. Conversely, it critically examines barriers, including structural resistance, social norms, lack of knowledge and competing institutional priorities.

The chapter concludes with the conceptual framework used to explore the enablers and barriers to student engagement in sustainability at UCT. The framework highlights multiple elements that are crucial for university sustainability transitions, in particular the role of student inputs including students awareness, knowledge and commitment to sustainability.

2.1 Universities as drivers of sustainability progress

Universities have historically positioned themselves as institutions committed to serving the ever-changing needs of society and have been the site of social movement activism (Žalėnienė & Pereira, 2021). From playing an active role in civil rights and anti-war movements in the USA in the 1960s, to resisting oppressive educational policies imposed by the South African Apartheid government throughout the 1970s; university student movements have been at the forefront of shaping the political and cultural

landscape of many countries around the world (Altbach, 2010; Staggenborg & Ramos, 2016).

In response to the growing pressures and commitments to fight climate action and solve the globe's most pressing sustainability challenges, a growing number of universities have embarked on sustainability transitions (Murray 2018; Shawe *et al*., 2019). This has led to universities implementing sustainability policies and campus-wide initiatives aimed at addressing sustainability challenges both within the campus environment and in surrounding communities (Verhoef & Bossert, 2019; Mutinda & Liu, 2021). Issues such as tackling waste and water management, improving recycling systems, reducing food waste and improving energy efficiency are examples of prominent focus areas (Shawe *et al*., 2019; Mutinda & Liu, 2021). A variety of interventions have been used by universities to transition which include for example, the enactment of sustainability policies, curriculum transformation, introducing sustainability audits, deploying sustainable technologies and infrastructure like solar panels, food gardens and sensor activated lights and taps (Horan *et al*., 2019; Maiorescu *et al*., 2020; Žalėnienė & Pereira, 2021). Universities like UCT and Makerere University in Uganda, have established research and innovation centres that engage in Climate Change research, knowledge production, education and community outreach.

Another emerging approach which also forms part of UCT's sustainability strategy is the "Living Labs" approach. This approach leverages on immersive learning and research to create a community of practice in which a university's community (i.e. students, staff and management) actively contribute towards creating a greener and more sustainable campus (Purcell *et al*., 2019). Promising to leverage the university's collective intellectual capacity, this approach aims to transform universities into testing hubs where innovative solutions are developed, tested and implemented (Purcell *et al*., 2019; Verhoef & Bossert, 2019). By using the university campus as a "testing lab" where the university engages in research, learning and solution making for sustainability challenges experienced within the university campus (Verhoef & Bossert, 2019; Braune & Morar, 2020). This approach also promises to enhance students' learning experience by providing opportunities to actively engage in finding, testing and implementing innovative solutions (Purcell *et al*., 2019; Verhoef & Bossert, 2019). Through this approach, theoretical knowledge is linked to practical application that equips students

with valuable knowledge, problem-solving skills and ways of thinking that support a sustainable world (Verhoef & Bossert, 2019). Promising to leverage the collective intelligence within the university's network, this approach aims to develop a 'community of practice' where students and staff can actively engage in sustainable action, problem solving and solution creation which are needed to drive institutional progress towards sustainability within the university campus (Verhoef & Bossert, 2019; Braune & Morar, 2020).

Other similar approaches that link theoretical knowledge with practical learning include initiatives such as the "Challenge Labs", sustainability competitions, and gamification tools which encourage and influence student's engagement in university sustainability transitions (Larsson & Holmberg, 2018; Fernández Galeote, 2024). Other interventions undertaken by universities include operational changes such as the implementation of procurement policies that encompass sustainability principles, conducting sustainability audits and deploying sustainable infrastructure and technologies such as solar panels and sensor activated lighting systems (Mawonde & Togo, 2021; Mutinda & Liu, 2021).

However, despite their unique positioning and great potential to solve sustainability challenges, research highlights the complex and challenging nature of university sustainability transitions (Helmers *et al*., 2021; Mutinda & Liu, 2021). Large student populations and operational activities such as transportation, air-conditioning and catering place pressures on local resources and often contribute to large environmental issues such as waste and pollution (Helmers *et al*., 2021). This is despite the growing number of universities pledging to transition into greener and sustainable institutions. Other emerging barriers that threaten universities progress include historical ties to the fossil fuel industry (Droubi *et al*., 2023), financial constraints resulting from competing priorities and declining public spending on higher education (Aleixo *et al*., 2018; Mutinda & Liu, 2021), tokenistic stakeholder engagement (Benkenstein *et al*., 2020; Nkrumah, 2021), and organisational rigidity resulting in hierarchical decision-making processes (Mawonde & Togo, 2021; Jimu & Rennkamp, 2024). Whilst these barriers exist in various contexts, the literature indicates that these barriers are particularly evident in universities within the Global South with factors such as a lack of access to climate finance, higher costs of sustainable technologies and rising food and housing insecurity

which place further constraints on available resources (Mutinda & Liu, 2021; Mawonde & Togo, 2021).

2.2. Youth-led climate action, student engagement and university sustainability transitions

Students have always played a crucial role in shaping social and political change through their active engagement in various civil rights and social movements (Staggenborg & Ramos, 2016). Today, young people including students continue this legacy as they find themselves at the forefront of the global climate justice movement (Benkenstein *et al*., 2020; Zhanda *et al*., 2021). This has led to a new dispensation of youth-led climate activism which emphasizes the need for solutions that embed principles of equity, fairness and justice (O'Brien *et al*., 2018). This translates to ensuring climate action that is inclusive (i.e. includes local communities, youth, and marginalised voices), that addresses the unequal vulnerabilities and burdens, whilst ensuring equity in benefit distributions of climate actions and solutions (Benkenstein *et al*., 2020).

The global climate action movement has seen the increased uptake of legal instruments to hold their governments accountable for the slow action, with particular reference to human rights protection particularly of children which are increasingly under risk due to the impacts of climate change (Parker *et al*., 2022). Despite facing various barriers such as political and economic marginalisation, and social stereotypes that often result in tokenistic engagement; young people continue to play a crucial role in the uprising of the global climate change movement today (Benkenstein *et al*., 2020; Zhanda *et al*., 2021). Thanks to their passion, ambition and creativity; youth-led movements around the world have blossomed and expanded in size and reach (Zhanda *et al*., 2021). For example, large public demonstrations such as the "March for Systems Change", led by the African Climate Alliance, and the School Strike for Climate, started by Swedish youth climate activist Greta Thunberg; which managed to mobilise around 1.6 million school-going children from around the world to engage in peaceful climate marches on March 15, 2019, are testaments of young people's ability to self organise and lobby for causes they are passionate about. Additionally, these movements have played a key role in driving global climate change dialogue towards intersectional and systemic

approaches that consider the well-being and rights of both present and future generations of children and youth (Zhanda *et al*., 2021).

Considering that institutions of learning have played a key role in many youth-led movements such as the School Strike for Climate; in addition to young people becoming increasingly concerned and environmentally conscious, learning institutions are predicted to play an even more crucial role in the sustenance and growth of the climate change movement across the globe (Zhanda *et al*., 2021; Richard *et al*., 2022). This is particularly true for universities who enrolled approximately 230 million students in 2020, with the number of Higher Education Institutions (HEI's) growing by 52% between 2006 and 2019 (UNESCO, 2022).

Furthermore, the growing burden placed on young people to deal with the devastating impacts of climate change has resulted in the growing institutionalisation of youth engagement which has provided more platforms and opportunities for youth to engage in decision-making processes at the local, regional and global scale (Benkenstein *et al*., 2020; Richard *et al*., 2022). For example, in response to the growing number of youth NGOs engaged in the intergovernmental climate change processes, the United Nations Framework Convention for Climate Change (UNFCCC) extended an official children and youth constituency under the name YOUNGO in 2009, which is mandated to empower children and youth to engage in climate action and policy-making processes at the national and international level.

The success and growth of youth-led movements, provide further evidence that young people, including students, are capable and willing to elevate the global climate action agenda and drive progress towards achieving sustainable development goals (Benkenstein *et al*., 2020; Zhanda *et al*., 2021). The need for youth-led climate action is even more critical for countries in the Global South as most have demographic dividends skewed towards children and youth (IPCC, 2022). Additionally, the vulnerability of these nations to climate impacts is even further felt by young people and children, as they often face further social and economic marginalisation, and are biologically more vulnerable to climate change impacts (Benkenstein *et al*., 2020; IPCC, 2022).

As major stakeholders who often make-up the majority of the university population, student engagement in sustainable practices has been considered crucial for ensuring universities reach their sustainability targets (Azhar *et al*., 2022; Abdullahi *et al*., 2024). This is particularly true for universities adopting the 'Living Labs' approach which is largely dependent on the active engagement of the university community (Purcell *et al*., 2019). This importance is premised on various factors such as the general large populations which influences resource usage patterns and the universities environmental and carbon footprints (Helmers *et al*., 2021). Additionally, student-led actions stand out for their capacity to mobilize grassroots change, foster peer-driven accountability, and challenge entrenched institutional practices (Benkenstein *et al*., 2020; Zhanda *et al*., 2021). This contributes to their unique position that enables them to act as catalysts for innovation and cultural transformation within the university ecosystem.

Whilst there are various definitions of student engagement in the context of sustainability, this study uses a multi-dimensional definition which defines engagement as: "a personal state of connection with sustainability issues being recognised and explored through cognitive, affective and behavioural dimensions*"* (Lorenzoni *et al*., 2007; p.446).

Despite student engagement forming part of many universities sustainability strategies, the literature on sustainable behaviour within universities has found several factors that influence student engagement in sustainable behaviour on campus. These factors can be divided into sub-categories which include institutional, economic, social, and cultural factors. These factors are often divided into internal and external factors (Li *et al*., 2019). Internal factors include elements such as a person's attitudes towards the environment, awareness of sustainability issues and practical knowledge on how to act on them (Li *et al*., 2019). Whereas external factors include issues such as practicality where for example having access to sustainable technologies and infrastructure such as recycling systems may influence one's ability to engage in recycling.

