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# The influence of organisational environmental sustainability on employee outcomes

A thesis

submitted in fulfilment

of the requirements for the degree

of

**Doctor of Philosophy in Psychology**

at

**The University of Waikato**

by

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THE UNIVERSITY OF
WAIKATO
*Te Whare Wānanga o Waikato*

2026

## Abstract

As two global challenges - climate change and mental health crises - intensify, organisations are increasingly being called to address both environmental sustainability and human well-being. In this thesis, we investigate whether environmental sustainability within organisations can simultaneously support the natural environment and enhance positive human outcomes, specifically, well-being and performance. Grounded in the theories of Person-Organisation fit and Self Determination, we address the overarching question: Can sustainability in organisations enhance the well-being and performance of employees?

This thesis consists of four interconnected studies, that each explored key parts of this question using diverse populations and research methods. Study One (N = 292 ) used a cross-sectional design to examine whether university students who perceive their institutions as more environmentally sustainable report higher levels of well-being, and whether this relationship is moderated by their environmental attitudes. Study Two (N = 199) focused on an employee population and assessed how perceived organisational sustainability relates to both employee well-being and job performance using a cross-sectional design. It also tested whether sustainability mediates the relationship between well-being and performance, offering novel insights into the mechanisms linking sustainability and human outcomes. Study Three (N = 628 [T1], 493 [T2]) used network analysis to examine the interconnectedness of sustainability with work-related and employee variables over time. Finally, Study Four (N =72) used a mixed methods intervention-based design with a waitlist control to investigate potential causality, testing whether increasing employees' perceptions of their workplaces' sustainability could influence their well-being and performance.

The findings indicate that environmental sustainability within organisations is positively related to both well-being and performance. Study One showed students who perceived their institution as more environmentally sustainable reported higher well-being, independent of their personal environmental attitudes. Study Two showed that sustainability and well-being independently predicted job performance, with sustainability adding explanatory value beyond well-being and partially mediating the well-being–performance relationship. Study Three demonstrated stable interconnections between sustainability, well-being, performance, and person–organisation fit over time. Finally, Study Four provided initial evidence for potential causal effects.

Combined, these findings have important implications for organisations and their leadership. By authentically embedding sustainability into core workplace strategy and culture, organisations can not only address pressing environmental challenges and reap the related benefits such as increased public image, but also cultivate healthier and higher-performing employees.

## Acknowledgements

First I would like to thank my supervisors, Associate Professor Anna Sutton and Professor Helena Cooper-Thomas. This would not have been possible without you. Anna, thank you for your unwavering support, thoughtful guidance, and the invaluable lessons and opportunities for growth you've given me throughout this journey. Helena, thank you very much for the encouragement and advice you've provided me with. Your feedback has made me a better writer and scholar.

I would also like to thank Praxis Educational Investments, especially Dr Saad Al Omari, Mr Kenneth Jones and the late Mr Saad Al Sharhan. Thank you deeply for giving me the opportunity to pursue a doctorate in an area we both care deeply about, through the University of Waikato Partnership Scholarship.

To my friends and family, thank you for your unwavering support and unconditional belief in me throughout this journey. Mum and Dad, I am so grateful for all you have done and continue to do for me. Charlotte, I know I would not have gotten to this stage without you by my side, I cannot wait to see what the next chapter in our lives holds for us. Danielle, Kaitlyn and Emille, thank you for your humour, encouragement, and reminders to keep perspective along the way. Sarah, Margot, Nicole, Dave, Bailey and Josh, your presence, distractions and support have been reassuring throughout this journey.

I am grateful to all members of the Sutton Lab, both past and present. It was great to have others to share this experience with, share in our successes and find work arounds to our challenges. I would be remiss in not mentioning all the other academics, students and participants I met along the way.

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Sheeran, Z., Sutton, A., & Cooper-Thomas, H. D. (2025). Environmental sustainability and the happy-productive worker: examining the impact on employee well-being and work performance in educational institutions. *International Journal of Educational Management*. 39 No. 2, pp. 469-487. https://doi.org/10.1108/IJEM-11-2024-0704 [5YIF: 2.40]

Sheeran, Z., Sutton, A., & Cooper-Thomas, H. D. (2026). Network structures of workplace sustainability and employee outcomes: A two-wave study. *International Journal of Organizational Analysis* https://doi.org/10.1108/IJOA-11-2025-6232 [5YIF: 3.50]

Sheeran, Z., Sutton, A., & Cooper-Thomas, H. D. (under review) A sustainable intervention: exploring the influence of workplace sustainability, employee well-being and job performance using a mixed methods approach. Submitted to: *Humanistic Management Journal*

## List of Conference Presentations from this Thesis

Sheeran, Z., Sutton, A. & Cooper-Thomas, H. D. (2025). Environmental sustainability in the workplace and employee outcomes: A four-study exploration into well-being and performance. *14th Aotearoa New Zealand OPOB Conference*. Conference held at Auckland University of Technology, Auckland, New Zealand.

## Chapter One: General Introduction

Humans have long depended on the natural environment for survival and progress, yet the scale of human activity in recent centuries has placed unprecedented pressure on our ecosystems. Industrialisation, urbanisation, and the rapid expansion of consumption have accelerated the degradation of our planet's natural environments, contributing to climate change, biodiversity loss, and widespread ecological imbalance. In recent decades, human awareness of these challenges has grown, prompting both global policy responses and increased interest from organisations. Businesses not only need to develop their sustainability practices to keep up with government policy changes and do good for society, but they also want to, in order to ensure they uphold their image and present themselves in a desirable way to consumers, shareholders, employees and the communities they exist in.

Over the past century, these developments have given rise to an urgent global conversation around sustainability; one that calls not only for environmental protection but also for new ways of syncing human activity and ecological limits (Pinchot, 1910; Griebler et al., 2025). As awareness of these issues has grown, researchers have begun to explore the wider implications, revealing that environmental crises can elicit anxiety and existential concern (Clayton, 2020), while sustainable organisational practices can promote well-being and a sense of meaningful contribution (Paillé et al., 2022; Zhang et al., 2021).

Within this evolving body of research, work organisations have emerged as key actors in shaping both environmental outcomes and employee experiences (Ones & Dilchert, 2012). Studies suggest that employees who perceive their organisations as environmentally responsible report higher levels of well-being, job satisfaction, and performance (Jabbar et al., 2022; Reyes-Riveros et al., 2021; Suganthi, 2019; White et al., 2013). Conversely, when organisations disregard environmental sustainability, employees may experience moral dissonance or diminished engagement, particularly when personal values emphasise ecological responsibility (Chowdhury et al., 2021). Therefore, sustainability should not be seen as merely a moral imperative but also a psychological and organisational one, influencing the workplace and the human outcomes of those belonging to it.

The research presented in this thesis builds upon existing literature and investigates how organisations' environmental sustainability influences employee well-being and performance, and whether sustainability may serve as a mechanism linking positive psychological states with work outcomes. Grounded in theories of the Happy-Productive Worker Hypothesis (HPWH), Person–Organisation fit (P-O Fit) and Self-Determination Theory (SDT), the research investigates

how and why environmentally responsible practices contribute to both individual and organisational success. To provide context to this thesis, the next section explores where the global environment currently stands and the challenges we collectively face. By reflecting on humankind's long connection to the natural world and the environmental pressures now unfolding, we can better understand why sustainability is so crucial within today's organisations.

**Current state of the environment: A brief overview**

The natural environment is crucial for supporting humankind. For millennia, it has supplied us with the soil, water, air, sunlight, fuel and wildlife we have needed to survive and evolve into what we are today. It is therefore logical for humankind to protect and conserve our natural resources to ensure our species can not only survive but thrive on Earth. Evidence of early human ecological awareness can be seen across several ancient civilisations. Anthropologists have found evidence that over 5000 years ago, those inhabiting the city of Mohenjo Daro (situated in modern-day Pakistan) had recognised the effects of pollution, stemming from poor sanitation, and adjusted their lifestyles to protect the land and water that supported their way of life (McIntosh, 2008). Similarly, evidence from both ancient Greece and Rome shows that these civilisations demonstrated ecological awareness by implementing agricultural practices, water management systems, and resource regulations aimed at preserving environmental quality and sustaining their societies, indicating they understood the impact of anthropogenic activity on the natural environment (Thomman, 2012). This historical pattern of early environmental concern continued into later periods, for example, in 1306, King Edward I of England issued a ban on coal burning in London whilst Parliament was in session to reduce the amount of smog, reflecting an early example of governmental intervention to mitigate air pollution and safeguard the health of lords (Holland, 1841). However, despite the historical awareness of human impact on the environment, natural resources continued to be treated as infinite, a mindset that intensified during the Industrial Revolution when rapid technological advancement, economic growth and organisational successes took precedence over environmental considerations.

As science evolved, along with humankind's understanding of our role within the environment, and the communication of knowledge, so too did human ecological awareness. This paved the way for modern environmental movements. In 1962, prominent environmentalist Rachel

Carson argued that the time to act was now; we were at a crossroads, and humankind had to decide if we would continue on the path leading to environmental disaster or make drastic changes in the way we interact with our environment and preserve life on earth (Carson, 1962). Her work, along with other environmentalists of the era and the birth of groups such as Greenpeace, ignited global awareness and inspired legislation aimed at environmental protection. Yet, more than 60 years later, many environmentalists warn that we are rapidly running out of time to choose which path we will follow (Cassegård, 2023). As concerns escalate, it is important to establish the current state of the environment and define the consequences of past inaction to understand the complex ecological crisis we find ourselves in today.

Recent reporting paints a bleak picture of the current state of our planet. Natural resources are being used in larger quantities than ever before, at rates quicker than they can be replenished (Ali et al., 2021). Around one-third of the world's food is wasted each year, despite over 820 million people remaining undernourished globally, showing the waste and misuse of our critical resources (United Nations, 2022). At the same time, over 90% of individuals living in urban areas have no choice but to breathe polluted air daily, leading to negative health outcomes and ultimately a decreased quality of life (United Nations, 2022). Additionally, global $CO_2$ emissions have increased by approximately 50% in the last three decades, contributing to the alarming statistic that 2024 was the hottest year ever recorded, with global temperatures exceeding the critical 1.5 °C warming threshold for the first time in recorded history. This milestone, long viewed as a planetary red line, signals that climate breakdown is no longer a distant threat; it is the current reality (Bevacqua et al., 2025). Perhaps the most alarming statistic is that we are currently overusing our natural resources by 180%, and it is estimated that if current trends continue, by 2050 humanity will require the resources of three Earths to sustain its consumption (United Nations, 2022).

Rising global temperatures are accelerating sea-level rise, with expert projections warning that hundreds of millions of people could be displaced from coastal regions within the coming decades (McLeman, 2018). Extreme weather events, once considered rarities, are becoming commonplace: heatwaves, wildfires, and flooding devastate entire ecosystems and the communities that call them home (Ummenhofer & Meehl, 2017). These events place strain on the world's food systems, increase water scarcity, create conflict over resources, and destabilise economies. The current environmental crisis also comes with a significant economic toll. Climate-related disasters now inflict more than $2.3 trillion in losses annually,

disrupting economies and displacing communities (United Nations Office for Disaster Risk Reduction, 2025).

Along with economic toll, the current state of the environment is also taking a toll on humans' ability to thrive. On top of the physical and material impacts of climate change, such as displacement, food and water insecurity, and climate-related illness, humans face non-physical impacts linked with climate change, such as behavioural disruptions, trauma, anxiety and depression (Lawrance et al., 2022). These negative impacts are not just felt by those directly affected by natural disasters. Those experiencing climate anxiety can be affected when merely reminded of the threat of climate change, by discussing environmental issues or the lack of action taken by humans (Dodds, 2021).

The current state of the environment directly highlights the importance of the United Nation's Sustainable Development Goals, created as a guide to help end poverty, protect the planet, as well as ensure peace, equality and prosperity (United Nations, 2022). Collectively the SGDs emphasise the interconnected nature of environmental sustainability and human well-being, while also providing guidelines and mechanisms for accountability at international, national, regional, and organizational levels.

**The climate crisis as an organisational problem**

In response to the rapidly growing uncertainty surrounding the current environmental crisis and ecological concern, pressure for sustainable development is being placed on organisations around the world. Research consistently shows that many individuals view environmental sustainability as a problem rooted in the actions of organisations and, more broadly, industries rather than the behaviours of individuals. A recent survey found 63% of adults believed the responsibility for climate action lies with organisations rather than individuals, with 59% also saying the responsibility should lie with the government (Energy Policy Institute at the University of Chicago, 2024). It is clear that people expect companies to take responsibility through implementing sustainable practices as well as honest and transparent reporting (Priceless Planet Coalition, 2021). This is not to say that society as a whole does not believe that individual actions matter; however, the scale of the climate crisis demands drastic changes to be carried out by organisations, due to their considerably larger environmental impacts (Unsworth et al., 2016).

Further drivers of organisational sustainability include consumers, who prefer to purchase goods and services from sustainable sources (Sharma, 2021). A global consumer survey (n= 25519, from 28 countries) found 42% of consumers make purchasing decisions due to their perceptions of the organisation's eco-friendliness, 37% of consumers expect companies they buy from to focus on reducing their water, food and energy wastage, and 25% said they will be cutting ties with organisations that do not commit to increasing their sustainability in the future (Priceless Planet Coalition, 2021).

Pressures also come from within the workforce; talented individuals are drawn to work for employers who play their part in protecting the natural environment. A report looking into the future of sustainable workplaces found 83% of workers were dissatisfied and believed their employer is not doing enough to be sustainable or to tackle climate change; furthermore, 65% of workers would prefer to work for a more sustainable organisation (Acaroglu, 2021). Finally, governments are also placing pressure on organisations to be more sustainable by continuously introducing legislation to deter unsustainable practices and incentives to reward ecologically responsible practices (Wirba, 2023).

**Sustainability in organisations**

Adopting environmentally sustainable policies, practices, and procedures can provide organisations with a wide range of advantages that extend beyond environmental impact, providing incentives for organisations across all industry sectors to go green. These benefits include financial and operational efficiency, enhanced reputation, regulatory compliance, positive social and ethical impacts as well as, importantly, improved employee outcomes (Bello, 2020; Fan et al., 2025; Porter & Kramer, 2019).

Sustainable practices have the potential to give an organisation significant financial and operational advantages. Reducing energy use, water consumption, and waste lowers operational costs (Bello, 2020). For example, energy-efficient lighting and automated lights that turn off when not in use save money over time. Additionally, overcoming sustainability challenges is known to drive innovation, resulting in new products, services, or ways of doing things that help the organisation to stand out to employees, consumers and all other stakeholders (Hermundsdottir & Aspelund, 2021; Nidumolu et al., 2009; Porter & Kramer, 2019). Similarly, environmental responsibility can also strengthen an organisation’s reputation and overall brand. Consumers, clients, and investors increasingly prefer organisations with

strong sustainability commitments, and by demonstrating environmental responsibility, organisations are able to build trust and loyalty among customers, employees and potential investors (Zhu & Wagner, 2024). Furthermore, carrying out sustainable business practices demonstrates corporate social responsibility as well as the company's moral and ethical standing, which helps to foster trust and loyalty within communities. In turn, these social and ethical benefits further reinforce the organisation's reputation (Fan et al., 2025).

Additionally, when organisations proactively adopt sustainable practices, it helps them to stay ahead of environmental regulations and legislation put in place by governments and therefore aids them in avoiding potential penalties, ultimately providing them with a competitive advantage (Johl & Toha, 2021). For example, in New Zealand, the Waste Minimisation (Plastics and Related Products) Regulations 2022 have already prohibited several hard-to-recycle plastics and are set to expand restrictions in the coming years. A company that produces packaging materials may decide to phase out single-use plastics in favour of more sustainable alternatives before bans are enforced, positioning itself ahead of legislation. By being proactive, the company can provide itself with a competitive advantage as it can continue operating without disruption.

As previously noted, sustainable organisational practices can also play an important role in shaping the workforce, helping organisations attract and retain employees who also value responsible and ethical business practices (Acaroglu, 2021). These sustainability-oriented practices also contribute to a range of key human outcomes, including well-being and performance, as will be discussed in detail later.

Despite the many benefits, it is important to note that implementing sustainable practices can present challenges for organisations. Initial costs for green technologies, large-scale process changes, or certifications can be high, which may deter small to medium-sized organisations or those with limited budgets (López Pérez et al., 2024). Furthermore, implementing sustainability initiatives may also involve significant changes to operations, supply chains, or policies that influence employee behaviours; these can be both complex and time-consuming to implement and may be further inhibited by resistance to change (Tseng et al., 2019).

Given the importance of the visibility of sustainable practices and as sustainability is multifaceted, subjective, and often costly to measure through objective audits or environmental performance data (Hall et al., 2022), our research used employees' perceptions of sustainability as a practical and theoretically meaningful proxy. Employees' perceptions

capture how sustainability practices are communicated, experienced, and understood within the organisation. Using perceived sustainability, therefore, provided an accessible yet valid indicator of how sustainability is enacted and recognised in everyday work life, without the financial or logistical challenges of collecting comprehensive environmental metrics.