Personal factors encompass factors such as an individual's environmental knowledge, awareness, values, attitudes, sense of responsibility, childhood experiences and locus of control (i.e. how impactful a person perceives their actions/choices to be) which have been found to influence engagement in sustainable behaviours (Bull *et al*., 2018;

Hannsmann *et al*., 2020; Azhar *et al*., 2022). For example, an individual's perceptions and attitudes have been found to influence their willingness to engage in sustainable practices (Cogut *et al*., 2019; Hannsmann *et al*., 2020; Azhar *et al*., 2022). This is due to the influence that perceptions and attitudes have on a person's sense of responsibility to minimise their impacts and contribute towards solving the issue (Hannsmann *et al*., 2020). Another determining factor of student engagement is “self/collective efficacy” which refers to the belief that a certain behaviour (whether individually or collectively) can contribute towards a desired outcome. For example, if a student perceives a daily practice such as recycling as having an insignificant impact on overall waste-to-landfill efforts, they will be less likely to be committed and willing to engage in recycling practices. Therefore, self/collective efficacy are crucial ingredients for sustainability engagement as they have been shown to foster feelings of hope and enthusiasm which support an individual's willingness to engage in sustainable practices (Hamann *et al*., 2021).

The influence of an individual's level of awareness and knowledge on their engagement in sustainable behaviours has been widely regarded as important. For example, sustainability curriculum transformation forms part of many universities' sustainability strategies. This sentiment is also evident in several policies and declarations including for example the United Nations Decade of Education for Sustainable Development (DESD) which was a global initiative focused on advancing the global sustainability education agenda within universities between 2005 and 2014 (UNESCO, 2005).

Whilst positive correlations have been found between sustainability education, awareness and engagement in sustainable behaviours (Cogut *et al*., 2019; Hannsmann *et al*., 2020; Abdullahi *et al*., 2024), there are also cases where growing awareness has negatively impacted an individual's engagement in sustainable behaviours. This is largely due to the impacts that growing awareness of the impacts of climate change and environmental degradation can have on people’s mental health. For example, the growing awareness of the extent of climate change impacts and the burden placed on young people to deal with the devastating impacts of climate change and find solutions has resulted in feelings of sadness, frustration, hopelessness, stress and anxiety amongst youth (Goldman, 2022; Vandaele & Stålhammar, 2022). Terms such as “eco-anxiety” and “climate grief” are gaining popularity as more studies reveal that the

impacts of the awareness of impending ecological disasters and threats of climate change on the natural environment, negatively impact the mental health of young people (Goldman, 2022). These mental-health issues impact young people's ability to meaningfully engage with various environmental and social issues, which pose a threat to the goal of having youth-led climate action (Goldman, 2022; Vandaele & Stålhammar, 2022).

Social and cultural norms can act as either enablers and barriers to student engagement. For example, deep rooted stereotypes, perceptions and social norms that underestimate youth's agency have contributed to the marginalisation of youth voices particularly in policy-making processes and institutions such as universities (Benkenstein *et al*., 2020; Jimu & Rennkamp, 2024). This has led to tokenistic engagement, popularly referred to as 'tick boxing exercises' particularly amongst government bodies, public institutions and development practitioners which often treat youth as victims of their circumstance rather than potential change agents (Benkenstein *et al*., 2020; Zhanda *et al*., 2021). These perceptions and stereotypes are also evident in some university's sustainability policy approaches which often treat students as beneficiaries rather than co-creators of change (Benkenstein *et al*., 2020; Zhanda *et al*., 2021; Jimu & Rennkamp, 2024).

Incorporating opportunities for student engagement through for example structural means such as curriculum transformation and the establishment of sustainability focused bodies such as "Green Offices" are crucial for driving progress towards sustainability in universities. For example, Green Offices, which are 'student-led and staff supported sustainability institutions which seek to initiate, coordinate and support sustainability targets within HEI's', have played a crucial role in supporting and empowering students to actively engage in university-led sustainability initiatives on campus in a more supported and structured manner (Lootens, 2017). Similarly, the incorporation of sustainability education within universities has also been found to support engagement in sustainability (Abdullahi *et al*., 2024).

Studies have found positive correlations between sustainability awareness and knowledge, with the value placed on sustainability as well as an individual's intention to engage in sustainable behaviours (Cogut *et al*., 2019; Hannsmann *et al*., 2020). However, these interlinkages do not hold true in all cases as there are studies where

there are discrepancies which have been found between an individual's value, intention to act and their actual behaviour. For example, the growing awareness of the severity and acuteness of the climate crisis has resulted in a growing sense of hopelessness amongst young people, that can act as a barrier to taking action (Vandaele & Stålhammar, 2022).

In relation to the role of the value/importance placed on sustainability, the literature displays contradictory findings with regards to the role that values and perceptions play in relation to determining student engagement in sustainable behaviour. For example, there are cases where students express the value and importance of acting on sustainability issues but do not necessarily engage in pro-environmental behaviour (Cogut *et al*., 2019; Li *et al*., 2019). On the other hand, the importance/value placed on sustainability has been found to act as a motivation for student engagement in sustainable behaviour (Horan *et al*., 2019; Maiorescu *et al*., 2020). Similar contradictions have been found in relation to the influence of sustainability awareness and increased engagement in sustainable behaviour (Cogut *et al*., 2019; Li *et al*., 2019).

Other mechanisms include immersive learning (Verhoef *et al.*, 2019) and sustainability education (Horan *et al*., 2019; Maiorescu *et al*., 2020), which have shown to play a central role in supporting student engagement in pro-environmental behaviour, as raised awareness, knowledge and know-how are key factors for behavioural change (Horan *et al*., 2019). However, whilst immersive learning and sustainability education have great potential, achieving broader societal system shifts and individual behavioural change has proven to be a complex endeavour that often requires an interaction between various factors (Horan *et al*., 2019).

Whilst research on student engagement within university sustainability transitions is growing in prominence, much of this research focuses on case studies within the Global North context (Zhanda *et al*., 2021). Therefore, considering the unique set of socio-economic circumstances and political economies within the Global South, it is fair to assume that the reported trends surrounding youth climate activism and student engagement may not be a true reflection of the state of both youth and student engagement within the Global South.

Considering the influence of personal factors such as perceptions and knowledge on behaviour, it is critical that universities undergoing sustainability transitions, understand student perspectives and perceptions related to sustainable behaviour as this will assist in the formulation of suitable engagement strategies and policies that will drive behavioural change of campus. Additionally, for the university, ensuring widespread student engagement in sustainable initiatives is key for ensuring that principles of equity and justice are incorporated into projects and initiatives, as the university transformation is an inclusive and participatory pathway towards sustainability (Benkenstein *et al*., 2020).

2.3 Conceptual Framework

Universities have distinct landscapes that encompass an intergenerational conglomerate of students and staff with a diverse set of socio-economic backgrounds, cultural heritage, life experiences, interests and expertise. This unique social context contributes towards the complex nature of university sustainability transitions. Considering that students are key stakeholders with the potential to drive progress towards universities sustainability targets, understanding the enablers and barriers to their engagement in sustainable practices and university-led sustainability initiatives is crucial for universities, like UCT, undergoing sustainability transitions.

For the purposes of this study, enablers are defined as external factors or internal attributes, conditions, or mechanisms that facilitate or promote desired behaviors, outcomes, or processes within a system (Alayón and Johansson, 2022). In the context of sustainability engagement, enablers are elements that motivate, empower, or create opportunities for individuals or groups to participate effectively in sustainability initiatives and/or behaviours. Barriers are defined as external factors or internal attributes that likely represent a difficulty or obstacle for individuals or groups to adopt sustainable practices (Alayón and Johansson, 2022).

The research approach draws from the Social Practice Theory (SPT), which emphasizes the importance of considering context when analysing practices. For example, considering the influence of social institutions, power dynamics and cultural norms when assessing behaviour change patterns forms the basis of this framework

(Svennevik, 2022; Mohammadi *et al*, 2023). Unlike conventional behaviour change theories and approaches which focus on the individualistic and voluntary models of behaviour change, the SPT considers the interplay between structural elements such as infrastructure, access, and institutional culture and individuals behavioural choices (Svennevik, 2022; Mohammadi *et al*, 2023).

In order to provide a more nuanced approach to exploring the enablers and barriers to student engagement within university sustainability transitions, the research adopts the Mohammadi *et al* (2023) framework which draws from the SPT, whilst applying it to the university context. According to the framework, both structural and personal factors influence the incorporation of sustainability within universities and can be divided into four subcategories which are; management inputs, student inputs, sustainability processes, and sustainability output/goals (Figure 2.3.1). As displayed in the framework below, all these factors work in tandem towards achieving the university's overall sustainability goals.

This framework recognises the crucial role university culture and leadership play in ensuring that sustainability is incorporated into universities in a synergistic way. For example, university leadership can influence the university's level of commitment to sustainability issues through drafting various means including enacting enabling policies that support sustainability efforts and encourage broad-based participation (Mohammadi *et al*., 2023). This collective vision and prioritisation of sustainability within the university will impact students' engagement in sustainability as access to resources and support will translate into the funding and development of initiatives and infrastructure that will create opportunities for students to actively engage in sustainability on campus (Mohammadi *et al*., 2023). According to the framework, students' inputs are influenced by management inputs which include elements such as university leadership, culture and sustainability-oriented education. These factors influence a student's sustainability knowledge, commitment and attitudes towards sustainability which will impact their engagement in sustainable behaviours and/or initiatives on campus.

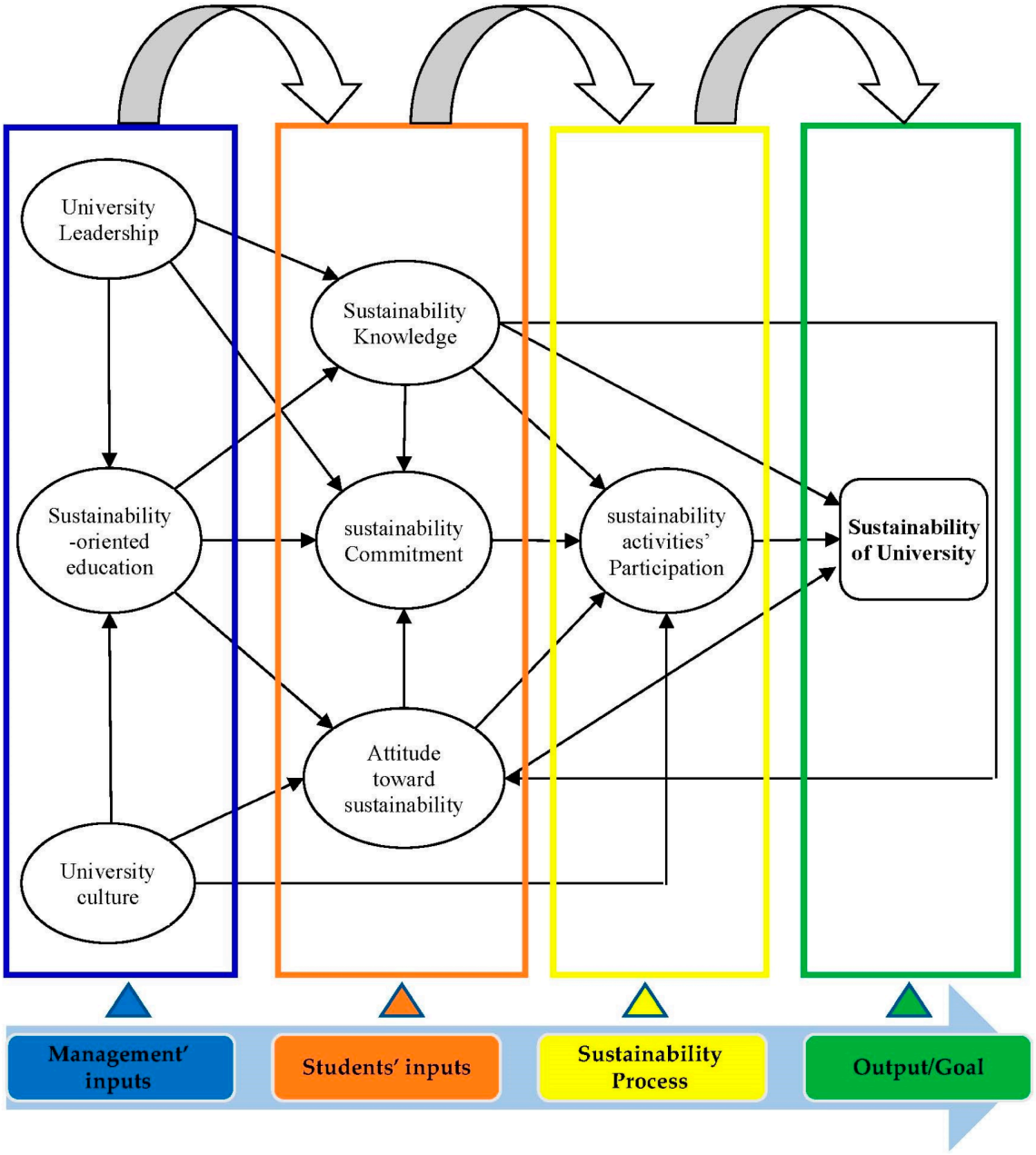

Figure 2.3.1: Conceptual Framework adopted from Mohammadi *et al* (2023).

Understanding that university students are a diverse and dynamic population that engage in sustainability differently; the research explores both individual and collective action perspectives related to the enablers and barriers to student engagement within university sustainability transitions. Therefore, considering that sustainability progress within universities occurs as a result of a complex interplay between structural, social and individual factors, the research explores the enablers and barriers to student engagement with this interplay in mind.

For example, students' perceptions and attitudes towards sustainability encompass their perceptions regarding trust in the university's ability to successfully tackle sustainability challenges. Other elements such as infrastructure, curriculum, and university culture are also considered in this exploration (Figure 2.3.1).

By uncovering emerging enablers and barriers, the chapter provides a dynamic perspective on how various factors including institutional contexts can either propel or constrain sustainability progress. This dynamic perspective highlights the importance of empowering university students and fostering conditions that support their leadership and participation in sustainability initiatives within universities.

Considerations of the interplay between individual and structural elements are reflected in the conceptual framework.The study approach chosen acknowledges the role of multiple processes and stakeholders, including the role of student engagement in achieving universities sustainability goals.

Chapter 3: Methodology and research design

The following chapter presents the methodology and research design used for this study. The chapter begins by providing a brief overview of the case study, including what makes UCT a suitable study site for this topic. A detailed overview of the various data collection methods including how the data was analysed with the research questions in mind follows. The chapter then expands on the ethical considerations taken into account in this research and the limitations.

By employing a single-case study approach, multiple data collection methods, and rigorous analysis techniques, the research aims to explore the enablers and barriers to student engagement in UCT's sustainability transitions in addition to the following research questions:

1) How do students at UCT perceive sustainability and their role in university-led sustainability initiatives?
2) What personal motivations and/or external factors enable student engagement in sustainability at UCT?
3) What factors limit student engagement in sustainability at UCT?
4) What interventions do UCT students propose would encourage their engagement in sustainability initiatives on campus?

3.1 Case Study Selection

The research adopts a single-case study approach due to its ability to provide a detailed exploration on a particular topic of interest (i.e. the enablers and barriers of student engagement within university sustainability transitions) within a particular context (i.e. the African context, in particular, South Africa) on a particular group (i.e. university students) (Takahashi & Araujo, 2019). Due to the nature of the research, and the literature gaps that exist on student engagement within university sustainability transitions in the African context, the single-case study approach presents itself as a suitable approach to conduct an in-depth analysis of an understudied topic, within a context where student engagement has not been studied.

The University of Cape Town (UCT) was founded in 1829, making it the oldest university in South Africa (Times Higher Education, 2022). The university remains one of the highest ranked African universities, taking the 271 spot on the Centre for World University Rankings (CWUR, 2024). Thanks to a highly diverse student population, strong local ties and strategic global partnerships across the globe, the university has been ranked the 57th most international university in the world, making it the only African university to make the list (Times Higher Education, 2023).

UCT became one of very few universities within SSA to embark on a sustainability transition (Mutinda & Liu, 2021). Through the university's Environmental Sustainability Strategy (ESS) and Vision 2030, UCT pledged to transition into a net-zero carbon, water and waste-to-landfill campus by the year 2050 (Braune and Morar, 2020). Through this strategy, a campus-wide initiative under the name “Khusela Ikamva” (which translates to ‘secure the future’) was launched in 2020 with the aim to catalyse UCTs potential and transform into a sustainable campus. With the intention to use a “Living Labs” approach, the project aims to tackle various sustainability challenges within the campuses that fall under the following five overarching themes: sustainable water, energy/carbon footprint, waste/energy/food nexus, wildlife/waste/art nexus and a community of practice, which essentially creates an environment whereby the UCT community (i.e. management, students and staff) actively engage in sustainability initiatives on campus and contribute towards achieving the university’s sustainability goals.

Considering that UCT is one of very few institutions within SSA committed to embarking on a sustainability transition, this marks an important shift in the trajectory of one of Africa’s leading universities (Mutinda & Liu, 2021). The university’s global reputation, proximity to the Table Mountain National Park (a site with ecological and historical significance) and location within a water-stressed developing city, contribute to the university's unique positioning and suitability as a case study that can potentially act as a blueprint for university sustainability transitions in Africa and the broader Global South context.

3.2 Data Collection

The study adopts a multi-method approach, where several data collection methods which include an online survey, one-on-one interviews, a key informant interview and a focus group discussion are combined to answer the research question (Brewer and Hunter, 2006). The data was collected between October 2022 and August 2023.

The university has campuses spread across several campuses namely: Upper Campus, Middle and Lower Campus, Health Sciences Campus, Groote Schuur Hospital Campus, Hiddingh Campus and the Breakwater Campus as shown in the map below (Figure 3.2.1). The upper campus is the largest campus and houses the majority of Faculty departments and students.

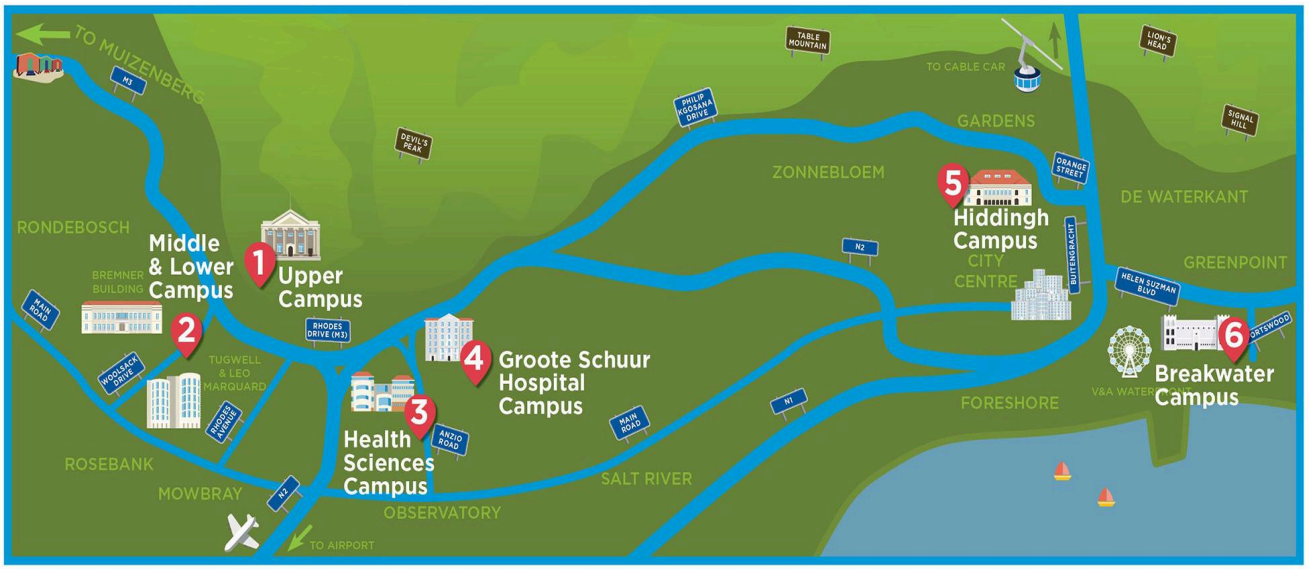

Figure 3.2.1 Map showing the University of Cape Town's Campuses. Source: (UCT, 2025)

Students were randomly selected around the various university campuses (Figure 3.2.1) and interviewed (n=47) with similar lines of questions as presented in the online survey. These interviews served to validate the online surveys, counter any survey biases, and allow opportunity for more in-depth explanations and therefore insight into student's attitudes and perceptions towards sustainability issues at UCT and the enablers and/or barriers to student engagement in sustainable behaviours on campus. The sample size was determined using two proxies. The first was using an online

sample size calculator which determines the sample size based on the overall student population, which was 29 427 in 2022, when the data was first collected, in addition to a confidence level of 95% and an error margin of 6%. This calculation was determined to be a minimum of 265 students. The other proxy used was the researcher employing the ‘point of saturation’ approach where sampling ends when recurring responses and emerging themes are identified.