In summary, organisations want to be seen as sustainable by all. The perceptions held by employees, consumers and other stakeholders are key to increasing the image of their brand, in order to increase organisational performance (Hermundsdottir & Aspelund, 2021; Nidumolu et al., 2009; Porter & Kramer, 2019). Organisations also want to have happy and high performing employees as this reduces the negative effects of low well-being and ensures employees are working towards organisational targets (Martela & Sheldon, 2019; Spreitzer & Porath, 2012; Warr & Nielsen, 2018).

Alongside the environmental crisis, evidence suggests that societies worldwide are experiencing a concurrent mental health crisis. Approximately one in seven people now live with a mental health condition, and chronic stress has become commonplace, with nearly 70% of adults reporting regular symptoms (World Health Organisation, 2025). In New Zealand, 28% of individuals report low well-being, a 3% increase since 2018, highlighting the widespread nature of this decline (Stats NZ, 2021). The global economic burden of poor mental health, estimated at over NZ$1.7 trillion per year through lost productivity, further underscores the Importance of addressing well-being at both individual and organisational levels (World Health Organisation, 2022).

**Key organisational outcomes**

*Well-being*

Well-being has been crucial for human success since ancient times (Zheng et al., 2015), and its value is being stressed now more than ever through research, government policy and, importantly, within many organisations (Martela & Sheldon, 2019). Well-being is often defined as consisting of two elements: eudaimonic and hedonic, often referred to as flourishing and happiness, respectively (Waterman, 1993). Eudaimonic well-being arises from experiences that give us meaning and purpose, whereas hedonic well-being can be conceptualised as living a life full of pleasure (Samman, 2007; Waterman, 1993). These two perspectives of well-being evolved into distinct models of subjective well-being (Diener & Ryan, 2009). From a hedonistic perspective, models focus on an individual's assessment of their life quality; and from a

eudaimonic perspective, they focus on psychological well-being (Ryff & Singer, 2008), that is, an individual's fulfilment of their potential. Whilst there are differences between subjective life quality evaluation and psychological well-being, they are strongly interconnected and have been utilised together by many researchers to attain a well-rounded measure of an individual's level of well-being (Yeo & Suárez, 2022; Zheng et al., 2015).

While job satisfaction is often used as a proxy measure of well-being, especially when research is conducted in a workplace setting (Wright & Cropanzano, 2000), the literature stresses the importance of considering a broader range of variables including individuals' work, health, family relations and life satisfaction in order to provide a well-rounded and accurate measure of employee well-being (Siegrist et al., 2007; Wolff et al., 2021). Within the works of this thesis, therefore, well-being is defined broadly as both feeling good and functioning well.

The well-being of employees is critical to both the development and survival of organisations (Spreitzer & Porath, 2012), with employees being widely considered an organisation's most valuable resource (Na-Nan et al., 2016), and is key to many positive individual and organisational outcomes. Ensuring high levels of employee well-being results in many benefits to employees and employers alike. For employees, this includes a reduction in behavioural risks, depression, anxiety, stress and burnout; for employers, high levels of employee well-being are associated with lower levels of turnover intention and increased performance (Danna & Griffin, 1999; De Simone, 2014; Droulers et al., 2020; Goetzel & Ozminkowski, 2006; Juniper, 2011; Pescud et al., 2015; Sutton, 2020).

Furthermore, low employee well-being could also be contagious in workplace settings; if an individual experiences low well-being at work, coworkers are more likely to also experience low well-being, along with the long list of associated consequences (Kensbock et al., 2022). This further demonstrates the importance of organisations focusing on creating healthy environments, focused on promoting well-being.

*Environmental sustainability and employee well-being*

A number of scholars have investigated the effect of environmental sustainability on humans at the individual level. Notable research in the area has shown that living in green areas is seen to increase life satisfaction, physical and psychological well-being, as well as decrease mental distress (Jabbar et al., 2022; Reyes-Riveros et al., 2021; White et al., 2013). Furthermore, spending even a small amount of time in nature, about 2 hours each week, is associated with

increased life satisfaction, physical and psychological well-being, as well as decreased mental distress (White et al., 2019). Carrying out pro-environmental behaviours, e.g. composting food waste or purchasing sustainable alternative products, has been found to positively associate with present subjective well-being, which in turn is strongly tied to individuals' future well-being (Kaida & Kaida, 2016). In other words, carrying out pro-environmental behaviours may enhance well-being both in the moment and have a lasting positive influence into the future. This can be explained by the idea that engaging in sustainable actions is often experienced as a meaningful and moral choice, which elicits positive emotions and reinforces intrinsic motivation (Venhoeven et al., 2020). In addition, by carrying out these morally good, environmentally friendly behaviours, individuals feel they are contributing to their communities and families both in the present and in the years to come and are playing their part to ensure success for future generations (Venhoeven et al., 2016). Additionally, research has shown that the subjective well-being of a youth population was increased following the implementation of environmental hope-enhancing programs; these are initiatives that aim to get individuals thinking about potential solutions to environmental problems to demonstrate that there are ways to overcome them (Kerret et al., 2020). This provides evidence that not only taking environmental action, but thinking about ways environmental problems may be solved, can make a positive impact on well-being.

Research at the organisational level is comparatively scarce, but it is continuing to evolve as the importance of sustainability and well-being becomes increasingly recognised by organisations, employees, and practitioners alike. Existing research at the organisational level has consistently mirrored findings at the individual level: sustainability has positive associations with employee well-being. For example, sustainable ambient working conditions, the presence of eco-friendly items in the workspace and access to green spaces have positive correlations with employees' well-being, mental health and loyalty (Han et al., 2021; Han & Hyun, 2019). Han et al. (2021) also observed similar benefits among customers, suggesting that adopting green practices can enhance well-being across multiple stakeholders and generate added value for organisations. Similarly, research conducted by Su and Swanson (2019) found the personal sustainable behaviours carried out by employees also positively correlated with their well-being; further reinforcing the link between sustainability and positive employee outcomes.

The relationship between employee well-being and job performance has been studied countless times over the past century, with one dominant hypothesis, the happy-productive

worker hypothesis (HPWH), holding that workers who report high levels of well-being have higher performance than their less happy counterparts (Staw, 1986). Over time, this notion has amassed a large body of empirical evidence supporting the positive link between well-being and performance (Fang et al., 2025; Luthans, 2002). In essence, the HPWH proposes that when employees feel good, they are more motivated, more capable of concentrating, and more willing to invest effort in their work, which directly enhances job performance. Causal evidence of the HPWH has also been established. Experimental research has shown that induced increases in well-being lead to measurable improvements in performance, demonstrating that well-being can be an antecedent of performance rather than merely a consequence (Oswald et al., 2015). Similarly, the study found that, following naturally occurring bad life events, both participants' well-being and performance decreased.

One key theoretical mechanism providing support for the HPWH is equity theory, which proposes that individuals both invest in and benefit from all relationships (Adams, 1963). In work relationships, employees invest their time, effort, skills and knowledge, and in return, they benefit by receiving rewards, for example, a salary and job security. Equity can only occur when employees feel the rewards they receive are proportionate to the investments they are making. The happier the employees feel in their work relationship, in other words, the more satisfied they are with the rewards and benefits they are receiving, the more they feel they should invest in their organisation by increasing the effort they put into their work until they feel they have reached the point of equity (Taris & Schreurs, 2009). Similarly, Broaden and Build theory (Fredrickson, 2001) presents the idea that employees' positive emotions and sense of meaning that is created by belonging to a sustainable organisation may broaden employees' prosocial orientation and help them to build personal resources that support positive outcomes like cooperation, while also reducing behaviours that could harm their team's functioning.

*Work Performance*

A major concern for organisations is getting maximum performance from their employees. As such, research into employee performance, and how it can be improved, has been a key area of focus (Warr & Nielsen, 2018). Work performance can be defined and measured in a variety of ways. A commonly used and widely accepted definition comes from Campbell et al. (1970), who define work performance as behaviours or actions that are relevant to the goals of the organisation (Campbell, 2012). Whilst there is little disagreement that this is an accurate

definition of performance, the argument can be made that this is not broad enough to encompass the entirety of the wider concept of performance, and rather it only covers task performance, defined as the proficiency with which individuals carry out core job responsibilities. Whilst it is central to most definitions of performance, focusing solely on task-related behaviours prevents gaining an understanding of employees' wider contributions to organisational effectiveness (Koopmans et al., 2011).

Therefore, a more comprehensive way of understanding work performance also includes defining and measuring the facets of contextual performance and counterproductive work behaviours. Contextual performance refers to voluntary behaviours that benefit the workplace's social and/or psychological environment, for example, going above and beyond to help a colleague learn a new skill, whereas counterproductive work behaviours are actions that intentionally harm the organisation, for example, deliberately arriving late and taking breaks to avoid certain tasks (Koopmans et al., 2011). By combining these three facets of performance, we move beyond task-only definitions to capture the full scope of work performance, an essential approach when examining its influencing factors.

*Environmental sustainability and employee performance*

Although organisations typically enhance sustainability practices to protect the natural environment, to reflect government policy change or to increase their image, the positive human and employee-related outcomes are frequently overlooked. Sustainability initiatives are more likely to be adopted when they produce multiple employee benefits, as these outcomes translate into organisational benefits. As the literature on sustainable organisations develops, increasing research evidence supports a positive link between organisational sustainability and organisational performance. Sustainable organisations, that is those that adopt environmentally friendly practices, have been shown to have increased levels of market, operational and cost performance (Suganthi, 2019). Research on small- to medium-sized businesses found that the more environmentally friendly practices that were adopted, the better the organisations performed overall (Chege & Wang, 2020). Extending this, positive links have repeatedly been found between green supply chain management, green human resource management practices, and increased organisational performance (AlKetbi & Rice, 2024; Feng et al., 2024).

At the individual level, employees' personal pro-environmental behaviours are also related to performance. Employees who regularly and frequently act in environmentally conscious ways were found to have higher levels of individual performance (Zhang et al., 2021). However, the cross-level link between organisational sustainability and performance at the individual level remains understudied with only a handful of studies conducted, and these consistently indicating benefits. For example, Jimoh et al. (2025) found positive relationships between green organisations and employee performance regardless of tenure or level of organsiational socialisation. Furthermore, organisations implementing green human resources policies and practices, have been found to have higher performing employees who show higher levels of commitment and loyalty to the organisation (Handayani et al., 2024).

**Mechanisms of sustainability's influence**

As established, at a broader level, organisations are aspiring to increase their environmental sustainability. Equally, at the individual level, they are aiming to boost their employees' well-being and performance. Achieving all three of these simultaneously would create the best possible outcome for the organisation, the employee and the planet. It therefore becomes important to consider how these effects may occur. To address this, we draw on two main theoretical perspectives: Person–Organisation Fit theory and Self-Determination Theory.

P-O Fit theory emphasises the importance of alignment between individual and organisational values (Kirstof, 1996). When employees see that the values they hold as important are reflected in the values of their organisation, they are likely to experience increased job satisfaction, well-being, motivation, and performance (Cable & Judge, 1996). Organisational values form the foundation of workplace culture by shaping shared norms, expectations, and everyday practices (Schneider et al., 2013). From this perspective, sustainability can be seen not only as a set of policies and practices, but also as a crucial pillar of workplace culture. Therefore, employees who hold strong environmental values may find that sustainable organisational policies reinforce their sense of fit and increase individual positive outcomes such as well-being and performance.

P-O Fit is amplified in organisations via attrition-selection-attrition (ASA) mechanisms (Schneider et al., 1995). ASA suggests that, firstly, individuals are attracted to organisations whose characteristics match their personal characteristics. Secondly, they are then more likely to be selected if they possess the values and attributes desired by the organisation. Finally,

after becoming citizens of that organisation, if they do not fit the work environment, they tend to leave (i.e., show attrition; Cable & Judge, 1997; Schneider et al., 1995). In other words, individuals are attracted to, selected by, and remain in organisations that share their values, while those who do not fit are more likely to leave in search of an organisation they may see as more strongly aligned with their values. This model suggests that individuals with strong environmental values will be more likely to join and remain working for organisations that demonstrate values that promote sustainability (Martinez et al., 2022).

The second theoretical perspective that can help to explain the interactions between organisational sustainability and employee outcomes is SDT (Deci & Ryan, 1985). SDT explains how motivation is shaped by the fulfilment of three basic psychological needs: autonomy, competence and relatedness. When these three needs are satisfied, individuals are more likely to be motivated and engaged in their work (Gangé & Deci, 2005). Organisational sustainability initiatives may support these needs in various ways: increasing autonomy by giving employees freedom in how they act on environmental values; boosting competence by allowing employees to feel they are making a difference through meaningful contributions to sustainability; and fostering relatedness through shared goals and community-centred activities and initiatives (Darner, 2009). Using this perspective, SDT provides a framework for understanding how the sustainability practices of organisations can motivate employees and enhance their well-being and performance.

Together, these frameworks highlight unique, yet complementary, theoretical pathways through which sustainability may benefit both individuals and organisations. P-O Fit draws attention to the alignment of values between the individual and organisation, while SDT emphasises the role of organisations in providing environmentally sustainable ways to fulfil their employees' psychological needs. Integrating these perspectives may allow for a more comprehensive understanding of why sustainability matters in the workplace and how it can shape key positive employee outcomes.

This thesis explores the relationships between the sustainability of organisations, employee well-being and performance using these theoretical perspectives, across four empirical papers. While previous research has often documented correlations between sustainability and positive outcomes, this thesis aims to go further by examining the psychological mechanisms that underpin these relationships as well as exploring the causality and temporal structures of these relationships. In doing so, this work contributes to both theory and practice by providing a stronger conceptual foundation for the study of workplace sustainability and offering insights

into how organisations can design and maintain environments that support employee well-being and performance while ultimately protecting the natural environment.

**Research Aims**

Based on two major challenges our planet collectively faces, namely the current climate crisis and low levels of well-being and mental health, this thesis explores how organisations may play a role in solving these challenges. Specifically, we look at how organisational environmental sustainability influences employee well-being and job performance. Whilst some existing research links sustainability to positive outcomes, the mechanisms driving these effects are not yet fully understood. This thesis examines the roles of person–organisation fit, self-determination and individual values in shaping these relationships, aiming to provide both theoretical clarity and practical guidance for organisations seeking to create supportive and sustainable work environments. In summary, this research addresses three primary questions through four studies:

1. What is the relationship between perceived environmental sustainability in organisations and the well-being and performance of their members?

This is explored in detail through two more specific questions and contexts:

   a) *To what extent does perceived sustainability in higher education institutions influence student well-being, and what role do students' environmental attitudes play?*

   b) *What is the relationship between perceived organisational environmental sustainability, employee well-being, and performance?*

2. What mechanisms explain the strength, structure and stability of these relationships?

   *How do organisational sustainability, well-being, performance, and related variables (P-O fit, self-determination, environmental worldview, and pro-environmental behaviours) interact within a network, and how stable are these relationships over time?*

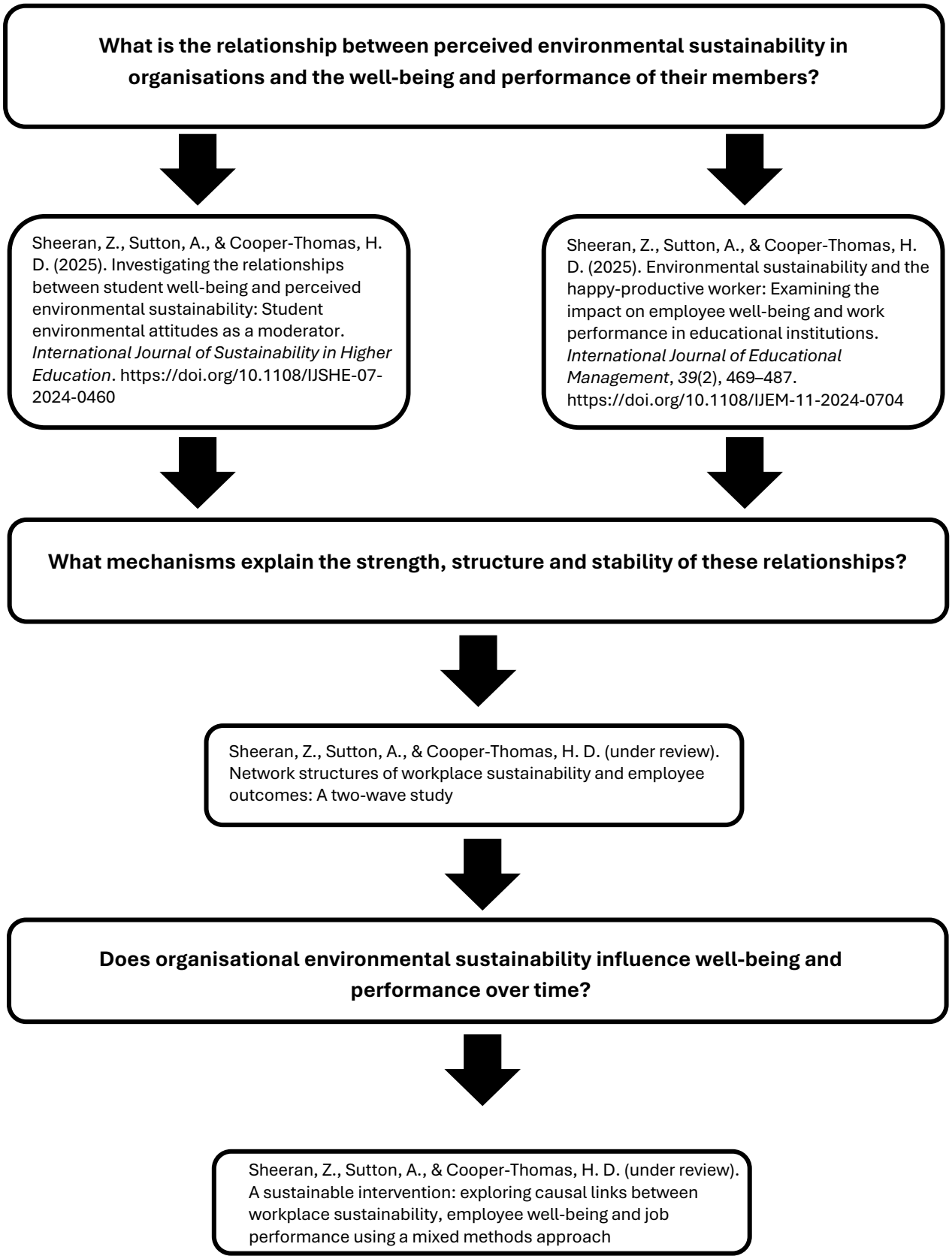
3. Does organisational environmental sustainability influence well-being and performance over time?

    *What are the potential causal effects of organisational environmental sustainability on employee well-being and performance, and what insights emerge from employee experiences of sustainability interventions?*

Figure 1 illustrates the flow of studies conducted within this thesis to address the primary research questions. Studies One and Two establish the relationship between perceived environmental sustainability in organisations and the well-being and performance of their members. Study Three investigates if P-O fit and SDT are key mechanisms that may explain the strength, structure and stability of these relationships. Finally, Study Four explores if increasing perceptions of sustainability can increase employee well-being and performance.

**Figure 1**

Diagram of studies conducted within this thesis to address the primary research questions



In order to answer the three research questions, four studies were conducted with varied populations and research methodologies. Study One (*Linking sustainability to well-being in tertiary students*) investigated the existence of a link between individuals' perceptions of how sustainable an organisation they belong to is, in this case their university, and their well-being. We used a cross-sectional design with a student sample (n = 292) from a New Zealand university. Regression and moderation analyses were conducted, and this study established that higher perceptions of sustainability were associated with higher self-reports of well-being, indicating these two key variables were positively interconnected.

Study Two (*Sustainability and the happy-productive worker*) expanded upon the findings of Study One and investigated the relationship between an individual's perception of how sustainable their organisation is and both their workplace well-being and job performance. We surveyed employees (n = 199) from educational institutions in the UAE and the USA. Regression and mediation analyses examined the role of sustainability in predicting job performance, beyond the effects of well-being. This study not only supported the link between perceived sustainability and well-being in the workplace setting but also expanded upon this to establish a link between perceived organisational sustainability and individual work performance.

Study Three (*Sustainable networks: Understanding the pathways*) extended on the prior studies by exploring the interrelationships of workplace sustainability, employee outcomes and key variables identified as having potential to influence the established relationships; individuals' pro-environmental behaviours, self-determination and perception of fit within their organisation. We employed a two-wave design with an Australian working population (T1 n = 628; T2 n = 493). We used network analysis to map relationships between variables. The findings highlight the importance of P-O fit and its central role in the network of sustainability at work and employee outcomes.

Study Four (*Increased sustainability, increased well-being? A mixed method intervention*) investigated whether the relationships found in the first three studies, as well as prior research, may also be causal; in other words, does increasing sustainability in a workplace result in increased well-being and performance? We used an intervention-based design with a waitlist control group across two medium-sized organisations in New Zealand. Over 18 weeks, a sustainability interventions were delivered at each site. Pre- and post-survey data (n = 72) captured changes in sustainability perceptions, well-being, environmental worldview, and performance through both existing scales and novel open-ended questions. Follow-up qualitative interviews (n = 4) explored participants' subjective experiences. Quantitative trends

were examined using mean comparison tests, and thematic analysis was applied to qualitative data. Overall, the findings suggested that employees themselves felt a connection between their organisation's sustainability efforts and their own well-being and performance. Despite several limitations associated with recruitment and retention, this novel study shows the potential causal links between sustainability and key positive employee outcomes.

This body of research is presented in the format of a thesis with publications. Chapters 2 and 3 consist of published research articles; Chapters 4 and 5 consist of articles that have been submitted and are currently under review. Each chapter (article) addresses a distinct question under the overarching research aim. Chapters 2 and 3 address the relationship between perceived environmental sustainability in organisations and the well-being and performance of their members, in student and working populations respectively; Chapter 4 investigates the mechanisms that explain the strength, structure and stability of these relationships; Chapter 5 explores whether an organisation's environmental sustainability influences well-being and performance over time. The final chapter (Chapter 6) provides an integrated general discussion, synthesizing the key findings across the published works, outlines the key theoretical and practical implications, touches on the limitations faced and identifies directions for future research.

## Chapter Two: Linking Sustainability to Well-being in Tertiary Students

### Citation

Sheeran, Z., Sutton, A., & Cooper-Thomas, H. D. (2025). Investigating the relationships between student well-being and perceived environmental sustainability: Student environmental attitudes as a moderator. *International Journal of Sustainability in Higher Education*. https://doi.org/10.1108/IJSHE-07-2024-0460

### Preface

In this thesis, the following study functions as an initial, exploratory step designed to establish foundational evidence before moving to more complex organisational contexts. This study examines whether sustainability, measured through students' perceptions of their institution's environmental practices, relates to the meaningful human outcome of well-being. Student samples are frequently used in preliminary research because they are accessible, convenient to recruit, and offer a practical starting point for testing new ideas and measures.

Using perceived sustainability as a measure of sustainability is both theoretically appropriate and methodologically efficient, particularly as objective sustainability assessments are costly, time-intensive, and difficult to standardise. Demonstrating that perceptions of sustainability behave in ways consistent with literature, in otherwords positively, is an important prerequisite for the later workplace-based studies in this thesis. Therefore, this chapter provides the groundwork by showing that relationship between sustainability and well-being does exist.

# Investigating the relationships between student well-being and perceived environmental sustainability: Student environmental attitudes as a moderator

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**Abstract**

**Purpose** - Higher education institutes (HEIs) face two key challenges: low levels of environmental sustainability and students with low levels of well-being. This paper suggests that, because of the interconnectedness of sustainable development goals, there may be a single solution to meet both these challenges, namely, increased sustainability. The purpose of this paper is to test whether higher perceived sustainability is associated with higher well-being, moderated by student attitudes towards the environment.

**Design/methodology/approach** - This study followed a quantitative design. Students enrolled at a New Zealand university completed an online questionnaire (n = 292) measuring student perceptions of their HEI's environmental sustainability, their attitudes towards the environment and their well-being. Regression and moderation analyses were conducted to test hypothesised relationships.

**Findings** - Students' sustainability perceptions positively predicted student well-being. However, student attitudes towards the environment did not moderate this relationship.

**Originality/value -** This study contributes to an emerging field by investigating the relationship between sustainability and well-being. The findings suggest HEIs may be able to improve their performance in multiple ranking criteria (student well-being and environmental sustainability) by focusing on sustainable practices and supporting students in their personal sustainability efforts.

**Keywords** - Sustainability, Well-being, Environmental attitudes, Impact rankings, SDGs

## 1. Introduction

Higher education institutes (HEIs), like all modern organisations, are under increasing pressure to improve their environmental sustainability. Being perceived as "green" enhances an HEI's appearance and reputation to both their internal stakeholders, particularly staff and students, as well as external stakeholders, including potential future students, government and funding bodies and the wider public (Dabija et al., 2017). At the same time, HEIs are dedicating more resources to student well-being, especially given the growing concerns over declining well-being levels in the student population worldwide (Duffy et al., 2020; Lipson et al., 2022). The United Nations' Sustainable Development Goals (SDGs) recognise the interconnectedness of environmental sustainability and human well-being, urging countries and organisations to work towards a future that protects the planet and improves peoples' lives (United Nations, 2022). There is emerging evidence supporting a relationship between sustainability and well-being (Jabbar et al., 2022; Reyes-Riveros et al., 2021), but this connection remains underexplored within the higher education context.

Recent research has begun to examine the relationship between sustainability and well-being, but key gaps remain in understanding how sustainability efforts within HEIs impact students. While some studies indicate that environmentally sustainable practices can have positive psychological and physical benefits, much of this work has been conducted outside of the higher education sector. Additionally, while students are often highly concerned about environmental issues (Bøhlerengen and Wiium, 2022; Piscitelli and D'Uggento, 2022), little is known about whether their environmental attitudes moderate the relationship between perceived sustainability and well-being. Addressing these gaps is critical for HEIs aiming to enhance both sustainability and student well-being in a meaningful way.

This paper examines the extent to which HEI sustainability can influence student well-being. To do so, data were gathered from a sample of students enrolled in an HEI ranked in the top 100 sustainable universities worldwide and tested the proposed relationships using moderated regression analyses. The findings support the relationship between sustainability and well-being, though the moderating effects of student environmental attitudes are less clear. This study contributes to the literature by exploring these links within a higher education setting. The remainder of this paper is structured as follows: A review of literature introducing the UN's Sustainable Development Goals and their influence on HEIs, student well-being, sustainability and its key components and student's environmental values; Research methodology including participants and procedure, measures used and details on data analysis; Results which reports

the findings of correlational, regression and moderation statistical tests; Discussion including a general overview of the findings, theoretical and practical implications, limitations and authors suggestions for future research in the area; and finally, a conclusion, briefly summarising the research.

## 2. Literature review: Sustainability in higher education institutes

As part of HEIs' efforts to develop a reputation for environmental sustainability, they are increasingly measuring progress against the United Nations (UN) SDGs. The SDGs (see Table S1 in supplementary information for a full list) were introduced by the UN in 2015 with the ultimate aim of ending poverty, protecting the planet and improving the lives of all humans (United Nations, 2022).

A key strength of the SDGs is their interconnectedness. Dörgő et al. (2018) analysed the cause-and-effect relationships between the 17 SDGs and 169 underlying targets. They identified over 4,000 causal relationships, demonstrating the impressive extent to which the SDGs are interconnected. For example, if an HEI invested in recycling initiatives, then this directly contributes towards SDG 12 (responsible consumption and production), as well as reducing the amount of waste it creates and thus indirectly contributing towards SDGs 13 (climate action),14 (conserve the oceans) and 15 (protect terrestrial ecosystems). The argument can also be made that, by increasing demand for recycling facilities and workers, the HEI indirectly contributes towards SDGs 8 (sustainable economic growth), 9 (sustainable innovation) and 11 (sustainable communities).

In HEI settings, the SDGs are used not only as targets to guide sustainable development but also to assess the sustainability of institutions. The Times Higher Education (THE), for example, has ranked HEIs based on teaching, research and international outlook since 2004. In 2019, to reflect the global increase in awareness of the importance of sustainability, THE began to also rank universities against each of the 17 SDGs via the Times Higher Education Impact Rankings. Despite these impact rankings being around for less than five years, a controversy has already emerged (Bautista-Puig et al., 2022), with a main criticism being the lack of clarity on how much each SDG influences the overall rankings. As an example of this, De la Poza et al. (2021) found the highest-ranked HEIs focused more on SDGs 9 (sustainable innovation) and 16 (peace, justice and strong institutions). While all SDGs are unequivocally important for sustainable development, the layperson may see these rankings as a measure of environmental

sustainability or how “green” an institution is, especially considering the importance of rankings to prospective students, and the influence that perceived environmental sustainability has over the choices of the modern consumer (Koenings et al., 2020). Despite the criticisms, the argument is often made that any incentive to increase the sustainability of HEIs is positive. Furthermore, rankings of sustainability aim to promote accountability and transparency within the HEI sector (Burmann et al., 2021). Overall, this stresses the importance of rankings to both institutions and students and the authors now consider the role of specific SDGs in the higher education context.

### *2.1 Student well-being*

SDG 3 is to “Ensure healthy lives and promote well-being for all at all ages” (United Nations, 2022). Well-being is commonly divided into two constructs: eudaimonic and hedonic, often referred to as flourishing and happiness (Waterman, 1993). Eudaimonic well-being reflects psychological happiness and arises from experiences that give us meaning and purpose. On the other hand, hedonic well-being is conceptualised as subjective happiness or simply, living a life full of pleasure (Waterman, 1993). These two distinct constructs have evolved into the research models of subjective well-being (Diener and Ryan, 2009) and psychological well-being (Ryff and Singer, 2008). Subjective well-being follows a hedonistic perspective, focusing on an individual’s assessment of life quality, while psychological well-being takes a eudaemonic approach, emphasising personal growth and the fulfilment of one’s potential. While there are differences between the two research models, they are often used in tandem to provide a comprehensive measure of an individual’s well-being (Yeo and Suárez, 2022).

While SDG 3 focused on well-being is aimed “for all at all ages”, recent well-being reports show students as disproportionately experiencing low well-being and mental health issues compared to the population overall. Globally, around 35% of tertiary students have reported at least one mental disorder and self-reported levels of well-being are consistently lower in students than in the general population (Auerbach et al., 2018). It is important to note there is no evidence that HEIs directly decrease well-being and increase mental illness symptoms for students. However, it is often suggested that daily stressors associated with attending a HEI play a key role (Duffy et al., 2020). Of further concern to HEIs is that low levels of student well-being, and associated concepts such as anxiety, are correlated with low academic performance

(Steinmayr et al., 2016), another important ranking factor that affects the image of the HEI with a range of external stakeholders, including future students and employers.

As such, in recent years, the concern for student mental health and general well-being has become an emerging priority within the global higher education sector (Dodd et al., 2021). HEIs have been encouraged by governments, stakeholders and the students themselves to prioritise the well-being of all students, leading to the creation of university mental health guidelines in the UK. Indeed, these have been adopted internationally and are aimed at recognising and rewarding good practices within the sector (Hughes and Spanner, 2019).

### *2.2 Environmental sustainability*

Other key SDGs relevant to HEIs pertain to environmental sustainability, in particular SDGs 11–15 (see supplementary information Table S1). Environmental sustainability is about managing and sustaining life support systems through protecting and maintaining the planet's natural capital (Goodland, 1995). The broad aim of these SDGs is to guarantee resources are not overused and, instead, will be forever available to sustain future generations (United Nations, 2022). Essentially, sustainability is ensuring there is enough for all, forever. To be environmentally sustainable as individuals, organisations and institutions, humankind must all live within the regenerative capacity of our planet, something which has not been achieved since the 1980s (Rees, 2023).

As these descriptions show, environmental sustainability is a broad construct. Coupled with its dynamic nature and the resulting lack of measurement framework standardisation, it is often identified as difficult to measure (Hall et al., 2022). A further notable critique of sustainability measurement includes the one-size-fits-all approach taken by external ranking systems which often fails to align with the diverse priorities and specific resource constraints of HEIs (Alghamdi et al., 2017). Therefore, the present study focuses on two domains of sustainability: organisations protecting the natural environment and organisations supporting employees to protect the environment. These two domains are then combined into a comprehensive summary measure of sustainability.

### *2.2.1 Protection of the natural environment.*

An increasing number of public-facing organisations around the world, including HEIs, are striving to reduce their environmental impacts and protect the natural environment to play their part in mitigating the current environmental situation (Collado et al., 2022). These actions are fuelled by external pressure from governments and the general population, as well as internal pressures from staff and students (Brinkhurst et al., 2011; de Lange, 2013). In a higher education context, HEIs aspire to be environmentally sustainable to not only benefit the natural environment but also be seen as green which gives them a competitive marketing advantage to attract staff and students as well as please stakeholders (de Lange, 2013).

Outside of higher education contexts, research has addressed the effect of environmental sustainability on well-being at the individual level. For example, spending time in nature is correlated with increased life satisfaction, physical and psychological well-being as well as decreased mental distress (Delbert et al., 2024; Jabbar et al., 2022; Reyes-Riveros et al., 2021). Furthermore, protection of the natural environment has positive impacts on well-being through helping to meet our basic human needs and providing the feeling of doing good for the planet (van den Born et al., 2018). Additionally, as individuals become more concerned with the environment, the desire to be a part of sustainable organisations increases. Notably, this has been observed in prospective students choosing which HEI to attend by its sustainability-related attributes, with a 2021 survey showing an institution's sustainability was more important to a prospective student than the HEI's location (Shepard et al., 2021).

While the protection of the natural environment benefits institutions, individuals and, to an extent, the wider community, a further key aspect of HEI sustainability is the degree to which HEIs actively support and encourage sustainable behaviours among their staff and students – referred to as perceived organisational support towards the environment (POS-E).

### *2.2.2 Perceived organisational support towards the environment.*

It is undoubtedly important for HEIs to follow sustainable policies, processes and practices. Beyond this, it is also important for HEIs to focus on the human aspects of sustainability within their organisations (Zhang et al., 2024). Organisations can support individuals by encouraging and supporting staff and students to carry out pro-environmental behaviours (PEBs) both within and outside the institution (Khan and Terason, 2022). PEBs, also referred to as eco-friendly behaviours, green behaviours or sustainable behaviours, are actions taken by individuals that

aim to protect the environment. Commonly seen examples of PEBs include making sustainable purchasing choices, recycling, conserving water and/or energy or switching to more sustainable modes of transport (Krajhanzl, 2010). Organisations can support PEBs through actions such as providing facilities for and encouraging recycling and waste reduction, thus enabling and encouraging individuals' green behaviours.