The online survey was disseminated to the entire UCT community (including student, staff, and management) through the central university communication channels as per ‘Khusela Ikamva’, a five year campus-wide project which was launched in 2020 with the aim of leveraging on the expertise and creativity of senior researchers, staff and students to transform UCT into sustainable campus. Through conducting research and extensive stakeholder engagement, that target five thematic areas namely water, waste, energy/carbon footprint, wildlife and social responsiveness, the project aims to determine the feasibility and potential social, economic and environmental impacts of proposed interventions. Through this approach, the project seeks to transform the university campus into a Living Lab where potential innovative solutions will undergo ‘proof of concept’ to determine suitability, effectiveness and impact within the university grounds (Braune and Morar, 2020).

In addition to the central university communication channels, printed flyers and posters were disseminated and displayed across the campus. A total of 288 students and 141 staff filled in the anonymous surveys between November 2022 and August 2023. Considering the crucial role that staff and management play in facilitating student engagement in sustainability transitions, the research draws on some of the perspectives of the staff who filled in the survey, particularly in relation to questions around feeling a sense of responsibility and trust in the university’s ability to tackle sustainability issues. For the online survey, student responses were disaggregated to discern their responses from staff responses.

Recognising that students engage in sustainability both individually and as a collective, UCT’s largest and longest running student-led sustainability group, the Green Campus Initiative (GCI) steering committee took part in a focus group discussion (n=5) to provide a collective action perspective. This discussion allowed for the exploration of the

motivations, experiences and challenges of student leaders as it relates to implementing and lobbying other students to engage in their activities and initiatives.

3.3 Data Analysis

The audio recordings of the interviews and focus group discussion were transcribed using an artificial intelligence software: otter.ai. These transcripts were reviewed for discrepancies to ensure the accuracy of transcripts. Due to the qualitative nature of the data, recurring themes were identified, coded, and analysed using a qualitative statistical software called Nvivo14. The open-ended questions in both the online surveys and student interviews were accounted for by means of thematic analysis to report counts and frequencies of emerging themes. The quantitative data was analysed by means of descriptive analysis to determine counts and frequencies of responses.

3.4 Ethical Considerations

The surveys and interviews were voluntary and anonymous in nature to ensure confidentiality. Responses have been kept in a secure cloud folder with limited access. Considering the potential of embarrassment and/or social pressure to respond positively to questions related to caring for the environment; all data collected was anonymous to ensure that interviewees' identities were kept confidential and to encourage openness and honesty from respondents regarding their experiences, attitudes, and perceptions of sustainability without fear of facing repercussions. Additionally, respondents' participation was completely voluntary, with respondents being allowed to refrain from answering questions they were not comfortable responding to.

3.5 Limitations

Due to the nature of the data collected and the area of questioning, there is a risk that the behaviour and views reported by the students were not completely accurate. This is largely due to the notion that some respondents may feel social pressure to respond in a way that they feel is socially acceptable behaviour i.e. which may lead to some respondents falsely expressing an interest and engagement of sustainability.

Additionally, without direct observation of individuals' daily behaviours, the research was unable to verify or determine where there may have been an overrepresentation or

underrepresentation of reported engagement in sustainable behaviours/initiatives. Making the interviews and surveys anonymous and voluntary served as a mechanism to minimise this risk by encouraging honest responses without risk of being identified or facing repercussions for having opposed or negative views on the subject matter. The anonymity of the interviews disallowed follow-up interviews of interesting survey responses which ultimately limited the data collection processes. Furthermore, due to time and budget constraints the study was unable to conduct a long-term behavioural change study to determine the effectiveness of university-led initiatives and interventions.

Chapter 4: Analysis

The following chapter presents the collated data that explores the enablers and barriers to student engagement within UCT's sustainability transition. Student engagement is explored through both individual and collective action. The chapter seeks to explore how students perceive sustainability and their role in university-led sustainability initiatives, the internal motivators and external factors that enable student engagement in sustainability at UCT, and the factors that hinder their engagement in sustainability on campus.

Reflecting on the influential role perceptions and attitudes towards sustainability have on individuals' engagement in sustainable behaviours, the research explores students perceptions and attitudes towards sustainability and university-led sustainability initiatives. Elements such as trust in the university's abilities, sense of responsibility and value placed on solving sustainability challenges at UCT are explored. The chapter begins with an overview of students' awareness and knowledge of sustainability including their general understanding, their visions for a sustainable campus, and their awareness of sustainability initiatives and unsustainable practices on campus.

The enablers and barriers for individual and collective action to student engagement are summarised to provide a comparison between individual and collective action perspectives. The fourth and final section draws from students' perspectives and reflects on the literature on potential interventions that could encourage student engagement in university-led sustainability initiatives at UCT.

4.1 Respondents characterization

The respondents' characterizations include students who filled in the online survey (n=288) and the one-on-one interviews (n=47). The age ratio of the respondents mostly consisted of individuals falling within the youth category of 18-35 (85%) (Figure 4.1.1). Upon closer analysis, most of the respondents (64%) fell towards the lower end of the youth spectrum (18-24 years) followed by 21% who were between the ages of 25-34 years old. The smallest proportion were students 35 years and above (15%).

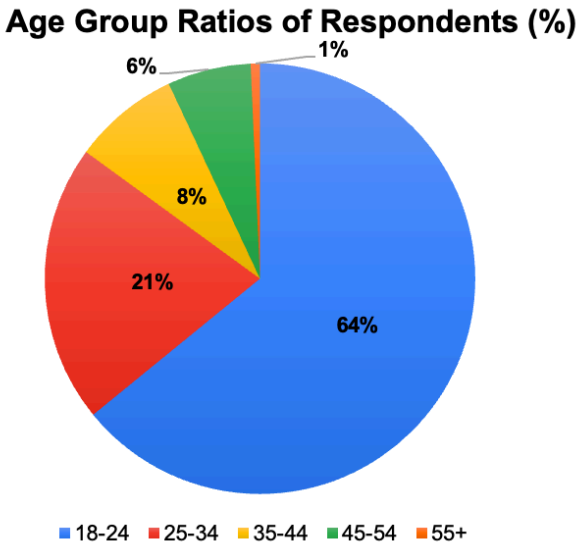

Figure 4.1.1 Pie Chart Showing the age group ratios of student respondents (%). Source: author (2024).

Most of the sample resided off the university campus (99%) with only 1% of students residing on the university campus. The sample included students who came from a wide range of academic faculties including Humanities (39%), Science (27%), Engineering & Built Environment (14%), and Health Sciences (11%) (Figure 4.1.2). The lowest proportions came from Commerce (8%) and Education (1%).

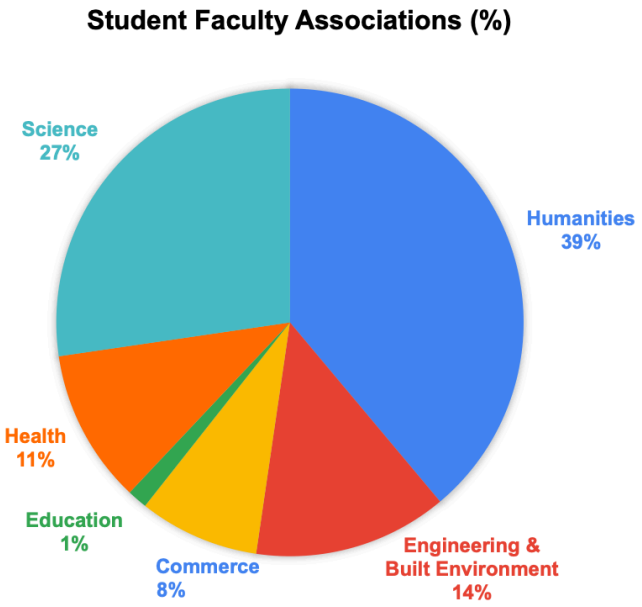

Figure 4.1.2 Pie Chart Showing Sampled Student faculty associations (%). Source: author (2024).

4.2 Students awareness and knowledge of sustainability

Various questions were asked to ascertain students' knowledge and awareness of sustainability issues and initiatives on campus. Students ranked their understanding of sustainability using a 5 level Likert scale ranging from 'not familiar' to 'very familiar'. The majority of students (98%) expressed having knowledge of the concept of sustainability, with most self-rankings ranging from 'quite familiar' to 'very familiar'.

Emerging definitions of sustainability mainly centred around the United Nations Brundtland Commission definition which defines sustainability as using resources efficiently to ensure the needs of both present and future generations are met. Other definitions were centred around sustainability as an act of reducing harmful impacts on the environment through engaging in practices that are more friendly to the environment such as using water and energy sparingly, using renewable energy sources, using public transportation, recycling and using less harmful materials/products such as plastic.

4.2.1 Students awareness of sustainability activities on campus

In trying to discern students' awareness of sustainability issues on campus, students were asked to list both sustainable and unsustainable practices that they were aware of on campus. Emerging unsustainable practices listed included the universities on-going reliance on fossil fuel energy including the usage of diesel generators to combat load shedding. Other commonly listed activities included the use of single-use plastic and non-recyclable food packaging by campus food vendors, poor recycling practices, printing of physical copies of course materials and infrastructural issues such as leaking water pipes.

Commonly listed sustainable practises mentioned included incentives to reduce the usage of disposable cups and packaging when purchasing food/hot beverages on campus, recycling, using sustainable transport options such as the UCT shuttle services and carpooling incentives, using digital course materials instead of printing, the construction of the first four-star green rated building on campus and planting of indigenous Fynbos around campus. It is worth noting that many students expressed concerns about the effectiveness of recycling on campus as expressed by Respondent 22 (2023); "I know that there are lots of recycling bins, but I don't know how effective

they are". In relation to naming actual initiatives/projects, most students mentioned the Green Campus Initiative (GCI) which is the longest running student-led environmental group at UCT. Additionally, activities organised by the GCI were commonly listed which included their annual "Green Week", thrift markets, the iSondlo garden project and lobbying against fossil fuel divestment within UCT.