The extent to which an individual feels that their organisation is supporting these PEBs is referred to as POS-E. POS-E consists of an individual's feelings and beliefs about how much the organisation or, in a higher education setting their institution, values an individual's contributions towards environmental sustainability (Lamm et al., 2015). Both organisations and individuals benefit from high POS-E. Specifically, when individuals feel supported by their institution, their needs for approval are met and their esteem and affiliation are increased, leading to higher levels of commitment towards the organisation and higher levels of psychological empowerment (Koomson, 2022). POS-E is also positively related to job satisfaction, a common measure of workplace well-being and negatively correlated to intentions to leave the organisation (Lamm et al., 2015). Looking solely at students, studies have found correlations between HEI support and positive outcomes such as loyalty to their institution (Koomson, 2022), career adaptability and career exploration (Ma et al., 2023). Given the positive links of POS-E to well-being among employees and with positive outcomes such as loyalty among students, the authors anticipate that students will also experience well-being benefits from POS-E.

In the current study, these two domains, protection of the natural environment and POS-E, are combined to form the construct of perceived environmental sustainability. Given the literature reviewed above, which suggests that HEIs protecting the natural environment and supporting their students to take sustainable actions will have a positive impact on student well-being, the authors hypothesise:

**H1.** Student perceived environmental sustainability of the higher education institutes will positively correlate with student well-being.

*2.3 Student environmental attitudes*

Younger people and student populations have consistently tended to report higher levels of concern for the climate and environmental issues (Bøhlerengen and Wiium, 2022). They are, therefore, more likely to hold stronger environmental attitudes and engage in PEBs (Milfont et al., 2021; Piscitelli and D'Uggento, 2022). Environmental attitudes are an individual's evaluation of the natural environment and the factors that affect it (Milfont, 2012). The construct of environmental attitudes is unidimensional and measured on a linear spectrum ranging from unconcerned about the environment to very concerned about the environment (Dunlap et al., 2000). Overall, younger people and students score higher on this spectrum and, thus, provide important drivers for change (Ernst et al., 2017). Of particular and unique concern for younger people is the perception that many environmental risks and hazards affect them disproportionately through a lack of control over environmental issues and the notion they will have to live with the consequences of current organisational and governmental decisions, while those people making the decisions will have died without experiencing the harmful impacts (Sanson et al., 2019).

Key factors that help shape younger peoples' environmental attitudes include the people they surround themselves with (friends, family members and teachers) as well as the educational institutions they attend (Chawla and Derr, 2012). Therefore, if an HEI places focus on creating a sustainable and PEB-supportive environment, then their students may be more likely to hold strong environmental attitudes which are, in turn, associated with engaging in PEBs (Ernst et al., 2017). In line with this, research has found positive correlations between organisational sustainability policies and individuals' environmental attitudes (Dahiya, 2020). Beyond this, the authors draw on the theory of person-organisation fit (Judge and Kristof-Brown, 2004), whereby a better alignment between the individual's values and the organisation's values results in higher well-being and engagement (Chen et al., 2016; Sousa and Porto, 2015). When people experience organisational climates that fit their preferences, this can augment their preferred ways of acting. Diverse types of person and organisation fit have been examined, ranging from personal style to work values and ethics (Cooper-Thomas and Wright, 2013), and here, the authors extend the application of the theory to propose that when students' and HEIs' environmental values align, there will be beneficial effects. Therefore, this paper suggests that student environmental attitudes will interact with perceived sustainability to influence well-being, such that students who hold strong environmental attitudes will benefit more from their

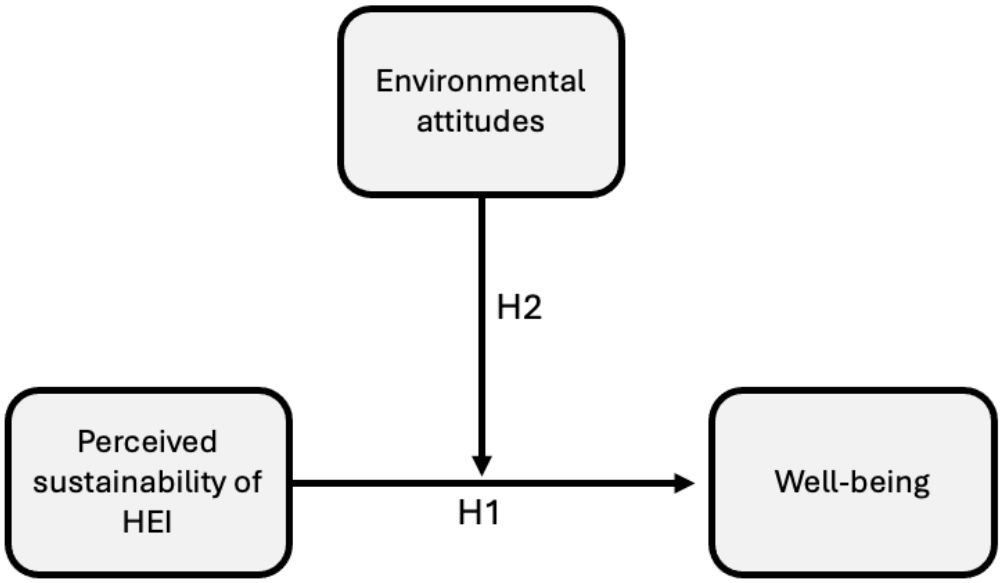
HEI's sustainability efforts and therefore report higher levels of well-being. The authors hypothesise:

**H2.** Students' environmental attitudes will moderate and strengthen the positive relationship between students' perceptions of higher education institutes' sustainability and students' well-being.

*2.4 The present study*

Despite the growing importance of both environmental sustainability and student well-being in the higher education context, the links between student perceptions of their HEI's environmental sustainability and student well-being remain unclear. To address this gap, this paper seeks to test the relationship between student perceptions of their HEI's environmental sustainability and student well-being, while also exploring the moderating role of student attitudes towards the environment on this relationship, illustrated in Figure 1.

**Figure 1**. Hypothesised model




Note(s): H1 represents a correlational relationship, but a directional arrow is used for visual clarity in illustrating H2

Source(s): Authors' own work

## 3. Method

### *3.1 Participants and procedure*

Data were collected from students (n = 292) currently enrolled at an HEI in New Zealand ranked in the top 100 universities by THE-IR for 2023 for progress towards the UN's SDGs. Thus, it might be expected that at least some students selected this university as one where their own sustainability preferences would be met by the HEI. Students were invited to participate in one of three ways: firstly, all university-affiliated clubs and societies were contacted and asked to invite their members through social media and mailing lists; secondly, posters were placed around campus. Participants recruited using these methods (n = 135) were not offered compensation. Finally, students enrolled in undergraduate psychology papers were invited to participate for a small amount of course credit (n = 157). These participant selection methods were chosen to increase sample size. No significant differences were found on any study variables between participant recruitment methods. The sample comprised 82 students who identified as male, 198 who identified as female and 12 students who identified as other or chose not to disclose. Age ranged from 17 to 65 years with M = 24.21 and SD = 8.12. The majority of the sample (64.7%) identified as New Zealand European, 21.2% identified as Māori, 17.8% identified as Asian and 21.6% as other. The university where students were surveyed is split over multiple campuses; therefore, participants were also asked which campus they studied at; no significant differences were found between campuses.

The study was cross-sectional and involved participants taking an online survey. Participants were provided with an online brief that contained information about the study, their role as a participant, their rights, the confidentiality of collected data, funding and ethical approval (FS2023-32). All participants gave informed consent before beginning the online survey, which took approximately 10 min to complete.

### *3.2 Measures*

Student well-being was measured using the Employee Well-Being Scale (Zheng et al., 2015), modified to refer to a university context. A full list of modified items can be found in the supplementary information, (Table S2). The scale consists of three subscales (six items each) covering facets of well-being in a university student setting. Life well-being includes items relevant to students' lives both inside and outside of the university, for example, "My Life is very fun". Study well-being (work well-being in Zheng et al.'s original scale) includes items relevant

to student's thoughts and feelings in university settings, for example, "In general, I feel very satisfied with my present studies". Psychological well-being includes items that focus on student's psychological needs, for example, "I feel I have grown as a person". Participants respond to the scale's items using a six-point Likert scale ranging from 1 "never" to 6 "all of the time". In the present study, the scale reliability was found to be good ($\alpha = 0.90$) (see Table 1 for subscale reliability).

As mentioned, measuring environmental sustainability is challenging because of its dynamic nature along with the diverse needs of specific research projects that lead to a lack of standardisation (Hall et al., 2022). This paper measured two domains, perceived protection of the natural environment (hereafter referred to as protection) and perceived organisational support towards the environment (hereafter referred to as support), and combined them to create one measure of the latent construct of perceived environmental sustainability.

Protection was assessed using the Natural Environment subscale taken from the Corporate Stakeholder Responsibility Scale (CStR–NE; El Akremi et al., 2018). This subscale, the CStR-NE, is a unidimensional seven-item measure, adapted for student populations, that asks participants how environmentally sustainable they perceive their HEI to be, for example, "Our university contributes toward saving resources and energy". Participant's answers were recorded on a six-point Likert scale ranging from 1 "strongly disagree" to 6 "strongly agree".

Support was measured using Lamm et al.'s (2015) scale (The POS-E) which extends Eisenberger et al.'s (1986) widely used perceived organisational support scale and measures perceived levels of specific organisational support towards individuals' PEBs. The scale is a five-item, unidimensional scale designed to measure perceptions of the level of support their organisation gives them to be environmentally sustainable. For the present study, it was modified to ask students about the support towards their PEBs they receive from their HEI. Participants' responses were recorded using a seven-point Likert scale ranging from 1 "strongly disagree" to 7 "strongly agree". An example item from the scale is, "My actions toward sustainability are appreciated by my university".

Perceived environmental sustainability was calculated using the mean of all items on both the CStR-NE and POS-E scales. These two scales use a six- and seven-point scale. Therefore, before the mean was calculated, support was reduced from a seven-point response to a six-point response via linear interpolation using the following formula:

$$X_6 = (X_7 - 1)\,(5/6) + 1$$

This was completed after data collection rather than changing the support measure to a six-point scale in the questionnaire to ensure the outcome variability remained as per the scale's design. This combined measure of total perceived environmental sustainability was found to have high scale reliability (α = 0.87).

Student environmental attitudes were measured using the Revised New Ecological Paradigm (NEP) Scale (Dunlap et al., 2000). Consisting of 15 items (e.g. "If things continue on their present course, we will soon experience a major ecological catastrophe"), the NEP can be interpreted as unidimensional (Dunlap et al., 2000). In the present study, the 15-item scale showed acceptable scale reliability (α = 0.75). While the NEP can be answered using a number of response formats, in the present study, guidance from Hawcroft and Milfont (2010) was followed, and a five-point scale, ranging from strongly disagree to strongly agree, was used to ensure consistency with both the original scale and the majority of researchers using the NEP.

### 3.3 Data analysis

Data were cleaned using a four-step process. First, data were excluded if participants answered no to the commitment check question "We care about the quality of our survey data. For us to get accurate measures, it is important that you answer the following questions carefully and honestly. Do you commit to answering all questions carefully and honestly?". One respondent answered no and was excluded. Second, participants (n = 45) who completed less than 95% of the survey were excluded, as suggested by Schafer (1999). Third, participants who responded too quickly were excluded (n = 11); the cut-off value used was 50% faster than the median completion time, as suggested by Greszki et al. (2014). Finally, a Mahalanobis distance analysis was run to identify and exclude multivariate outliers (n = 2). After these four steps, data from 292 participants remained and was included in analyses.

Data analyses began with conducting descriptive and correlation analyses to discover the relationships between all variables. To test hypotheses, regression analyses were conducted to determine variance predicted in well-being by perceived sustainability, followed by testing for the moderating effect of environmental attitudes.

## 4. Results

Relationships between well-being (overall and three subscales), environmental sustainability (overall and the two subscales of protection and support) and environmental attitudes are shown in Table 1. Overall well-being was found to have significant positive, albeit weak, correlations with protection, support and overall perceived sustainability ($r = 0.146$, $p < 0.05$; $r = 0.133$, $p < 0.05$; $r = 0.156$, $p < 0.01$). The study well-being subscale was also found to have stronger positive correlations with protection, support and overall sustainability ($r = 0.205$, $p < 0.05$; $r = 0.154$, $p < 0.01$; $r = 0.204$, $p < 0.01$). As expected, all subscales of well-being shared strong positive correlations, and protection was strongly and positively correlated with support ($r = 0.613$, $p < 0.01$).

Two regression analyses were conducted to investigate the influence of student perceived sustainability on overall well-being and specifically on study well-being (Table 2). The study well-being subscale was used as an outcome on its own, as it showed a stronger correlation with sustainability when compared to overall well-being. Sustainability accounted for a small but significant percentage (2.4%) of variance in overall well-being ($F(1,290) = 7.205$ and $p = 0.008$), though this percentage was higher (4.2%) when focusing on the study well-being subscale ($F(1,290) = 12.614$ and $p < 0.001$). Additionally, sustainability was found to significantly predict overall well-being ($\beta = 0.159$ and $p < 0.01$) and study well-being ($\beta = 0.268$ and $p < 0.001$). These results support H1.

**Table 1**

Descriptive statistics and correlations between well-being and its subscales, sustainability, protection, support and environmental attitudes (n = 292)

| | **1** | 2 | 3 | 4 | **5** | 6 | 7 | **8** | *M* | *SD* | *Skewness* | *Kurtosis* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1. Overall well-being** | (.90) | | | | | | | | 4.35 | .68 | -.398 | .218 |
| *2. Life well-being* | .868** | (.86) | | | | | | | 4.15 | .88 | -.367 | .127 |
| *3. Study well-being* | .829** | .540** | (.87) | | | | | | 4.28 | .87 | -.713 | 1.055 |
| *4. Psychological well-being* | .816** | .621** | .509** | (.72) | | | | | 4.62 | .68 | -.265 | -.119 |
| **5. Sustainability** | .156** | .115* | .204** | .056 | (.87) | | | | 3.94 | .67 | -.128 | .371 |
| *6. Protection* | .146* | .090 | .205* | .058 | .853** | (.89) | | | 4.11 | .76 | -.287 | .586 |
| *7. Support* | .133* | .126* | .154** | .038 | .935** | .613** | (.64) | | 4.24 | .86 | -.076 | .732 |
| **8. Environmental attitudes** | .073 | -.024 | .146 | .064 | -.055 | -.076 | -.012 | (.75) | 3.72 | .47 | -.302 | .045 |

Note(s): Cronbach's alpha values shown in parentheses, scales shown in bold, subscales shown in italics, protection = student perception of HEI's protection of the natural environment, support = student perceived organisational support towards the environment, all skewness standard error = 0.143, all kurtosis standard error = 0.284, **$p < 0.01$ and *$p < 0.05$

Source(s): Authors' own work

**Table 2**

The results of two regression analyses to determine variance in different types of well-being (overall and study specific) predicted by sustainability

| Outcome | *b* | *beta* | $sr^2$ | *r* | *Fit* ($r^2$) |
|---|---|---|---|---|---|
| Well-Being | .159** | .156 | .024 | .156** | .024 |
| Study Well-Being | .268** | .204 | .042 | .204** | .042 |

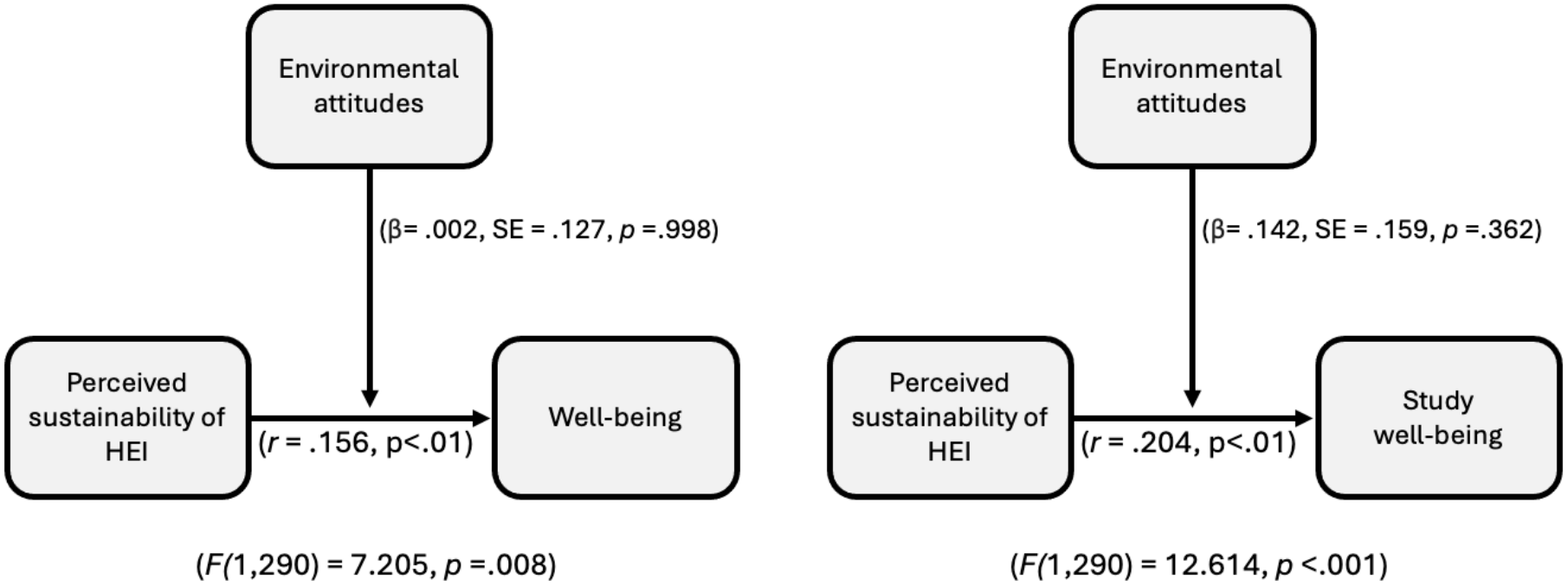
Note(s): A significant b-value indicates the beta weight and semi-partial correlation (sr2) are also significant; *p < 0.05 and **p < 0.01

Source(s): Authors' own work

Moderation analyses were conducted, using Process Macro for SPSS (Hayes, 2013), to test for the moderating effect of environmental attitudes on the relationship between sustainability and both well-being and study well-being. As shown in Table 3, student environmental attitudes were not found to be a significant moderator of either of the investigated relationships. Figure 2 depicts the moderation model. These results do not support H2.

**Figure 2**

Empirical model of moderation analysis findings, showing the lack of a significant moderating effect of student environmental attitudes on the relationship between student perceptions of higher education institute sustainability and overall (and study) well-being




Source(s): Authors' own work

**Table 3**

Results of two moderation analyses testing for the moderating effect of environmental attitudes on the relationship between sustainability and two types of well-being; overall and study specific

| Outcome | Model | Estimate (β) | *Std. Error* | *t* | *p* | *95% CI* | |
|---|---|---|---|---|---|---|---|
| | | | | | | *LL* | *UL* |
| Well-Being | Sustainability | .157 | .482 | .325 | .746 | -.792 | 1.106 |
| | Environmental Attitudes | .110 | .492 | .224 | .823 | -.859 | 1.079 |
| | Sustainability * Environmental Attitudes | .002 | .127 | .015 | .988 | -.247 | .251 |
| Study Well-Being | Sustainability | -.271 | .607 | -.447 | .655 | -1.465 | .923 |
| | Environmental Attitudes | -.268 | .619 | -.433 | .666 | -1.487 | .951 |
| | Sustainability * Environmental Attitudes | .146 | .159 | .914 | .362 | -.168 | .459 |

Source(s): Authors' own work

## 5. Discussion

### *5.1 General discussion*

Congruent with existing literature (Jabbar et al., 2022; Reyes-Riveros et al., 2021) and the notion all SDGs are interconnected (Dörgő et al., 2018), this paper expected to find a link between environmental sustainability and well-being in a higher education context. Furthermore, based on prior studies (Ernst et al., 2017; Milfont et al., 2021; Piscitelli and D'Uggento, 2022) and the theory of person-organisation fit (Judge and Kristof-Brown, 2004), this paper expected student environmental attitudes to moderate the relationship between sustainability and well-being.

The findings provide support for H1. This paper found a significant positive relationship between environmental sustainability and well-being. Furthermore, significant positive relationships were found between well-being and the two measures that were combined to measure sustainability: protection and support. Additionally, this paper established that a significant,

though small, proportion of variance in well-being and study well-being was predicted by the HEI's environmental sustainability, providing further support of the link between sustainability and well-being. The findings support the theorised relationship: student perceptions of their HEI's level of sustainability predict well-being in general.

The concept of well-being is much more than just the absence of illness; it is a broad and complex construct that can be influenced by all aspects of an individual's life (Diener and Ryan, 2009). Simply, there are many factors that account for well-being, and unfortunately, student well-being appears to be on the decline. For example, a recent large-scale survey indicated that student mental health problems have increased by 50% in ten years and that over 60% of students have one or more mental health problems (Lipson et al., 2022). Within a New Zealand context, literature on student well-being is limited; however, recent studies have found low levels of student well-being across all students, including at secondary, tertiary, postgraduate and doctoral levels (Murray et al., 2024; Winter et al., 2021). A study of New Zealand tertiary students found over 55% of students had considered dropping out of their studies with the main reasons provided being poor well-being, mental illness and feeling constantly overwhelmed (Khadij, 2018). At a time when HEIs around the world are concerned for student well-being, it is important that the nuances of contributing factors are clearly understood. The finding that HEI sustainability can make a small but significant difference in student well-being (2.4% and 4.2% of variance accounted for in well-being and study well-being, respectively) adds perspective to the current understanding of student well-being and provides HEIs with a promising avenue for future research and intervention.

This paper also investigated the moderating effect of student attitudes towards the environment on these relationships; however, no significant moderating effect was found. The authors consider whether this lack of an expected relationship could be because of a difference between the environmental attitudes of this sample compared to those in previous research. Several studies have surveyed New Zealand student populations' environmental attitudes using the revised NEP scale, notably Liu and Sibley (2004), Schultz et al. (2005) and Milfont, Duckitt and Cameron (2006) (as cited in Hawcroft and Milfont, 2010). These studies (n = 2,148, 217 and 455) found mean scores of student environmental attitudes to range from 3.51 to 3.88 (SD = 0.44–0.74; Cronbach's alpha = 0.72–0.77). The present study's environmental attitudes results (n = 292, M = 3.72, SD = 0.47 and $\alpha = 0.75$) are within this range, so it is unlikely that this sample's attitudes were unique. The authors are confident, therefore, that attitude towards the environment is not a significant moderator in the current sample. However, it remains likely that

the relationship between an organisation's perceived environmental sustainability and individual well-being is influenced by factors beyond environmental attitudes. For example, political alignment and cultural norms have been found to influence perceived sustainability (Hoffarth and Hodson, 2016) and a multitude of factors are known to influence well-being, including personality, relationships and income (Diener and Ryan, 2009). Future research testing the potential moderation of these factors on the sustainability–well-being relationship would be valuable.

### *5.2 Implications*

This study makes both theoretical and practical contributions. The link between environmental sustainability and well-being is understudied, especially so in the higher education sector. This paper has established a positive link between how sustainable students perceive their HEI to be and student well-being, both overall and study specific well-being, providing empirical support for a link between sustainability and well-being in higher education. Furthermore, given the increasing importance placed on university sustainability rankings by external stakeholders such as potential students and parents as well as by the HEI itself, this research highlights the importance of interconnectedness between the 17 SDGs, focusing particularly on the interconnectedness of SDG 3 (representing human well-being) and SDGs 11–15 (representing environmental concern). The results, showing significant correlations between environmental sustainability and student well-being, add to the growing evidence of the strong connections between the 17 goals (Dörgő et al., 2018).

The findings found no evidence that student environmental values moderate the relationship between sustainability and well-being. This suggests that person-organisation fit may not be applicable in the context of the match or mismatch between student and HEI environmental values. In other words, regardless of student environmental values and their match (or mismatch) with their HEI's environmental values, in the current sample, this did not influence the relationship between student perceptions of HEI sustainability and student well-being. It is possible that other factors, external to the environmental values, play a more critical role in the students choosing which HEI to attend, such as academic quality, location, cost or scholarship potential (Harahap et al., 2023). Therefore, while person-organisation fit theory has robust applications in organisational settings (Cooper-Thomas and Wright, 2013), its relevance may be limited when applied to the specific context of student and HEI environmental sustainability.

Practically, this research indicates to HEIs that improving their level of environmental sustainability could have positive effects on the well-being levels of their students. In other words, by working towards certain SDGs, for example, SDG 12 (responsible consumption and production), benefits may be noticed in progress towards meeting other SDGs (e.g. SDG3: good health and well-being). A single investment by the HEI, at a low monetary cost, into a bike storage facility could directly work towards SDGs 12–15, by encouraging a reduction in travel related carbon output, as well as SDG 3 by promoting a healthy lifestyle choice, cycling and the associated positive outcomes for both physical and mental health. This helps the HEI to solve key problems and ultimately benefits students, stakeholders and, more broadly, the environment.

Further, HEIs could improve both sustainability and student well-being by embedding environmental goals into their institutional mission, aligning organisation-wide efforts with the SDGs. HEIs could start by developing comprehensive sustainability strategies, appointing dedicated personnel or committees to oversee the implementation and ensuring regular communication with stakeholders through reviews and reports. Aligning with the new strategies, tangible investments such as installing bike storage facilities, adopting greener waste management systems and incentivising green transportation, can have immediate and visible impacts on sustainability and, in turn, potentially ameliorating student well-being. Furthermore, sustainability could be integrated into the curriculum to foster an environmental mindset, supported by workshops, events and student-led initiatives that promote sustainable practices across campus. To ensure these efforts benefit student well-being, HEIs could monitor their impact through regular surveys assessing both overall and study-specific well-being. These regular surveys could be incorporated into the HEI's institutional strategy and periodically reviewed to track improvements and define areas for refinement.

### *5.3 Limitations and future research*

This study was not without limitations. First, its narrative views environmental sustainability as an inherently positive concept. Disorders such as climate anxiety are becoming more prevalent and disproportionately affect younger people and student populations. Those experiencing climate anxiety are more likely to feel heightened levels of anxiety when reminded of the threat of climate change, for example, when discussing environmental issues and/or the lack of action taken by people and societies (Sanson et al., 2019). Climate anxiety offers a potentially

fruitful avenue for future research, which could investigate whether this has moderating or mediating roles on the relationship between sustainability and student well-being.

Second, data were collected using a self-report, cross-sectional survey design. As such, participants only responded at one point in time and the authors were unable to test for causality or the long-term influence of perceived environmental sustainability on well-being. Given this study demonstrates positive relationships between well-being and sustainability, future research could explore this further through longitudinal and experimental designs. It would be advantageous for HEIs planning substantial environmental sustainability actions to measure student levels of well-being and perceptions of the HEI's environmental sustainability before and after any actions to evaluate their effects.

Finally, this study focused on perceived environmental sustainability, as opposed to actual environmental sustainability. Actual measurement of environmental sustainability is costly and lacks consistency, as it is generally self-measured through indicators chosen by the organisation, often based on those specific activities the organisation has chosen to focus on and ignoring others (Pham et al., 2020). This potentially leads to greenwashing by HEIs where they focus on presenting as environmentally sustainable organisations rather than following a wide range of environmentally sustainable practices (Álvarez-García and Sureda-Negre, 2023). Future research should investigate whether there are differences between perceived and actual environmental sustainability and if these influence student perceptions and well-being.

## 6. Conclusion

This paper identified two problems modern HEIs face: pressure to increase organisational sustainability and low levels of student well-being. The findings add to a growing body of evidence showing a link between HEI's perceived environmental sustainability and well-being; furthermore, this paper established that the relationship exists in HEI's student populations. The authors hope this paper will provide a starting point for research into the simultaneous increase of sustainability and well-being in higher education settings.

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## Chapter Three: Sustainability and the Happy-Productive Worker

### Citation

Sheeran, Z., Sutton, A., & Cooper-Thomas, H. D. (2025). Environmental sustainability and the happy-productive worker: examining the impact on employee well-being and work performance in educational institutions. *International Journal of Educational Management*. 39 No. 2, pp. 469-487. https://doi.org/10.1108/IJEM-11-2024-0704

### Preface

This chapter builds on the previous study, which demonstrated that students' perceptions of sustainability are meaningfully linked to their well-being, providing a foundation for extending the investigation into professional contexts. That research also identified two pressing challenges: the need to improve organisational sustainability and the prevalence of low well-being in individuals.

Within this chapter, the focus shifts to a working population, with organisational performance added as an outcome variable due to its central role in organisational success and its established connection to employee well-being. By examining whether the relationships observed in students also apply in the workplace, this chapter explores how perceived sustainability can support both human and organisational outcomes. In doing so, it advances the thesis' overarching goal of understanding the human and organisational benefits of sustainability in the workplace.

# Environmental sustainability and the happy-productive worker: examining the impact on employee well-being and work performance in educational institutions

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## Abstract

**Purpose –** The happy-productive worker hypothesis posits that employee well-being is an important factor in work performance. Educational institutions around the world are facing both internal and external pressures to integrate sustainability into their practices, with the goal of protecting the planet and ultimately boosting profits. This paper explores the potential wider benefits of sustainability, including its relationship with employee well-being and performance, by investigating the influence of organisational sustainability on the happy-productive worker hypothesis.

**Design/methodology/approach –** Educational institution employees from the UAE and USA (n = 199; 66.3% teachers) completed an online questionnaire measuring their well-being, perceptions of their organisations' environmental sustainability and three self-reported job performance measures (task performance, contextual performance and counter-productive workplace behaviours). Regression and mediation analyses were conducted to test hypothesised relationships.

**Findings –** Both well-being and sustainability were positively associated with work performance. Furthermore, sustainability accounted for additional variance in performance beyond that accounted for by well-being. Sustainability partially mediated the relationship between well-being and performance, providing evidence of the importance of sustainability in the workplace.

**Originality/value –** This study contributes to an emerging field by investigating the relationship between an organisation's sustainability and benefits of this for employees in terms of well-being as well as work performance. The findings provide further support for the happy-productive worker hypothesis and also the first evidence that educational institutions' sustainability can mediate this relationship.

**Keywords -** Work performance, Well-being, Environmental sustainability, Organisational practices, Happy-productive worker hypothesis

**Paper type -** Research paper

## 1. Introduction

In recent years, research into teacher well-being has become a topic of growing interest (Dreer, 2023), in part because of the link between well-being and performance. The happy-productive worker hypothesis (HPWH) posits that happy workers perform better than unhappy workers (Taris & Schreurs, 2009). Evidence within educational contexts indicates that happier teachers have higher levels of performance (Amirian et al., 2023) and importantly happier, more engaged students (Dreer, 2023). Furthermore, teacher performance has been linked to overall school effectiveness as well as positive student outcomes including achievement and well-being (Bilal et al., 2021; Fernández & Martínez, 2022; Özgenel, 2019). In turn, this results in higher levels of institutional success.

Additionally, due to rapidly growing ecological concerns and the pressure for sustainable development, organisations around the world are increasing their environmental sustainability. In an educational context, this has resulted in the integration of sustainability into the curriculum as well as management practices (Magzamen et al., 2017). More broadly, it has also resulted in a search for positive outcomes related to sustainability. For example, the implementation of green practices has been shown to increase institutional competitive advantage (Por & Khlok, 2024); reduce operating costs, via increasing resource efficiency and decreasing waste (Elkhapery et al., 2021); and improve health and well-being of staff and students, through increased indoor air quality and exposure to nature (Geng et al., 2019). This paper proposes, therefore, that the performance of employees is influenced by their organisation's environmental sustainability. That is to say, the more sustainable the employee perceives their organisation to be, the higher they will report their performance to be. Furthermore, we test the hypothesis that perceived sustainability provides one of the mechanisms by which employee well-being influences performance.

### *1.1 Employee well-being and performance*

The World Health Organisation (WHO) estimates the cost of poor mental health to the global economy is around USD 1 trillion annually (WHO, 2022). This has led the UN to include well-being in their Sustainable Development Goals (SDG) to foster physical and mental health for all. SDG3 is to "Ensure healthy lives and promote well-being for all at all ages" (United Nations, 2022). In line with SDG3, the importance of well-being has been steadily growing across many disciplines including psychology, management and education. Subjective well-being (SWB) is

an individual's evaluation of their quality of life which encompasses emotional, physical, social and developmental dimensions, essentially both feeling good and functioning well (Diener et al., 1999). Employees are some of an organisation's most valuable resources and are undoubtedly crucial to the success of an organisation (Na-Nan et al., 2016). Given employee well-being (EWB) has a range of positive and sought-after outcomes in the workplace, employees and employers alike have heightened their interest in EWB in recent years (Zheng et al., 2015). Higher reported EWB is associated with lower levels of presenteeism, absenteeism, depression, anxiety, stress, burnout and turnover intention, leading to an increased focus on well-being by employing organisations (R. Z. Goetzel & Ozminkowski, 2006; Pescud et al., 2015a). Furthermore, higher levels of EWB have long been associated with higher levels of performance (Warr & Nielsen, 2018).

Campbell et al.'s 1970 definition of work performance as behaviours or actions that are relevant to the goals of the organisation, has survived with no major disagreements and remains a commonly used definition (Campbell, 2012). Traditionally, therefore, work performance focused solely on task performance, namely the proficiency of individuals performing tasks essential to their job (Koopmans et al., 2011; Soto-Pérez et al., 2020). In an education context, examples of task performance might include subject knowledge, teaching ability and lesson design. Two further facets of performance are important in measuring work performance more comprehensively: contextual performance and counterproductive work behaviours (CWB) (Koopmans et al., 2014). Contextual performance consists of behaviours that support the organisational, psychological and social environment, for example helping coworkers with projects. CWB are behaviours that harm the organisation, for example, creating conflict with coworkers.