Overall, apart from the GCI, only 8% students were aware of recent projects such as the *Khusela Ikamva (secure the future)* Initiative and 'Slow the Flow' (a water saving campaign) which are both UCT campus-driven sustainability initiatives. None of the respondents mentioned any university sustainability policies such as the Environmental Sustainability Strategy, which is UCT's latest environmental sustainability focused policy (Braune and Morar, 2020). Additionally, many students expressed having little to no knowledge of engagement opportunities on campus and the processes for joining environmental groups such as the GCI. A similar trend was observed amongst students who knew about the university's recycling efforts, but did not know detailed information regarding the targets of the project, the process and current trends of recycling efforts within the university.

Those who were aware of initiatives such as UCT's recently launched sustainable campus initiative, the "Khusela Ikamva" project and the Green Campus Initiative (GCI), expressed not knowing how exactly students could engage/participate in these projects. Recycling was another initiative mentioned by most students, which could be owed to the visible presence of recycling bins around campus. However, again students only had surface knowledge about the project and did not know anything beyond the 'recycling bins', i.e. how much waste UCT produces, where it is recycled, how much waste is not recycled correctly and the potential of individual actions to contribute towards solving the bigger issue. This trend may be an indication of the lack of effective communication strategies and visibility of the university's most recent sustainability initiatives.

4.2.2 Students' visions for a "UCT sustainable campus"

When asked to list three things that come to mind when they think of a "sustainable UCT campus?", emerging themes were centred around improving resource efficiency, green technology/infrastructure, collaboration and community, education and awareness

raising (Figure 4.2.1). Students felt the need for the university to introduce systemic changes such as introducing green technologies and infrastructure like sensor technology that could assist in improving water and energy efficiency. Other examples included transitioning to renewable energy sources through installing solar panels across the university campuses (Figure 4.2.1). Other systemic changes that emerged as critical included transformations to the education system such as incorporating sustainability education across the university departments. The need for transformative teaching approaches and more immersive learning methods was also mentioned; for example a student shared the following sentiments: “Implementing 'transformative' practices and methodologies/pedagogies that can be integrated into the current university paradigm such that it can continue for the years and generations to come (Respondent 27, 2023). The need for an inclusive and participatory approach to this curriculum transformation were also highlighted by some students including this response; “Equitable access to knowledge, reassessing student selection and a more welcoming and open atmosphere when it comes to redevelopment of the academic framework.”(Respondent 33, 2023).

Additionally, funding for sustainability research and interdisciplinary approaches to solving sustainability issues was identified. The involvement of the UCT community and the need for collaboration across departments were shared in emerging sentiments on the need for students and staff involvement in achieving sustainability goals were commonly mentioned. For example, a student mentioned “The involvement of every UCT member. The campus won't really be sustainable if only a portion of the UCT community is participating” in response to the question “what comes to mind when they think of a sustainable campus?” (Respondent 21, 2023).

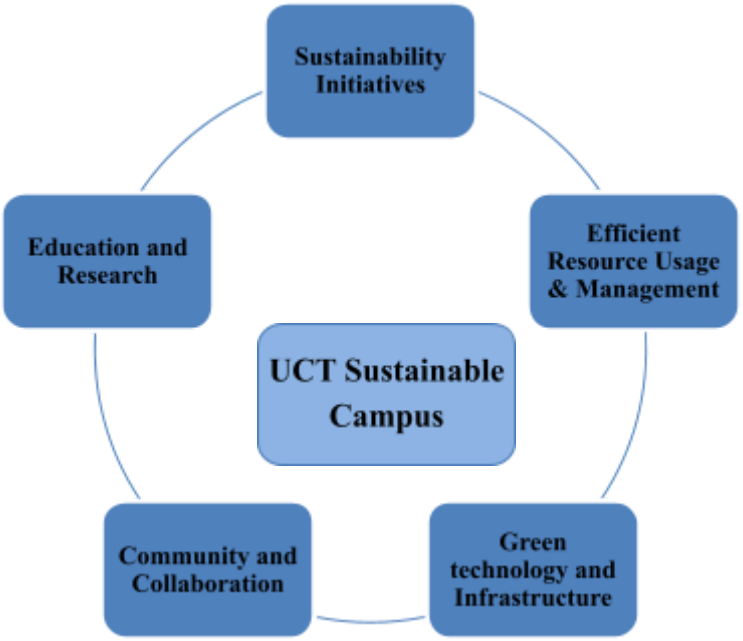

Figure 4.2.1 Students emerging visions for a sustainable campus at UCT. Source: author (2024).

The results highlight the general awareness of sustainability issues on campus, and potential focus areas needed to address sustainability challenges on campus. The presence of community and collaboration also indicate the general appreciation for the need for collective action, including the need for widespread student engagement for achieving the university's sustainability goals. These sentiments are further explored in the section below which highlights students 'sense of responsibility and locus of control as it pertains to students' engagement in sustainability activities on campus.

4.3 Perceptions and attitudes towards sustainability

The following sub-section explores UCT student's perceptions and attitudes towards solving sustainability issues, the competency of the university to lead and solve sustainability challenges on campus and students' visions of their role in the university's sustainability transitions. Supporting

4.3.1 Perceptions on the value of UCT solving sustainability Issues

Considering that perceptions and attitudes influence engagement in sustainable behaviours, the research through multiple questions explored students perceptions and

attitudes towards sustainability. Students were asked how important they thought it was for universities and UCT to solve sustainability challenges. The results indicate that the majority of students thought it was important for UCT to solve sustainability challenges, with 68% rating this as “extremely important” followed by 27% who stated it was “very important” (Figure 4.3.1).

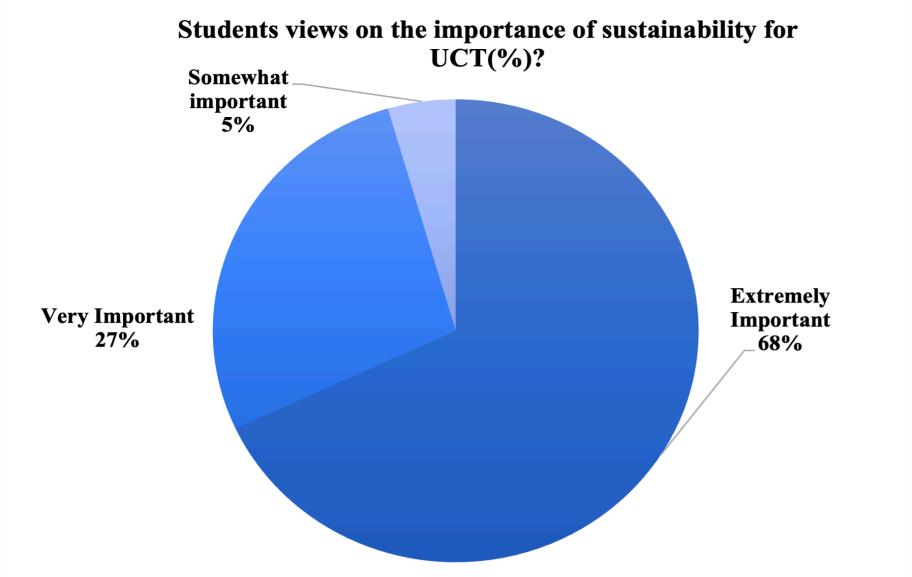

Figure 4.3.1. Students rating of the importance of sustainability for the University of Cape Town (%). Source: author (2024).

As reflected in the conceptual framework (Figure 2.3.1), sustainability awareness and attitudes influence engagement in sustainability activities. Therefore, understanding the value of solving sustainability challenges and having a positive attitude towards sustainability efforts is key for ensuring a commitment and engagement in sustainable behaviours.

As an institution of higher learning, students felt the university had great potential to act as change agents. This normative power coupled with the university’s function as an institution of research, knowledge production and learning, UCT encompasses an ecosystem that boasts high intellectual capacity, which according to students should be used to find sustainable solutions. Examples of sentiments shared by students on this matter are shared below:

*"*Um, well, being such a big institution, I think it has a lot of influence on our students and Cape Town in general, so they have a lot of power in holding that status, so they can do a lot with it. If they do, that will influence people who value UCT*"* (Interviewee 5, 2023). Whilst another student stated, "There are many smart people here, it would be shameful not to use that intellectual capacity" (Interviewee 14, 2023).

Whilst most of the sample felt sustainability should be an important issue for UCT, some students expressed disagreement with the prioritisation of environmental sustainability over competing issues such as student debt, wage increments, governance issues and infrastructural maintenance. A student shared the following sentiments on the matter; "Not necessarily because within the African context, there might be more pressing issues for UCT to be focused on than on environmental sustainability at the moment" (Interviewee 6, 2023). Other sentiments were centred around climate justice issues in relation to the responsibility of historic emitters versus the efforts from the Global South who have contributed minimally to historic GHG emissions and the current climate crisis. A student interviewed shared this opinion when asked about their lack of engagement in sustainability initiatives; "Sometimes I have a grudge about how much the rest of the world produces when it comes to environmentally harmful things. And then I often think, why is it that the African child who has hardly benefited from industrialization need to put in the effort to reach targets because like, big corporations are, in my mind, the biggest issue so like, yeah, I mean, that is one reason why I am not too bothered about it*"* (Interviewee 8, 2023).

The opposing sentiments reveal that multiple factors influence students' perceptions towards sustainability issues, which may impact their willingness to engage in sustainable practices. For example, because of a perceived sense of unfairness towards the climate action landscape, the student (interviewee 8) was uncommitted to supporting the university's sustainability efforts and therefore less likely to actively engage in sustainable activities on campus. Furthermore, varying perceptions about what the university should prioritise may also hinder student's willingness and level of commitment towards sustainability. This connection displays the significant role that attitudes, knowledge and worldviews has on students' engagement in sustainability

activities on campus, in particular the crucial role of personal connection to sustainability.

4.3.2 Students trust in the university's ability to successfully tackle sustainability issues.

Considering the crucial role that university leadership plays in driving sustainability progress within universities and the influence that perceptions and attitudes have on student engagement in sustainability, the research explored students' perspectives regarding the role of the university and its ability to successfully tackle sustainability challenges.

Survey responses revealed that most students (71%) trusted in the university's ability to effectively tackle sustainability issues (Figure 4.3.2). This proportion of confidence is relatively higher than the staff survey responses, where 55% of staff expressed confidence in the university's ability to successfully tackle sustainability issues.

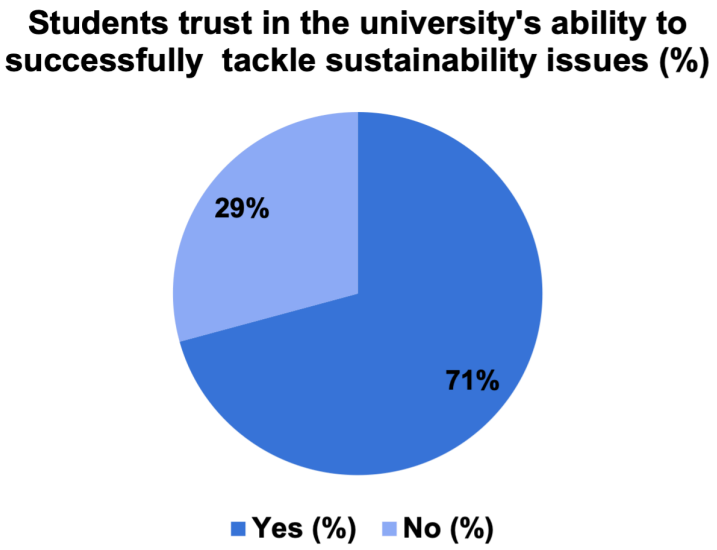

Figure 4.3.2 Students trust in the ability of the university to effectively tackle sustainability issues (%). Source: author (2024).

When asked to elaborate on their reasons for having a lack of trust in the university's ability to successfully tackle sustainability challenges; the emerging sentiments centred around the perceived lack of buy-in and prioritisation of sustainability issues by the UCT management and leadership. For example, a student stated, "It does not seem like a

priority of theirs" (Respondent 285, 2023) whilst another shared the following sentiments: "They often don't address problems properly unless it is an emergency so that makes me think if they haven't addressed key issues in the past, what would make them do it now" (Respondent 283, 2023). Observed governance issues were also mentioned, for example, a student stated, **"**Enabling/creating goals and a sustainability culture starts at the top and UCT management/leadership has a reputation of being very dysfunctional**"** (Khusela Ikamva online survey, 2023).

Exploring who students and staff feel should lead on sustainability provides insight into why students engage in sustainability, as it relates to individuals' sense of responsibility related to achieving the university's sustainability goals. Disaggregated survey data found that most staff (68%) are of the opinion that the university should collectively lead on sustainability issues followed by university management with 27%. Only 4% of staff believed that academic or administrative staff should lead on sustainability (Figure 5.1.6).

However, when respondents were asked to elaborate, most mentioned that although this should be a collective effort, most efforts should come from UCT management. For example, a UCT staff member stated, "We can, but we need leadership. It can't fall to students or academics. Much of this needs to happen at the higher contract level, so it's largely a management issue" (Khusela Ikamva online survey, 2023). Students shared sentiments on sustainability being a shared responsibility that requires broad based participation. "It's important to anybody, in the age we are living in, it should all be in the back of our minds, both for individuals and institutions" (Interviewee 7, 2023).

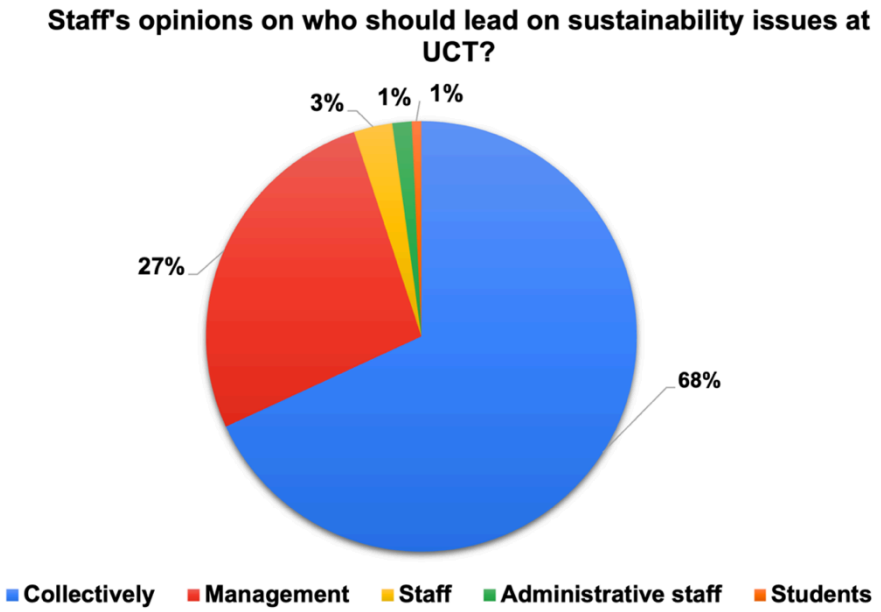

Figure 4.3.3 UCT's staff opinions on who should lead on sustainability issues at UCT (%). Source: author (2024).

Similar opinions were shared by students, with 70% stating that a collective effort is needed to address sustainability issues at UCT (Figure 4.3.4). Followed by 19% who think management should lead on sustainability issues. Only 9% thought students ought to lead on sustainability issues (Figure 4.3.4).

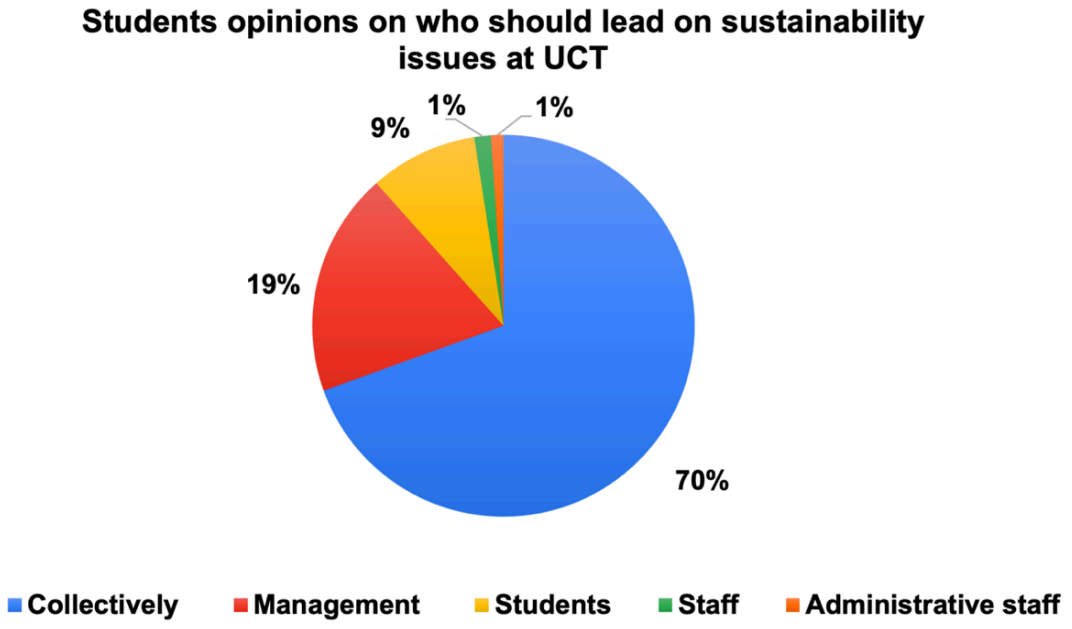

Figure 4.3.4 Students opinions on who should lead on sustainability issues at UCT (%). Source: author (2024).

These findings reveal that UCT students do acknowledge that they have a role to play in achieving the university's sustainability goals. Nonetheless, the need for university leadership, including staff, to play an active role in building a university culture that supports sustainability and creating opportunities for sustainability engagement.

Social norms and practises in the home were a key factor influencing students' awareness, attitudes towards and level of engagement in sustainability on campus. This is due to the exposure and 'normality' that comes with sustainable practices being practised at home by fellow household and community members. For some students, the household was where they started learning about sustainability and valued the need to engage in sustainable practices. The long term nature and cultural 'normality' around some practices like recycling and repurposing serves as an enabler for those students to engage in sustainability activities on campus. This further supports the need for collaborative approaches that include the broader communities that form the university.

4.4. Emerging enablers and barriers to student engagement in sustainability

Considering the dynamic of student engagement in sustainability within universities, the research considered both individual and collective perspectives on the enablers and barriers to student engagement UCT's sustainability transition. The emerging enablers and barriers drawn are summarized in the Table 4.4 below.

Whilst there were overlapping enablers and barriers between the two, there were also unique factors for each group. For example, the focus group discussion held with GCI revealed additional communication challenges because of UCT's disjointed communication channels which sometimes prevented updates regarding GCI events which impacted students' awareness and the organisation's overall visibility. These sentiments support the findings of Rennkamp & Jimu, 2024 which found that UCT's governance issues and disjointed committees negatively impacted student engagement in sustainability. Nonetheless, GCI has made use of various social media and online platforms including UCT's main academic host page "Vula", which sends out reminders and communication directly to student members' emails. Another communication channel which seemed to leave lasting impressions on students were creative

exhibitions and/or installations which have been used by GCI to raise awareness of various environmental and sustainability challenges on campus such as waste management.

The lack of awareness of engagement opportunities and sustainability initiatives on campus emerged as a barrier for both individual and collective action. Whilst some students were able to list examples of sustainability initiatives and practices on campus, 35% expressed the need for more engaging, up to date information on sustainability information, the university's progress and updated statistics on the impact of current sustainability initiatives. For example, a student expressed the following: "We need to be made aware of what organisations are doing, providing a step-by-step guide on what you can do and how you can engage" (Interviewee 4, 2023).

Another factor related to lack of awareness, was the perceived poor communication and understanding of the scope and impact of projects or actions such as recycling. This sentiment is reflected by this student "Knowing that what I am doing is making a difference such as understanding the process more and how my actions impact 'the bigger picture'; more transparency and signalling goals and spreading information about why certain practices will help (Interviewee 8, 2023).