### *1.2 The Happy-Productive Worker Hypothesis*

The happy-productive worker hypothesis holds that happy workers, those who report high levels of well-being, have higher levels of performance than their less happy counterparts. This hypothesis was first conceived in the 1930s (Sender et al., 2021) and there is substantial evidence of a positive association between well-being and performance (Warr & Nielsen, 2018). There are a number of theoretical rationales for the HPWH. Equity theory, for example, proposes that individuals both invest in and benefit from relationships (J. S. Adams, 1963). In a work context, employees invest their time, effort, skills and knowledge in the relationship with

their employer. In return, they benefit by receiving rewards such as salary, job security and a supportive organisational culture. Equity occurs when employees perceive their investment to be equal to the rewards they receive. The happier the employees feel at work (i.e the more satisfied they are with the benefits they are receiving), the more they feel they should invest in their organisation (i.e the higher their level of performance) in order to reach a point of equity (Taris & Schreurs, 2009).

The broaden and build theory also bears similarities with the HPWH. The theory proposes positive emotions broaden an individual's awareness and encourage curiosity and exploration that builds a library of useful skills and resources (Fredrickson, 2001). Furthermore, individuals experiencing positive emotions are more likely to be helpful and cooperative as well as less likely to engage in conflict, improving performance in collaborative work contexts (Zelenski et al., 2008). Additionally, positive emotions may enhance creative problem-solving skills, leading to increased performance in complex tasks (Madjar et al., 2002). In other words, similar to HPWH in focusing on the happy worker, the broaden and build theory tells us positive emotions can be expected to result in higher levels of performance in both individual and collaborative contexts.

The HPWH is commonly supported at the individual level – the level this paper focuses on (Taris & Schreurs, 2009). Meta-analyses have repeatedly shown that, at the individual level, well-being is positively associated with general performance (Judge et al., 2001; Petty et al., 1984; Sender et al., 2021). Literature also shows evidence of the HPWH in the education context. A study involving over 2000 junior high school teachers found higher levels of well-being resulted in higher levels of student academic achievement, a common measure of teacher performance (Caprara et al., 2006). Teachers with high levels of well-being also feel more engaged whilst teaching, resulting in improved quality of their teaching practice (Turner & Theilking, 2019). Furthermore, in terms of job performance facets, well-being is positively correlated with both task and contextual performance and negatively correlated with CWB (Choi et al., 2024; Koopmans et al., 2014). It should be noted that support for the HPWH is varied (see Iaffaldano and Muchinsky, 1985; Sender et al., 2021) with the majority of criticism coming from literature focusing on group-level performance, or higher. Critics make the argument that just because individual employees have high levels of well-being, does not mean a group of employees, or the organisation as a whole, will show higher levels of performance, in other words, the HPWH may not generalise beyond individuals (Taris & Schreurs 2009).

The relationship of well-being with performance is also known to be influenced by organisational factors such as working conditions and level of organisational support (Hanushek & Rivkin, 2007; Rhoades & Eisenberger, 2002). Additionally, employee experiences of work, such as employee perceptions of communication, can influence performance (Sutton & Atkinson, 2023). Building on this, we suggest an employee's perception of their organisation's environmental sustainability may be involved in the relationship between well-being and performance.

*1.3 Sustainability*

Environmental sustainability means ensuring there is enough for all, forever, which implies managing and protecting natural resources to ensure they are not overused and depleted and thus guaranteeing their availability for future generations (Goodland, 1995). In this paper, the term 'sustainability' refers exclusively to environmental sustainability thus excluding social or economic dimensions of sustainability and centring on the impact that organisations have on the natural environment. With concern for sustainability growing globally, organisations across all sectors are showing an increased interest in becoming more sustainable (Rowe, 2007; Ruepert et al., 2016). An organisation's level of sustainability is especially important in the education sector as students are a key stakeholder group. Students are known to hold stronger environmental values and report higher levels of concern for environmental issues (Milfont et al., 2021).

Several studies have also noted a positive relationship between an organisation's sustainability and organisational performance (Pinzone et al., 2015; Schrettle et al., 2014). Recent research indicates organisations' eco-friendly environments also have a positive influence on their employees' performance (Sadick & Kamardeen, 2020; Yu et al., 2020). This may be explained by some consequences of sustainable actions also increasing profitability, for example, reduced operating costs and increased competitive advantage (Elkhapery et al., 2021; Por & Khlok, 2024). Similarly at the individual level, sustainability has been found to have a positive effect on performance (Bohlmann et al., 2018). Sustainable practices often create better working conditions, for example, increased air quality and reduced noise pollution, which have been linked to increased focus, energy levels and ultimately performance (Geng et al., 2019; Mohezar et al., 2021). Moreover, employee perceptions of their employer's sustainability may increase performance as they feel they are doing good for the environment, providing them with a sense

of purpose and motivation in their work because it is contributing to a greater cause, sustainability, especially if the employee holds strong environmental values (Nusraningrum et al., 2024; Yong et al., 2022). In this paper, therefore, we first test whether the perceived sustainability of the organisation influences performance beyond the effect of well-being expected from the HPWH, hypothesing:

**H1:** *Perceived sustainability will predict variance beyond what is predicted by well-being in: (a) task performance, (b) contextual performance, and (c) counterproductive work behaviour*

*1.4 Expanding on the happy-productive worker hypothesis*

Besides its role in enhancing job performance, well-being is also positively associated with sustainability. Research examining the relationship between sustainability and well-being tends to show the relationship has bidirectional causality, meaning sustainability both influences and is influenced by well-being (Barrington-Leigh, 2016). For the relationship of sustainability to well-being, regularly spending time in natural environments is associated with good health and well-being (White et al., 2019). Furthermore, carrying out pro-environmental behaviours has a positive relationship with both well-being and quality of life (Su & Swanson, 2019; Zhang & Tu, 2021). At an organisational level, positive correlations have been found between well-being and the presence of green ambient conditions as well as green items and areas in the workplace (Han et al., 2021).

Whilst acknowledging this endogeneity, recent research has argued well-being has an influence on sustainability. Using data from 18 countries ($n$= 31598) Sulemana (2016) found happiness to have a positive influence on environmental concern, a common predictor of partaking in sustainability efforts. Similarly, research has found the happier individuals reported themselves to be, the more likely they were to engage in environmental action (Kushlev et al., 2020).

Given the relationship between well-being and sustainability, in this paper, we propose that the HPWH pathway includes sustainability. It is important to note, in the present study we are measuring employee perceptions of how environmentally sustainable they see their institution to be. As such we suggest individuals who report higher well-being, will also report seeing their institutions as more sustainable. We make this suggestion based on the following rationale. Firstly, evidence from national to individual levels, suggests happier people care more about

the environment (Sameer et al., 2021; Sulemana, 2016), and are therefore more aware of their organisation's sustainability efforts. Secondly, we draw on mindfulness literature that tells us well-being fosters a positive emotional state, encouraging mindful awareness of one's surroundings (Garland et al., 2015). When an employee is aware of their surroundings they, in turn, are aware of their organisation's sustainability efforts.

Specifically, we suggest that employee perceptions of their employer's sustainability mediates the relationship between well-being and performance. Based on the well-established positive correlation between an individual's well-being and their levels of environmental concern and awareness of their surroundings (Garland et al., 2015; Sulemana, 2016) we suggest employees with higher levels of well-being are more aware and therefore more appreciative of their organisation's sustainability efforts; resulting in a positive influence on employee performance. Therefore, we hypothesise

**H2:** *Perceived sustainability will partially mediate the relationship between well-being and:*

*(a) task performance, (b) contextual performance, and (c) counterproductive work behaviour*

*1.5 Present study*

In summary, there is a large pool of evidence that well-being is positively related to performance, also known as the HPWH: employees who report higher levels of well-being are found to have higher levels of performance. Similarly, recent research provides evidence that sustainability is also positively related to performance. However, much of the existing research on sustainability focuses soley on its environmental or societal impacts, with limited attention to how employees' perceptions of organisational sustainability influence workplace outcomes. Despite the increased global focus on sustainability, well-being and performance in the workplace, sustainability's role in the well-established HPWH is yet to be investigated. This gap in the literature is particularly notable given the growing emphasis on sustainability's importance to organisations and the potential for sustainability to shape employee attitudes and behaviors. Without examining the relationships between well-being, sustainability, and performance, our understanding of the mechanicsms that drive workplace success remains incomplete. In this paper, we test whether employee perceptions of organisational sustainability account for variance in performance beyond what is accounted for by well-being.

Additionally, this paper tests whether sustainability has a mediating role in well-being's influence on performance. That is, well-being influences performance at least partially via the organisation's sustainability.

## 2. Method

### *2.1 Ethical Considerations*

This study was conducted in accordance with APA ethical guidelines for reseach involving human participants. Prior to the commencement of data collection, ethical approval was gained from the first authour's institutional human research ethics board. All participants provided informed consent prior to participation, after reviewing a detailed information sheet outlining 1) the purpose of the study, 2) their rights as participants, and 3) the measures taken to ensure confidentiality and anonymity. Participants were informed that their participation was voluntary and that they could withdraw from the study at any time without penalty.

### *2.2 Participants and procedure*

Data were collected from employees working in the education sector (*n* =247). Employees were recruited in two ways: firstly, individuals employed in the UAE's education sector were invited to participate through snowball methodology, starting with the first author's educational sector contacts (*n* =124). The UAE was chosen due to the country's increased focus on sustainability and dedication to maintaining a high standard of education, additionally, data were collected during the UAE's 'Year of Sustainability', a national initiative focused on promoting sustainability, innovation and collaboration to address climate change and protect natural resources. Secondly, individuals who indicated they were employed in the USA's education sector were recruited through Prolific, an online crowdsourcing platform (*n* =125). This sample was chosen to ensure data completeness. Following participant recruitment challenges, the USA was chosen as a second sample location as the U.S. Department of Education is committed to ensuring environmental sustainability in schools through several initiatives and commitments as outlined in their Sustainability Report and Implementation Plan (2020) and Climate Change Adaption Plan (2021). After data cleaning (outlined in 2.3), data from 199 participants were retained for analysis. Demographics were as follows: 63.4% female, 34.2% male, 1.5% other/prefer not to say. The age of participants ranged from 18 to 83 (*M* = 40.7, *SD* =

10.56). The majority of participants (66.3%) were employed as teachers, 13.6% as administrators, 11.1% as learning support/teaching assistants and the remaining 9% as management or consultants, with a mean tenure of 7.73 years (*SD* = 7.60).

*2.3 Measures*

*Employee well-being* was measured using the Employee Well-Being Scale (Zheng et al., 2015). The scale consists of three subscales (6 items each) covering facets of well-being in a workplace setting. Life well-being (LWB) includes items relevant to employees' lives both inside and outside of work e.g. "I am in a good situation". Work well-being (WWB) includes items relevant to employees' thoughts and feelings at work, e.g. "I find real enjoyment in my work". Psychological well-being (PWB) includes items that focus on employees' psychological needs, e.g. "I handle daily affairs well". Participants responded to the scale's items using a 6-point Likert scale ranging from 1 "never" to 6 "all of the time". In the present study the internal reliability was found to be good (α =.94).

*Performance* was measured using the Individual Work Performance Questionnaire (IWPQ) (Koopmans et al., 2012). The IWPQ is an 18-item self-report measure of individual performance at work across three facets, task performance (5 items), the proficiency with which individuals perform tasks central to their job, e.g. "I planned my work optimally"; contextual performance (8 items), behaviours that aid the organisation through enabling it to function effectively and efficiently, e.g. "I took on extra responsibilities"; and CWB (5 items), behaviours that detract from the organisation's goals or result in negative consequences for the organisation and/or its stakeholders, e.g. "I complained about unimportant issues at work". The IWPQ asks participants to think about the last three months when answering and respond on a Likert scale ranging from 0 "seldom" to 4 "always" for the task and contextual performance subscales, and from 0 "never" to 4 "often" for the CWB subscale. In the present study, the internal validity of all three scales was found to be good (α =.84, .89 and .82 respectively).

*Sustainability* is challenging to measure due to a lack of standardisation in the area (Hall et al., 2022). In the present study, we measured perceived sustainability by combining two domains: perceived protection of the natural environment and perceived organisational support towards the environment. The combined measure captures employee perceptions of both the direct environmental actions undertaken by their employer and the frameworks in place to support environmental actions, resulting in a comprehensive measure of sustainability.

Perceived protection of the natural environment focuses on the direct actions employees perceive their organisations to take in order to protect the environment and conserve resources. It was measured using the Natural Environment subscale taken from the Corporate Stakeholder Responsibility Scale (CStR–NE; El Akremi et al., 2018). The CStR-NE is a unidimensional 7-item measure that asks participants how environmentally sustainable they perceive their organisation to be, e.g. "Our company contributes toward saving resources and energy (e.g., recycling, waste management)". Participants were asked to indicate how much they agreed or disagreed with the items and answered using a 6-point Likert scale ranging from 1 "strongly disagree" to 6 "strongly agree".

Perceived organisational support toward the environment (POS-E) measures the structural and cultural aspects of an organisation that promote sustainability and was measured using Lamm et al.'s (2015) scale. The scale is unidimensional and measures employees' perceptions of how much support their organisation provides them to be environmentally sustainable. An example item from the scale is "My organization provides an incentive for me to reduce the use of non-renewable resources". Participants' responses were recorded using a 7-point Likert scale ranging from 1 "strongly disagree" to 7 "strongly agree".

Sustainability was therefore calculated using the mean of CStR-NE and POS-E items. As the POS-E was scored using a 7-point scale, before calculating the mean, POS-E was reduced from a 7-point response to a 6-point response via linear interpolation. To confirm the model fit for a single latent variable a confirmatory factor analysis (CFA) was run and it was found the 12-item model fit was borderline unsatisfactory (CFI = .934, RMSEA = .117, SRMR = .039). To improve model fit, Wieland et al.'s (2017) scale purification suggestions were followed. After removing four items (see Table S1 in supplementary info for all items, and inclusion/exclusion decisions), identified by the modification indices and residuals matrix, an 8-item model with good fit was created (CFI = .988, RMSEA = .064, SRMR = .020). Furthermore, the new 8-item combined measure of perceived environmental sustainability was found to have high internal consistency ($\alpha$ = .94).

*2.4 Data Analysis*

Data were cleaned using a four-step process. First, data were excluded if participants answered *no* to the commitment check question: "We care about the quality of our survey data. For us to get accurate measures, it is important that you answer the following questions

carefully and honestly. Do you commit to answering all questions carefully and honestly?". Two respondents answered no and were excluded. Second, participants who completed less than 95% of the survey were excluded (n = 42), as suggested by Schafer (1999). Lastly, participants who completed the survey too quickly were excluded (n = 5), the cut-off value used was 50% faster than the median completion time, as suggested by Greszki et al. (2014). A Mahalanobis distance test was run to identify and exclude multivariate outliers; no such outliers were identified.

Data analysis began with descriptive and correlation analyses to discover the relationships between all variables. To test our hypotheses, hierarchical linear regression analyses were conducted to determine whether perceived sustainability accounted for additional variance in performance beyond that accounted for by well-being. Finally, regression mediation analysis was conducted to test for the mediating effect of perceived sustainability on the relationship between well-being and performance.

## 3. Results

### *3.1 Descriptives and correlations*

Relationships between well-being, sustainability and the three facets of performance (task performance, contextual performance and CWB) are shown in Table 1. Well-being was found to have a significant positive correlation with sustainability ($r$ =.38, $p$ = <.001), task and contextual performance ($r$ =.40, $p$ = <.001; $r$ =.54, $p$ = <.001, respectively) and a significant negative relationship with CWB ($r$ =-.38, $p$ = <.001). Furthermore, sustainability was found to correlate positively and significantly with task and contextual performance ($r$ =.15, $p$ = .031; $r$ =.39, $p$ = <.001, respectively), and negatively with CWB ($r$ =-.44, $p$ = <.001). Given the correlations found between variables and the cross-sectional self-report methodology, Harman's test was run to check for common method variance (CMV). The unrotated single-factor model accounted for 30.8% of variance, far under the 50% cutoff (Fuller et al., 2016), indicating CMV is not a pervasive issue in the study.

**Table 1**

Descriptive statistics and correlations between well-being, sustainability and environmental attitudes (N = 199)

| | Total | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | *M* | *SD* | Skewness | Kurtosis |
| 1. Well-being | (.94) | | | | | 4.55 | .862 | -.897 | 1.107 |
| 2. Sustainability | .380** | (.96) | | | | 3.57 | 1.297 | .137 | -.941 |
| 3. Task performance | .403** | .155* | (.84) | | | 3.96 | .762 | -.530 | -.428 |
| 4. Context performance | .540** | .399** | .531** | (.89) | | 3.69 | .828 | -.285 | -.628 |
| 5. Counterproductive work behaviour | .377** | .445** | .367** | .387** | (.82) | 2.20 | .788 | .144 | -.509 |

*Note*. Cronbach's alpha values shown in parentheses, all skewness Std. error = .172 , all kurtosis Std. error = .343 , ** p<0.01, * p<0.05.