Regarding university culture, students mentioned a general sense of a lack of culture within the university that aligns with the university's sustainability goals. These perceptions mainly stemmed from general observations of unsustainable practices across campuses from the management/institutional level to the individual student and staff individual level. These sentiments were reflected in this student's response; "It is not the social norm and feels like an extra effort to engage" (Respondent 35, 2023). One prominent example given to prove this point was the lack of correct recycling practices observed amongst students as well as staff. A student had this to share in relation to poor recycling practises on campus, "For example, with recycling, there are bins set up all over campus yet when they collect the waste, they take all the waste from the recycling bin and mix it with the waste from the non-recycling bins, it's like what's the point of recycling bins in the first place then" (Respondent 20, 2023). As such, this acted as a demotivator for students to actively engage in sustainable practices as some students felt their actions were futile. Students perceived inaction

and poor implementation of existing sustainability projects contributed to UCT students' slow action of UCT management.

Table 4.4.1. Table showing summary of findings. Source: author (2024)

Individual Student Engagement	Collective Student Engagement
Enablers ● Sustainable Practices in the Home ● Environmental knowledge ● Sense of Responsibility ● Convenience (automation) ● Technology and relevant infrastructure ● Incentives ● Non-environmental benefits (e.g. health and convenience) ● Peer engagement	**Enablers** ● Self-motivation ● Sense of community and belonging ● Collective sense of responsibility ● Collaboration with UCT structures ● Free membership ● Engagement in practical activities such as food gardens, beach clean-ups.
Barriers ● Disjointed communication channels ● Poor visibility of sustainable projects and limited information on how students can engage ● Competing Priorities and limited time spent on campus ● Disjointed campus community ● Perceptions of poor sustainability culture within the university ● Lack of practical know-how on what constitutes sustainable practices ● Limited sustainable food options on campus ● Perceptions of lack of management and staff buy-in ● Lack of sustainable infrastructure i.e. solar power generation, limited drinking water portals.	**Barriers** ● Limited budgets ● Limited support from university structures ● Short terms of student committee members (annual) ● Poor knowledge transfer between student committees. ● Unclear protocols of engagement with UCT structures ● Disjointed communication channels between the university and GCI ● Competing priorities, particularly academic engagement which create time constraints

Additionally, perceived slow action of UCT's management and poor implementation of existing sustainability projects contributed to students' lack of buy-in and commitment to engaging in sustainable practices on campus. Students perceived the slow action and

lack of effective implementation of existing projects negatively. These perceptions contributed towards students' lack of motivation and engagement in sustainability practices on campus. On the other hand, 16% of students expressed collective action including management buy-in as motivating.

Students mentioned the lack of and therefore need for the instillment of a sustainability culture, which required management and staff leading by example. Students perceived the lack of buy-in and student engagement in sustainable practices as demotivating. This sentiment was particularly popular in relation to observed incorrect recycling practices, which negatively influenced students' sense of “locus of control”. A student shared their frustrations regarding poor recycling practices amongst students, “It feels discouraging that the university community does not take simple things such as recycling seriously. It makes me doubt whether bigger sustainability challenges could be addressed. But we have to be hopeful that change can happen” (Respondent 9, 2023).

Another factor which can be categorised as both personal and practical is that related to limited time spent on the university campus and having ‘tunnel vision' when students are on campus i.e. visiting campus for specific reasons and spending most time attending classes/tutorials inside campus and then leaving soon after. Some is owed to the location and fact that most students live off campus and therefore need to travel distances which contributes to limited time available to spend on campus. For some, limited time spent on campus has influenced students’ sense of community and sense of responsibility for the upkeep of the state of the campus.

Students also mentioned time constraints because of academic obligations as being a major hindrance to their willingness and engagement in sustainability initiatives particularly those which are voluntary and include extra-curricular activities such as weekend beach clean-ups, signing up for student bodies etc. For example, a student gave the following remarks regarding their disengagement in sustainability initiatives at UCT; “So I guess I do want to participate but then where do I actually find the organisation that deals with it and where do I find an organisation where my time matches with theirs as I am also in my final year of study and things tend to be hectic. And now I must volunteer for something that I will manage along with my academics which would mean my academics could suffer. So that's the struggle I currently have” .

Time constraints were also found to impact the ability of committee members of student group Green Campus Initiative (GCI), as some found it difficult to fully commit due to academic demands. According to committee members, academic demands also limited students' availability and willingness to participate in various engagement opportunities and often meant that small numbers of students would participate in their engagements.

Related to prioritisation were sentiments around the presence of competing priorities which impact the university's budget. For example, a student stated that; "*They already have so many issues and budget cuts, so I do not believe that it is at the top of anyone's priorities*" (Respondent 281, 2023). A sense of lack of buy-in and perceived weak institutional backing amongst students acted as a demotivator. On the other hand, students list this as a motivator, as expressed by Respondent 14 who said "Feeling like the university is actually making an effort, and putting in place necessary arrangements for us as students to make a difference" in response to a question on what would motivate them to engage in sustainability on campus. Whilst another student shared these sentiments on the impact of UCT's governance issues "

The findings reveal the crucial role that management inputs such as university leadership plays in enabling student engagement in sustainability activities. This narrative is supported by the conceptual framework used which indicates management inputs playing a supporting role of overall sustainability progress within universities, in particular creating a shared vision for sustainability that is supported by the availing of necessary resources such as finances, infrastructure and institutional support of sustainability initiatives (Figure 2.3.1).

4.5. Student perspectives on mechanisms needed to encourage student engagement

When asked what would motivate students to engage more, a prominent suggestion mentioned by students related to the need to bring about awareness on the various sustainability initiatives and projects happening on campus (35%). Using various communication channels such as social media and the university academic platform "Vula" were some channels proposed. Additionally, having a centralised "sustainability

directory” where students could access all UCT’s policies, initiatives, student groups, volunteer opportunities and research opportunities could be found. Such a platform could streamline and give information on how students can engage, and the requirements associated with the various engagements would make it easier, particularly for new students joining the university.

Introducing and communicating the incentives for engaging in sustainable behaviours/initiatives were suggested by 6% of the sample as a potential mechanism that could motivate students to commit sometime to engaging in sustainability related research, volunteer work and lifestyle choices. For example, incentives such as additional credits, financial incentives such as reduced fees for students who resort to using digital resources instead of printing on paper. A student interviewed shared these sentiments; “I guess if there was more of an incentive that really reinforces the action of being sustainably conscious. For example, paying less fees based on how much resources you use. For example, let's say if you don't use as much paper, then this is reflected in the amount of fees that you pay” (Interviewee 6, 2023).

Due to the non-environmental benefits of engaging in sustainable behaviour as motivators for some students' engagement, communicating these benefits may encourage more students to engage in sustainable behaviours. Examples of these benefits mentioned by students include for example health benefits of walking and cycling, or the convenience and financial savings from using UCT provided shuttle services instead of driving personal vehicles. An example of this was mentioned by an interviewed student who stated, “To be honest, it is just the convenience. I am not like a tree hugger or anything. So, it's mainly convenient. Other than that, it does feel a little bit good to feel like you've done something environmentally conscious with all the people around today that are pushing that narrative” (Interviewee 6, 2023).

Another important factor which was mentioned by GCI, was the need to destigmatize the perception that environmental work is meant for the rich and that financially disadvantaged students do not have a place in these areas of work. According to these students, these harmful narratives made people think that a certain class and, often, race of people ought to engage in sustainable action. This served as the primary motivation for the student-led group to have a fee free sign-up policy. However, on the

flip side this meant that there was increased pressure placed on the student-led committee to find innovative ways of funding and resource mobilisation.

Other perspectives were linked to the need for automation and structural transformations which encompass transforming the universities infrastructure, introducing green technologies and design, including, for example, UCT as an institution investing and using more renewable energy sources, installing sensor systems on the lights. These sentiments were linked to the question of who is responsible for UCT's transformation. These sentiments were raised amongst students who felt that the onus of change lies at the institutional and systemic level, which can then be complemented by individual actions on the ground.

Other students also mentioned that communication of the impacts and processes behind sustainable initiatives such as the recycling program, for example, may encourage more students to participate as they would be aware of the impact of their actions i.e. communicating data related to how much waste UCT produces every month/week, what proportions get properly recycled and who/what is the recycling program benefitting? (i.e. who is benefitting in the larger context).

Additionally, due to the ability of both non-environmental and environmental benefits to act as motivators for engagement, students mentioned the need for these benefits to be communicated to the student body so that they have a deeper and more holistic understanding of sustainability. These non-environmental impacts included convenience, health benefits (e.g. walking instead of taking the lift, or eating less meat in diets), and financial benefits (i.e. access to the free shuttle services offered by the university which were free and presented a more environmentally friendly transportation alternative for many students). Therefore, communicating and raising awareness of the full scope of benefits could motivate students to engage in more sustainable behaviours and initiatives. For example, a student iterated the following sentiments: "I always think that if you understand the logic behind something and how it works, at least for me, I am more willing to go along with it, so for example we must do x because of y. I want to know the results and that efforts are not wasted. So signalling goals and why certain practices will help with achieving these goals" (Interviewee 14, 2023).

Chapter 5:Discussion

The research addresses critical gaps in the literature by focusing on student perspectives on the enablers and barriers to student engagement within university sustainability transitions within an African context. Considering that students play a pivotal role in driving institutional culture and have been regarded as critical stakeholders in universities sustainability efforts, it is crucial that effective strategies that ensure their meaningful participation are implemented. A critical part of this encompasses understanding how students are engaging in sustainability initiatives, including the role they envision themselves playing and the factors that act as motivators and barriers to their engagement in sustainability initiatives on campus. Therefore, the findings shed light on the challenges and opportunities associated with engaging students in university sustainability transitions and assist in informing the development of tailored interventions to foster meaningful student participation that contributes to the university's broader sustainability goals.

Overall, the findings reveal that the majority of the students have a general knowledge of sustainability and sustainability issues on campus. The students ability to list both sustainable and unsustainable practices, highlights their general knowledge and awareness of the university's unsustainable operations. The findings support the literature which highlights the influence that knowledge and awareness has on an individual's attitudes towards sustainability (Cogut *et al*., 2019; Hannsmann *et al*., 2020; Azhar *et al*., 2022). In this case, the high awareness of sustainability and sustainability issues on campus contributed towards the general high value placed on the universities quest to solve sustainability challenges (Figure 4.3.1).