Source: Authors own work

*3.2 Hierarchical linear regression*

Hierarchical linear regression analyses were run to determine the extent to which well-being and sustainability accounted for performance. Three analyses were run, using task performance, contextual performance and CWB as the respective outcome variables. Predictor variables were included in two blocks, the first comprising of the control variable, sample country, and well-being. In the second block, sustainability was added. As shown in Table 2 (Model 1), well-being was significant in accounting for 22.1% of variance in task performance ($R^2$ =.221, F(2,196) = 27.722, *p* =<.001), 31% of variance in contextual performance ($R^2$ =.310, F(2,196) = 44.115, *p* =<.001), and 14.2% in CWB ($R^2$ =.142, F(2,196) = 16.264, *p* =<.001). When sustainability was added in Model 2, no significant increase in variance accounted for in task performance was found (the results did not support H1a), however, an additional, 2.6% of variance was accounted for in contextual performance ($R^2$ change=.026, F(2,196) = 32.964, *p* =.006), beyond the variance accounted for by well-being, supporting H1b. Furthermore, an additional 11.5% of variance was accounted for in CWB, $R^2$ change=.115, F(2,196) = 22.550, *p* =<.001), beyond the variance accounted for in Model 1 by well-being, supporting H1c.

**Table 2**

Results of multiple hierarchical linear regression analyses to determine variance accounted for by sustainability in the three facets of performance, beyond the variance predicted by well-being (N = 199)

| Outcome | Predictors | Model 1 | | | | Model 2 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *B* | *SE* | β | *p* | *B* | *SE* | β | *p* | $\Delta R^2$ | $\Delta R^2$ Sig |
| TP | Constant | 2.061 | .269 | | < .001 | 1.974 | .276 | | < .001 | | |
| | UAE or USA | .381 | .100 | | < .001 | .425 | .105 | | < .001 | | |
| | Well-being | .365 | .056 | .414 | < .001 | .335 | .060 | .379 | < .001 | | |
| | Sustainability | | | | | .055 | .042 | .094 | .194 | | |
| | $R^2$ | | | .221 | | | | .228 | | .007 | .194 |
| CP | Constant | 1.507 | .275 | | < .001 | 1.322 | .278 | | < .001 | | |
| | UAE or USA | -.238 | .102 | | .021 | -.143 | .106 | | .206 | | |
| | Well-being | .512 | .057 | .533 | < .001 | .448 | .061 | .466 | < .001 | | |
| | Sustainability | | | | | .117 | .042 | .184 | .006 | | |
| | $R^2$ | | | .310 | | | | .336 | | .026 | .006 |
| CWB | Constant | 3.780 | .291 | | < .001 | 4.150 | .279 | | < .001 | | |
| | UAE or USA | -.014 | .108 | | .900 | -.202 | .106 | | .048 | | |
| | Well-being | -.345 | .061 | -.378 | < .001 | -.215 | .061 | -.236 | < .001 | | |
| | Sustainability | | | | | -.234 | .043 | -.388 | < .001 | | |
| | $R^2$ | | | .142 | | | | .258 | | .115 | <.001 |

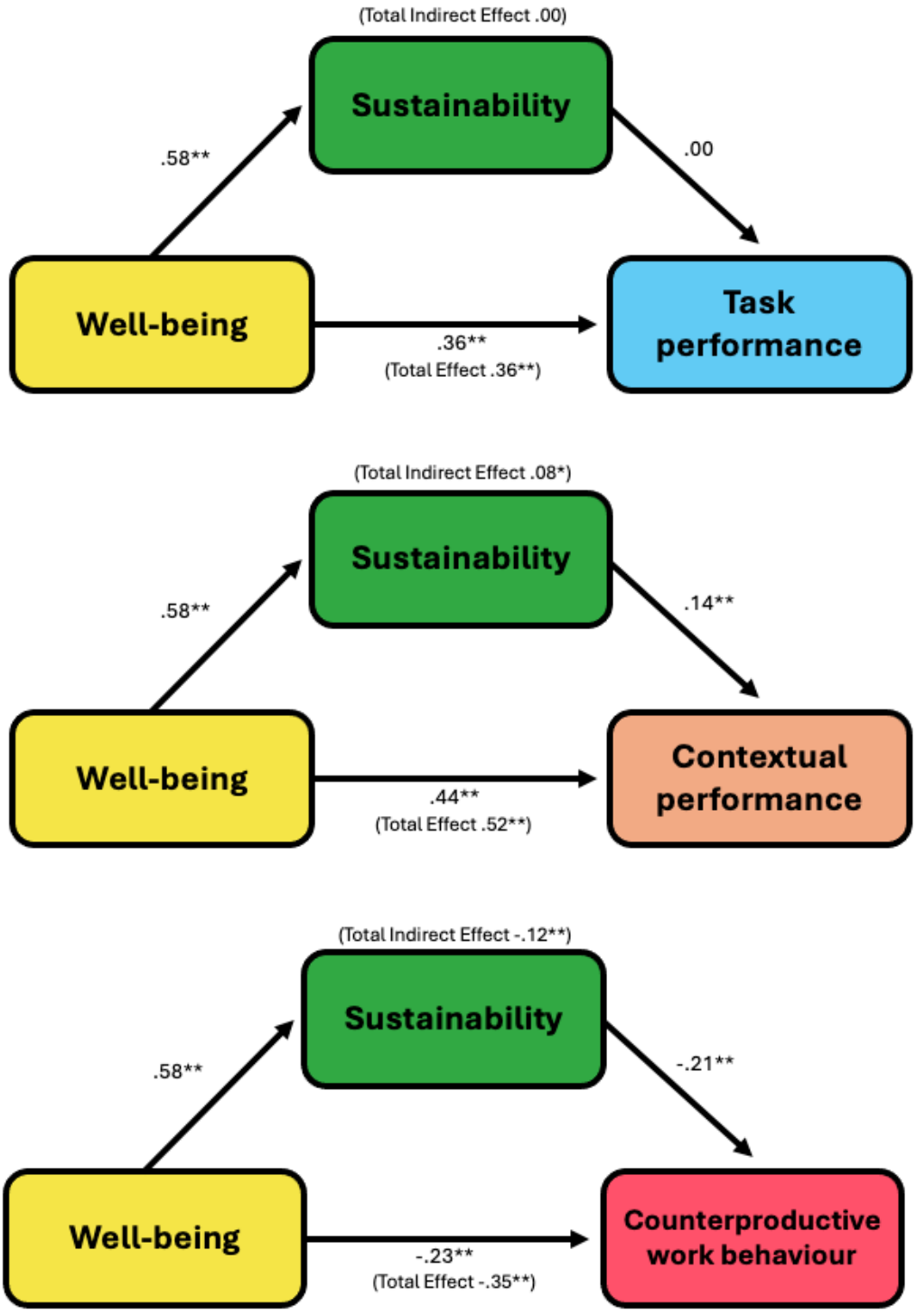
Source: Authors own work

*3.3 Mediation*

Mediation analyses were conducted, using PROCESS (Hayes, 2013), to test for the mediating effects of sustainability on the relationship between well-being and performance (see Figure 1). As shown in Table 3, sustainability was not found to mediate the relationship between well-being and task performance, as such, H2a was not supported. However, sustainability was found to have partially mediated the relationship between well-being and contextual performance (*B* = .078, 95% CI [.026, .130]), as well as CWB (*B* = -.119, 95% CI [-.180, -.059]), confirming H2b and H2c.

**Figure 1**

Mediation diagrams showing the mediating effect of sustainability on the relationship between well-being and the three facets of performance




*Note.* Path coefficients shown, total effects (direct and indirect) shown in parentheses. *$p$=<.05, **$p$=<.001

Source: Authors own work

**Table 3**

Results of mediation analyses between well-being (X), sustainability (M), and the three facets of performance: task performance ($Y^1$), contextual performance ($Y^2$) and counterproductive work behaviour ($Y^3$) (N =199)

| Performance facet | Total effects | Model | *B* | *SE* | *z* | *p* | 95% CI *LL* | 95% CI *UL* | Mediation |
|---|---|---|---|---|---|---|---|---|---|
| Task performance | Direct | Well-being ➤ Task performance | .356 | .062 | 5.743 | < .001 | .243 | .477 | ns |
| | Indirect | Well-being ➤ Sustainability ➤ Task performance | .000 | .024 | .024 | .998 | -.046 | .046 | |
| Contextual performance | Direct | Well-being ➤ Contextual performance | .441 | .060 | 7.314 | < .001 | .323 | .559 | Partial |
| | Indirect | Well-being ➤ Sustainability ➤ Contextual performance | .078 | .027 | 2.934 | .003 | .026 | .130 | |
| Counterproductive work behaviour | Direct | Well-being ➤ Counterproductive work behaviour | -.225 | .061 | -5.745 | < .001 | -.462 | -.227 | Partial |
| | Indirect | Well-being ➤ Sustainability ➤ Counterproductive work behaviour | -.119 | .031 | -3.855 | < .001 | -.180 | -.059 | |

Source: Authors own work

## 4. Discussion

### *4.1 General discussion*

In support of the HPWH (DeNeve & Cooper, 1998), we found well-being to account for significant variance in all three facets of performance, task performance, contextual performance and CWB, (22.1%, 31% and 14.2% respectively) supporting the HPWH's applicability within the education sector. Whilst the predictive influence of well-being on performance has been extensively researched (Sender et al., 2021; Taris & Schreurs, 2009), including in educational settings (Dreer, 2023), sustainability's influence on performance remains vastly understudied. Therefore, this paper also investigated whether sustainability accounted for variance in performance beyond that accounted for by well-being alone. Our findings suggest sustainability is an important factor associated with performance in unique ways; we found sustainability to significantly predict further variance, after controlling for wellbeing, in contextual performance (additional 2.6%) as well as CWB (additional 11.5%), although not in task performance. Congruent with past research (Chuah et al., 2021; Sadick & Kamardeen, 2020; Yu et al., 2020), our results support the claims that sustainability has a positive influence on two key facets of performance, going the extra mile via contextual performance and reducing behaviours or actions that harm the organisation via CWB. The findings also align with Fredrickson's broaden and build theory (2001) whereby positive emotions (i.e pride, interest, awe) arising from working for a sustainable organisation may

account for employees displaying increased cooperation and helpfulness as well as lower aggression, resulting in both higher levels of contextual performance and lower levels of CWB (Zelenski et al., 2008).

It is important to understand the significance of the relationships we found sustainability to have with contextual performance and CWB. Employee contextual performance is seen as a key element to the success of an organisation as it shapes the social, psychological and organisational contexts that in turn shape overall performance (Borman & Motowidlo, 1997). An example of contextual behaviour in the education sector is helping other staff to prepare classrooms before the beginning of term, this enhances the institution's collaborative culture and sense of community. Essentially, by increasing contextual performance, an organisation builds a culture of helping others in the organisation to complete tasks.

Conversely, CWB is a broad concept that encompasses all actions or behaviours that can harm an organisation, its employees or its stakeholders. Examples include taking days off without a valid reason, talking about negative aspects of the job with coworkers, substance abuse, theft and even espionage (Dalal, 2005). In an educational context, an example of CWB is falsifying records, such as student attendance or grades, either to meet institutional goals or to avoid reprimand. Regardless of the type of CWB, its influence on organisational performance is negative. Furthermore, CWBs have been found to contribute to several negative outcomes for individuals including burnout as well as reduced well-being, task and contextual performance (Koopmans et al., 2014; Makhdoom et al., 2019) and decreased organisational effectiveness and performance (Dalal, 2005). This paper's findings suggest sustainability has positive effects on contextual performance and CWB, and thereby can positively contribute to organisational performance.

Given our findings provide evidence that sustainability influences performance in ways distinct from well-being, we then turned to consider whether sustainability could be integrated into the HPWH. Our findings show the relationships between well-being and both contextual performance and CWB are partially mediated by sustainability. The PROCESS results further confirm well-being's direct relationship with both task and contextual performance (in other words, further confirming the HPWH) but arguably of greater importance, also tell us that sustainability is an important mechanism for the positive effect of well-being on performance.

One possible explanation of the finding that sustainability is positively associated with performance is that when organisations carry out sustainable practices, working conditions are

often improved, therefore performance is increased. For example, sustainability efforts that increase air quality and decrease noise pollution can boost employee performance through increasing focus, energy levels and creativity (Geng et al., 2019; Mohezar et al., 2021). Similarly, a work environment that fosters a connection with nature, for example, has window views and images of nature, restores attention, in turn, further aiding the influence on performance (Kuo, 2015).

A possible explanation of the mediating effect we found is employees with higher levels of well-being are likely to also have higher levels of environmental concern as well as mindful awareness (Garland et al., 2015), resulting in greater attentiveness to their institution's sustainability efforts and therefore, higher reported perceptions of how sustainable their employer is (Kushlev et al., 2020). When an employee is both concerned for the environment and aware of the actions their institution is making to protect the environment, equity theory suggests this may tip the balance of the employee/employer relationship resulting in employees increasing their performance. Furthermore, research has found that happier individuals are more likely to make income sacrifices and take environmental actions (Sulemana, 2016), aligning with, and providing further explanation for our findings that well-being increases perceived sustainability. This, in turn, increases contextual performance, that is, going the extra mile and performing work tasks that help coworkers and the organisation without receiving an additional monetary reward.

### *4.2 Implications*

This paper makes both theoretical and practical contributions to the area of job performance, EWB and organisational sustainability in an educational context. Our findings confirm the HPWH applicability by showing significant amounts of variance in the three domains of performance are accounted for by well-being in a sample of educational institution employees. Further to supporting HPWH as a well-established theory, this paper aimed to extend the HPWH by showing that, in addition to well-being, sustainability is a key factor contributing to job performance. We found that sustainability not only uniquely contributes to two domains of job performance but also mediates the abundantly studied relationships between well-being and both contextual performance and CWB. This presents an important development of the HPWH by identifying a mechanism by which well-being influences performance.

Despite the endogeneity between well-being and sustainability, this paper's focus remains on understanding how well-being may shape perceptions of organisational sustainability, and in turn performance. Research suggests well-being influences sustainability (Sulemana, 2016) and increases individual's general and environmental awareness (Garland et al., 2015; Kushlev et al., 2020) which may lead to increased awareness and appreciation of organisational sustainability efforts, in turn positively influencing both contextual performance and CWB. Our results confirm the possibility of this chain of influence through significant partial mediation.

Practically, this paper's findings suggest organisations may benefit from focusing on both employee well-being and sustainability initiatives, not only as important stand-alone factors but also as a means to enhance the job performance of employees. With pressures mounting for schools to become more sustainable (Magzamen et al., 2017) and the growing importance placed on employee well-being (Dreer, 2023), it is likely in the coming years we will see more educational institutions focus on increasing sustainability and developing a supportive, caring workplace. This study's findings suggest these efforts will improve not only their sustainability and their employees' well-being but also some facets of employee job performance. This could lead to increased organisational performance and, in an educational context, positive student outcomes.

### *4.3 Limitations and future research*

This study was not without limitations. First, we note that this study did not measure actual environmental sustainability; instead, we measured employee perceptions of the sustainability of the institution they work for, and this should be borne in mind when interpreting results. While we demonstrate the relationships between well-being, perceived sustainability and performance, we acknowledge this does not necessarily mean the same relationships exist between well-being, performance and actual sustainability, that is, in terms of the organisation's environmental policies and practices. However, measurement of actual sustainability generally occurs through self-administered environmental audits using indicators chosen by the organisation (Pham et al., 2020). Hence, apparently more objective measures of an organisation's environmental sustainability are costly, lack consistency, subjective and prone to bias (e.g., only measuring indicators where the organisation is succeeding). Future research could investigate differences in employee outcomes influenced by both perceived and actual sustainability.

Furthermore, data were collected using a self-report and cross-sectional design. As participants only responded at one time point, we were unable to test for causality or the long-term influence of sustainability with the HPWH. Given that our study highlights the positive influence of sustainability within the HPWH framework, future research may benefit from exploring this further through longitudinal and experimental designs, as well as measuring performance using other sources, such as supervisors, peers, direct reports and—for education—student ratings and results. Finally, given our suggestion that the mediation pathway of sustainability may be due to well-being creating greater awareness of sustainability efforts, future research could focus on testing this using research designs that seek to raise employee awareness of environmental sustainability.

## 5. Conclusion

We investigated the HPWH in an educational context and extended it by testing the mediating influence of sustainability. Our findings add to the well-established body of evidence showing the positive relationship between well-being and performance. Additionally, we established sustainability is related to performance in unique ways; accounting for variance in two types of performance beyond that accounted for by well-being alone. Furthermore, we found sustainability to mediate the HPWH, for both contextual performance and CWB, providing evidence of sustainability's importance in the workplace. We hope this paper inspires further research into sustainability's impact on the HPWH and provides further motivation for educational organisations seeking to increase their sustainability.

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## Chapter Four: Sustainable Networks: Understanding the Pathways

### Citation

Sheeran, Z., Sutton, A., & Cooper-Thomas, H. D. (2026). Network structures of workplace sustainability and employee outcomes: A two-wave study. *International Journal of Organizational Analysis* https://doi.org/10.1108/IJOA-11-2025-6232

### Preface

Building on the previous chapters, which established relationships between perceived sustainability, well-being, and performance in both student and working populations, this chapter takes a more integrative approach. It extends the investigation by using network analysis to map how these key variables, as well as additional factors identified through the literature, interact with one another. Specifically, it builds on the psychological frameworks of P-O fit and SDT to clarify the mechanisms underlying the relationships identified in the previous studies.