The students' high value and importance placed on solving sustainability challenges influenced their support for and sense of responsibility towards contributing towards the university's sustainability targets. For example, students envision that collective and collaborative efforts are required to build a sustainable campus which illustrates a sense of responsibility and willingness to contribute towards the university's sustainability efforts (Figure 4.2.1). These correlations support the relationship illustrated in the conceptual framework (Figure 2.3.1).

Despite the correlations between student knowledge, awareness and attitudes, several factors such as social norms, convenience, institutional trust and locus of control influence an individual's commitment to sustainability and their engagement in sustainable practices on campus. Therefore, highlighting the need to develop Mohammadi et al's (2023) framework to consider the influence of institutional and social factors such as social norms, convenience, infrastructure and locus of control on students commitment and engagement in sustainability initiatives on campus. (Figure 2.3.1).

Issues around locus of control and students perceived lack of community buy-in of UCT staff and management particularly influenced students willingness to engage in university-led sustainability initiatives. For example, both UCT staff and students expressed the university's previous and existing governance and management issues as a reason for their lack of trust in the university's ability to effectively address sustainability challenges within the university. Reflecting on trends in the literature, this lack of trust may influence students' willingness to engage and perceptions of impact i.e. the locus of control of their actions which have been found to influence students' level of engagement in sustainable practices (Azhar *et al*., 2022).

Students reference to the actions of and the need for university management to lead by example supports the conceptual framework narrative which highlights the critical role that 'management inputs' play in supporting a conducive university sustainability culture and providing enabling mechanisms such as infrastructure and sustainability-oriented curriculum transformation that form the basis of overall sustainability engagement and transformation (Figure 2.3.1) (Mohammadi *et al*., 2023). This rhetoric amongst students further supports findings within other university sustainability transitions which highlighted the crucial role that university leadership plays in driving university sustainability progress (Vincent and Mulkey, 2015; Mohammadi *et al*., 2023; Jimu and Rennkamp, 2024).The significance of ensuring the active engagement and buy-in of university management and staff is further demonstrated by the importance and acknowledgement that UCT students made regarding the need for collective and collaborative efforts to build a sustainable campus (Figure 4.2.1) and the 27% who felt that UCT management ought to lead UCT's sustainability efforts.

The negative perceptions towards UCT governance and the knock on effects this has on student engagement in university-led sustainability initiatives further supports the findings of a recent study conducted at UCT by Jimu and Rennkamp (2024). This study found that governance issues such as hierarchical decision making processes, disjointed university committees campuses were negatively impacting student engagement which undermined the university's effort to create and leverage on a 'community of practice' to reach its sustainability targets (Jimu & Rennkamp, 2024). Whilst the majority of students (71%) expressed having trust in the university's ability to successfully tackle sustainability challenges (Figure 4.3.2), broader governance issues, including perceived poor management undermined the remaining students trust in the university which acted as a demotivator to commit to and actively engage in the university's sustainability efforts. Poor governance also impacted student-led efforts as reflected in the experience of the Green Campus Initiative (GCI), who shared sentiments on the lack of institutional support and hierarchical decision-making processes that hindered them from fully contributing towards the university's sustainability agenda.

Poor communication and project awareness amongst students was another prominent barrier to student engagement. Furthermore, amongst the students who were aware of sustainability initiatives, many expressed having basic information regarding sustainability initiatives and were unable to share specific details such as project timelines, targets and sign-up processes. This further supports students' suggestions to improve overall communication approaches, including the need to highlight the "bigger picture" when trying to communicate the importance and potential impact of initiatives such as recycling on broader waste management issues within the university campus and the broader context.

Project visibility was found to be important for fostering awareness amongst students as illustrated by the students' awareness of the university's sustainability initiatives such as the university's recycling project as illustrated by the presence of signage and colour coded recycling bins scattered across the university campus. Another popularly mentioned initiative was UCT's longest running student-led sustainability movement, the Green Campus Initiative (GCI). This illustrates the potential and need to work with student-led movements and long term initiatives such as the GCI in driving student

engagement in the university's broader sustainability agenda. However, it is worth noting that many students expressed lacking know-how of GCI's "sign-up" processes and engagement opportunities which supports students' proposal to introduce streamlined sustainability communication channels and platforms that will allow for the streamlining of information regarding sustainability initiatives and activities on campus. Overall, student-led initiatives require further institutional support, collaboration with the university management and resources to continue engaging in their sustainability initiatives such as "Green-week" which has become a pivotal institutional annual event. This will provide further opportunities for the university to leverage on the passions, energy and creativity of eco-conscious students.

Other commonly mentioned initiatives included those that have financial incentives such as discounts. For example, students receive discounts if they purchase hot beverages such as coffee and tea with their own reusable mugs. This initiative was introduced by the university to encourage the disuse of single-use cups on campus. These findings reveal the crucial role that incentives may play in driving support and the need to incorporate sustainable practices within everyday practices such as purchasing food and beverages to create sustainable habits and culture amongst the student population. The need for incentives (both monetary and non-monetary) was also commonly mentioned by students as a potential tool to encourage their participation.

The lack of project awareness reveals the important role that communication plays in driving student awareness and ultimately their engagement sustainability on campus (Figure 2.3.1). Furthermore, as highlighted in a recent study focused on governance within UCT's sustainability transition, challenges such as shortage of staff were undermining the university's sustainability communication efforts as the Communications and Department office were unable to carry out their tasks in a timely and efficient manner, which led to delays in communications to the university community (Jimu and Rennkamp, 2024). These challenges may be a contributing factor of students general lack of awareness of the university's sustainability policies and initiatives, in particular recent initiatives such as the Khusela Ikamva project which aims to create a community of practice, and UCT's Environment Sustainability Strategy (ESS) (2020) which outlines the university's plans to transition into a net-zero campus by the year 2050. As highlighted in the conceptual framework (Figure 2.3.1), it is crucial for the

university management and leadership to create a shared vision for a sustainable campus as this forms the basis of a university culture that is needed to ensure widespread participation of students, which is a key element of creating a community of practice as envisioned in the university's sustainability plans (Braune and Morar, 2020).

Overall, the findings illustrate the complex nature of engagement in sustainability, in particular the role that factors such as convenience, time availability, practical know-how, locus of control and project visibility play in encouraging student engagement in sustainability initiatives. Furthermore, the findings reveal the crucial role that university management and leadership plays in instilling a culture of care for sustainability, and creating enabling environments that foster widespread engagement within university-led sustainability initiatives.

Whilst the research provided insights into UCT students' perspectives on the enablers and barriers to student engagement, the research scope was not able to validate and assess the accuracy of students' reported engagement in sustainable behaviours. Furthermore, the research was unable to determine the long-term influence that time has on students' attitudes, willingness to engage and sense of responsibility has on their engagement in sustainability. Therefore, the university may benefit from engaging in a longitudinal study to investigate how these factors including sustainability interventions influence student engagement over time.

Chapter 6: Conclusions

Universities, as institutions of higher learning and research, are well positioned to be at the forefront of climate action and solution innovations. Additionally, university students continue to play a pivotal role in shaping today's global climate action movement, and are key stakeholders needed for successful university sustainability transitions. However, despite the critical role of student engagement and the observed complex nature of sustainability engagement, research on the enablers and barriers to student engagement within university sustainability transitions, particularly in Africa remains scarce. Addressing this gap is critical for UCT who is currently undergoing a sustainability transition, and where student engagement forms a critical part of the university's sustainability strategy. Therefore, exploring the enablers and barriers to student engagement within UCT is crucial for the university's quest to transform into a sustainable campus.

Adopting a mixed methods approach, the study explored the enablers and barriers to student engagement from both individual and collective action perspectives. Through online surveys, interviews and focus group discussions, the study explored UCT students' awareness of sustainability, their perceptions of their role in the university's sustainability transition, and their perspectives on the factors that act as both enablers and barriers to their engagement in UCT's sustainability transition. Lastly, the study reflects on the findings and draws from UCT students perspectives of suitable interventions needed to encourage student engagement within UCT's sustainability transition.

The results reveal that there is a general awareness of and positive attitudes towards solving the university's sustainability challenges amongst sampled students. Furthermore, there is a general consensus that building a sustainable campus requires collective and collaborative action between staff, students and management. However, the findings do reveal that students have an extra layered expectation on UCT management to play a leadership role when it comes to UCT's sustainability matters and efforts.

Despite having a general awareness of sustainability, positive attitudes and expressing a willingness to contribute towards solving sustainability challenges, the findings reveal

that there are several factors that influence students' engagement in sustainability which include project visibility, convenience through structural and infrastructure, sense of responsibility, locus of control and time availability.

For example, despite the general high value placed on sustainability transitions and acknowledgement of the need for collective action, there remain serious barriers to student engagement both for individuals and the collective efforts alike. Amongst students interested in engaging on an individual scale, lack of project visibility, competing priorities, lack of locus of control and structural limitations such as the lack of affordable sustainable food options on campus came up as emerging barriers. For collective action, poor governance structures resulted in the lack of support for GCI, and hierarchical decision making processes that left student leaders feeling isolated and excluded when it came to the university's sustainability initiatives and matters.

Student-led movements, such as the GCI, play a critical role in introducing sustainability into university culture as their initiatives are popularly known amongst students. Self-motivation, academic background and sense of responsibility were strong motivational factors for students who played leadership roles within student-led initiatives such as the GCI.

Addressing broader governance management issues is key for instilling a sustainable university culture that creates a more conducive environment that encourages widespread student engagement. This is particularly important for UCT where governance issues have contributed to the slow progress made towards sustainability targets (Jimu & Rennkamp, 2024). Additionally, incorporating effective communication strategies and channels were identified as key mechanisms needed to encourage student engagement as many students expressed lacking awareness of sustainable projects/initiatives and lacked know-how on how to get involved. Collaborative approaches and opportunities for co-creation were identified as key approaches needed to encourage a wider sense of responsibility and buy-in from both students and staff.

The findings illustrate the complex nature of engagement in sustainability, in particular the role of multiple factors that influence students' engagement in sustainability. For example, factors such as academic background, sense of responsibility, practices in the

home, convenience and infrastructural/institutional support acted as key enablers of student engagement in sustainability initiatives at UCT.

Whilst insights into UCT students' perspectives on the enablers and barriers to student engagement were explored, the research scope was not able to validate students' daily behaviours and/or these changes in behaviour over a long period of time. The university may benefit from engaging in a longitudinal study to investigate how factors influence student’s behaviours as the university implements sustainability interventions over time.

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