A two-wave design was utilised to examine whether the patterns of interconnectedness observed remain stable over time. By comparing networks across waves, this chapter provides insight into the consistency and dynamics of these relationships. Ultimately, the network analysis approach allows for a more nuanced understanding of how sustainability, well-being, performance, pro-environmental behaviours, environmental worldview, self-determination and person-organisation fit are connected, offering a longitudinal perspective that ties together the findings from the earlier studies.

**Network structures of workplace sustainability and employee outcomes:**

**A two-wave study**

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**Purpose**

This study examines how employees' perceptions of their organisation's environmental sustainability relate to their well-being and performance. It aims to clarify these relationships by investigating the role of individual differences within the interconnected networks linking sustainability, well-being, performance, person–organisation fit, self-determination, and environmental attitudes and behaviours.

**Design/methodology/approach**

Australian employees completed a two-wave online survey (Time 1: n = 628; Time 2: n = 493). Network analysis was used to examine the associations between perceived organisational sustainability and a range of individual factors and outcomes, allowing for the assessment of stability in the network structure over time.

**Findings**

Across both timepoints, strong and stable positive associations were found between perceived sustainability, well-being, performance, and person–organisation fit. Self-determination was also strongly linked to well-being and performance. Person–organisation fit emerged as a central component within the network, emphasising its role in supporting positive employee outcomes in sustainable workplaces. No significant structural or global strength differences were observed over time, indicating that the network's overall structure and density remained stable.

**Originality/value**

This study provides novel evidence using network analysis to map the dynamic relationships among sustainability perceptions, key individual variables, and employee outcomes. It demonstrates that these relationships are robust over time and highlights person–organisation fit as a core mechanism underpinning how sustainability initiatives contribute to a healthy, productive, and sustainable work environment.

*Keywords:* Sustainability, Employee well-being, Job performance, Network analysis

In a time of escalating concern for the climate and increasing societal demand for environmental responsibility, workplaces across the world are under growing pressure to adopt sustainable practices (Ones & Dilchert, 2012). These practices not only shape the organisation's reputation but may also influence how employees feel and perform at work (Ma et al., 2023). Yet, the process through which workplace environmental sustainability affects employee outcomes remain severely understudied.

Sustainability means ensuring we appropriately manage and protect the environment our natural resources to ensure they remain available for generations to come (Goodland, 1995). Over the past few decades, public attitudes toward sustainability have shifted due to rising environmental concern, the visible effects of climate change, and greater access to information about environmental degradation. Many now fear that we may have reached a tipping point, beyond which there will not be enough resources left for future generations (United Nations Development Programme, 2024). This shift has fuelled heightened consumer demand for green goods and services (Sharma, 2021) and a stronger desire among individuals to work for organisations that actively contribute to environmental protection (Ma et al., 2023).

This widespread emphasis on sustainability has put pressure on all modern workplaces; organisations are choosing to adopt environmentally responsible practices not only to meet external expectations but also to attract and retain talent, improve employee well-being, and enhance overall performance (Ma et al., 2023; Ones & Dilchert, 2012). Research also consistently highlights the organisational benefits of increased sustainability, including competitive marketing advantages (Sharma, 2021) and decreased operational costs (Rounaghi et al., 2021). However, while these benefits are becoming increasingly well-documented, the theoretical mechanisms that explain how sustainability practices influence employees remain less clear. Psychological frameworks can help by providing explanations to better understand both how and why organisational sustainability may result in improved employee well-being and performance.

Two theoretical perspectives provide especially useful insights. First, Person–Organisation (P-O) Fit theory suggests that alignment between an individual's values and those of their organisation results in positive outcomes such as higher well-being and performance (Cable & Judge, 1996). From this perspective, sustainability can be viewed as adding worth to an organisation's culture through enhancing its human capital; in other words, employees who value sustainability and environmental responsibility and belong to a workplace that also values sustainability and environmental responsibility may therefore experience greater

satisfaction and effectiveness. Second, Self-Determination Theory (SDT; Deci & Ryan, 1985) explains how intrinsic motivation and the satisfaction of basic psychological needs - autonomy, competence, and relatedness - enhances positive employee outcomes. Organisational sustainability initiatives may help employees meet these needs by allowing them to act autonomously in environmentally responsible ways, feel competent in their contributions towards sustainability efforts, and connect with others through collective environmental goals or participation in community-based sustainability programs. Together, these frameworks provide explanations for how sustainability initiatives may foster positive outcomes for both individuals and organisations.

By bringing these frameworks together, this study aims to provide insight into explanations of workplace sustainability driven by psychological theory. Prior research has primarily highlighted associations between sustainability and positive outcomes (e.g., Han et al., 2021; Sadick and Kamardeen, 2020; Sheeran et al., 2025), whereas the present study extends on the literature by framing P–O Fit and SDT as underlying theoretical explanations that can help explain these links. Through this approach, we contribute both a stronger theoretical basis for future research investigating sustainability and employee outcomes and practical insights for workplace sustainability.

*Employee outcomes: Well-being and performance*

Well-being is crucial for both employee and organisational success (Zheng et al., 2015), being associated with outcomes such as higher levels of performance and productivity, lower levels of depression, anxiety, stress, burnout, absenteeism, presenteeism, turnover intention and counterproductive work behaviours (CWB) (Goetzel and Ozminkowski, 2006; Pescud et al., 2015). Recent research further suggests that CWB reflects the combined influence of multiple workplace perceptions and attitudes rather than a single underlying factor (Abdullah and Al-Abrrow, 2025), highlighting the importance of including CWB in workplace research. As such, improving and maintaining the well-being of employees has been an increasing interest of organisations over the years (Salas-Vallina et al., 2021). Coupled with the global shift towards sustainability, research has investigated the links between sustainability and positive individual outcomes. For example, spending time in nature reduces stress and increases general health and well-being (White et al., 2019); furthermore, spending time in green urban environments increases life satisfaction (Reyes-Riveros et al., 2021). Additionally, working in organisations

that implement sustainability practices has been linked to increased levels of employee well-being (Han et al., 2021; Sadick and Kamardeen, 2020), job satisfaction (Crucke et al., 2022) and performance (Bohlmann et al., 2018; Sheeran et al., 2025). However, to date, the mechanisms of these relationships have not been established. To better understand how and why sustainability initiatives impact employee outcomes, therefore, we draw on two key theoretical frameworks: Person-Organisation Fit (P-O Fit) theory and Self-Determination Theory (SDT) to explain the underlying psychological mechanisms. We suggest that alignment with organisational values and the fulfilment of basic psychological needs may foster positive employee outcomes in sustainable workplaces.

*Person-organisation fit*

Person-organisation fit identifies that alignment between an individual's values and an organisation's values results in positive outcomes for both employees and organisations (Judge & Kristof-Brown, 2004), including well-being and performance (Chen *et al.*, 2016; Sousa and Porto, 2015). Considering P-O fit as a mechanism, these positive outcomes occur as alignment fosters a sense of meaning, purpose, and identity congruence: employees perceive their work as consistent with their personal values, which enhances intrinsic motivation, satisfaction, and engagement. In the context of environmental sustainability, an individual's environmental worldview and pro-environmental behaviours (Pro-EBs) may influence the relationship between organisational sustainability and employee outcomes. Pro-EBs are observable behavioural expressions of environmental values, serving as indicators of the values an individual prioritises, while environmental worldview reflects personal beliefs and attitudes about humans' relationship with the natural environment (Milfont, 2012). Pro-EBs are conceptualised in this study as behavioural expressions of underlying values and attitudes, rather than as independent drivers of other constructs. Within the network, they are therefore interpreted as observable manifestations of broader psychological processes, such as value alignment. In line with P-O fit theory, a stronger alignment of values between individual and organisation - for example, someone who aims to cut their personal carbon emissions by cycling to work and reducing meat in their diet and who works for an organisation that has adopted a goal of reduced carbon emissions, such as moving to a hybrid vehicle fleet – will be associated with higher employee well-being and performance.

However, value alignment alone may not fully explain the internal motivational processes that drive these outcomes. Here, Self-Determination Theory (SDT) complements P-O fit by identifying the psychological needs (autonomy, competence, and relatedness) that sustainability initiatives can fulfil. While P-O fit explains the alignment mechanism, that is, why employees respond positively to matching values, SDT explains the motivational pathways, that is, how need satisfaction promotes intrinsic motivation, well-being, and performance. Given the importance of personal values in the domain of environmental sustainability, we expected that P-O fit would be more centrally linked to employee outcomes than motivational processes. Accordingly, we conceptualise SDT as a complementary secondary pathway, operating under conditions where sustainability initiatives are sufficiently salient to support autonomy, competence, and relatedness.

*Self-Determination Theory*

Self-determination theory (Deci & Ryan, 1985) provides a framework that may help explain how an organisation's sustainability efforts translate into enhanced employee well-being and performance, by providing insight into the role of intrinsic and extrinsic motivation in the workplace. SDT outlines three basic psychological needs: autonomy, competence and relatedness, which can all be used to understand sustainability motivation. For example, when individuals feel autonomy over their sustainable choices, such as whether to choose low or no emission transport options, they may be more motivated to act sustainably or make sustainable choices. Further, sustainable actions may also enhance their sense of being capable of enacting sustainable choices (competence) and doing so to benefit their community and future generations (relatedness).

Research grounded in SDT has consistently shown that higher levels of self-determination are positively associated with higher levels of both well-being and performance in employees (Ryan and Deci, 2000). Over the years, SDT has been applied to several domains, including sustainability, where it helps explain how autonomous motivation and psychological need satisfaction underpin sustainable attitudes and actions (De Groot & Steg, 2010; Gauthier et al., 2022).

Experimental research has compared individuals who are self-determined, those whose environmental behaviours are guided by intrinsic motivation and the satisfaction of basic psychological needs, with individuals who are externally motivated, those whose behaviours

are primarily influenced by external rewards or social pressures (Aitken *et al.*, 2016; De Young, 2000). In these studies, self-determined participants reported greater dissatisfaction with the current state of the environment, perceived environmental problems as more important, felt more competent to take action, and were therefore more likely to engage in pro-environmental behaviours. External motivation, in contrast, was associated with lower perceived competence and weaker engagement in environmentally beneficial activities.

Further, as Pro-EBs become more externally regulated rather than self-determined, they become less frequent (Pelletier *et al.*, 1998). SDT states that motivation exists along a continuum ranging from external regulation, where behaviours are driven by external rewards or pressures, to intrinsic motivation, where actions are performed out of genuine interest or personal value (Ryan and Deci, 2000). When Pro-EBs are motivated by external factors, such as strict organisational rules, they are less likely to be internalised and integrated into individual's sense of self, resulting in reduced consistency and long-term engagement in sustainable behaviours. This highlights the importance of organisational efforts to support their employees to be green through activating self-motivations, rather than attempting to force behaviours through strict policy that kindles extrinsic motivation (Colombo *et al.*, 2023). Social and contextual factors of motivation toward the environment have also been explored, aligning closely with the relatedness facet of SDT. Findings suggest self-determination is greater when individuals are surrounded by others who behave similarly (e.g. co-workers who also act in environmentally conscious ways) (Darner, 2009). This implies that building a supportive and sustainable organisational culture is key to improving individual member's sustainable behaviours.

Together, both the P-O fit and SDT frameworks provide a comprehensive account of how organisational sustainability may influence employee outcomes through both value congruence and need satisfaction.

*The present study*

Recent research has established positive relationships between employee's perceptions of their workplace sustainability and self-reported outcomes, well-being and job performance (e.g. Bohlmann et al., 2018; Han et al., 2021; Sadick and Kamardeen, 2020; Sheeran et al., 2025). Furthermore, both P-O fit and SDT outline potential mechanisms explaining how the sustainability of an organisation influences employees. However, research is yet to investigate

how key variables such as environmental worldview, Pro-EBs, and motivational factors interact within a broader network to influence employee outcomes in sustainable organisations. Taking a network perspective is important because workplace sustainability operates as a complex web of interrelated processes. Understanding these connections can reveal how sustainability related attitudes and motivations collectively shape well-being and performance; key insights that traditional correlational approaches may overlook. Our approach allows us to identify central constructs, those with the highest predictability, in the sustainability-employee outcomes relationships, providing a more holistic understanding of how sustainability is embedded within organisations.

In this study, we measure employee perceptions of workplace sustainability, self-determination, P-O fit, pro-environmental behaviours, environmental worldview and the key employee outcomes of well-being and performance. It is important to note; sustainability is a broad concept that is often identified as challenging to measure. Due to its subjective nature and lack of standardised measurements, researchers often focus on one dimension of sustainability which can lead to biases (Hall et al., 2022). To address this challenge, the current study measures perceptions of sustainability as a meaningful proxy to actual sustainability measurements, such as environmental audits. It is therefore important to clarify that sustainability in the context of this paper refers to perceived organisational sustainability and reflects employees' subjective interpretations rather than objective organisational sustainability. Perceptions reflect individuals' interpretive processes through which environmental cues are cognitively processed and assigned meaning (Fiske and Taylor, 2013). As sustainability initiatives are often complex, multifaceted, and potentially not visible to all employees, perceptions capture how sustainability is noticed, interpreted, and understood by individuals in the workplace. Accordingly, this paper's findings should be understood as reflecting the psychological meaning of sustainability to employees, rather than objective organisational practices. Furthermore, focusing on perceptions of sustainability allows insight into how sustainability efforts are experienced and evaluated by employees from a diverse set of organisations where sustainability practices may vary greatly.

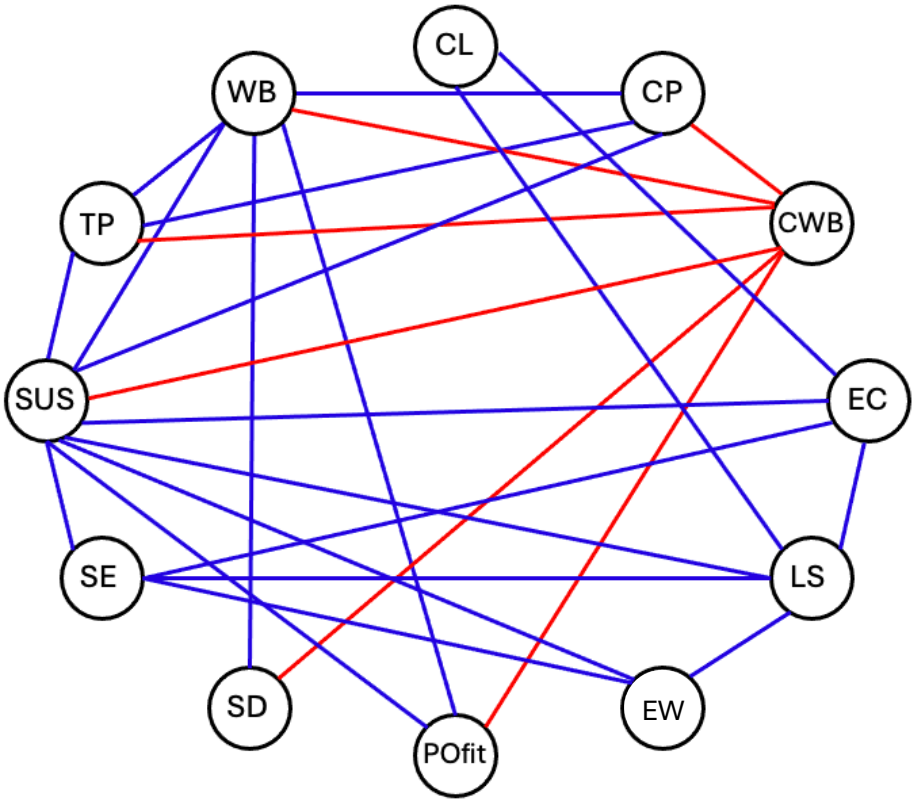
Although related, perceived organisational sustainability and corporate social responsibility (CSR)-related constructs are distinct concepts. Perceived organisational sustainability refers to employees' overall subjective evaluation of how environmentally responsible their organisation is (Sheeran et al., 2025b). In contrast, CSR-related constructs encompass a wider domain that includes social, ethical, and economic responsibilities in addition to environmental concerns,

and are often conceptualised at the organisational level rather than as individual's perceptions (Sheehy, 2015). Therefore, while these constructs overlap in their focus on organisational responsibility, the present study focuses specifically on employees' individual-level perceptions of environmental sustainability, rather than broader CSR.

Using a two-wave design and network analyses, we identify how these constructs interact and contribute to broader sustainability outcomes in the workplace (see Figure 1 for hypothesised network model). Network analysis explores complex associations between multiple variables (Chalmers et al., 2022) and as such will build insights into how sustainability and other key variables influence each other as well as the part they play within the wider network. Network analysis uses predictability, an indication of how interconnected each individual node is within the network; to establish how important each measure is within its network. An alternative way to understand this is how much the explanatory power of the network would be reduced if a variable was removed. By taking a network analysis approach, we offer a complementary lens to traditional theory-testing approaches. Additionally, we repeat the network analysis over two timepoints, with this two-wave design allowing us to test for stability over time. each measure is within its network. An alternative way to understand this is how much the explanatory power of the network would be reduced if a variable was removed. Additionally, we repeat the network analysis over two timepoints, with this two-wave design allowing us to test for stability over time.

**Figure 1**

Hypothesised relationships between sustainability, employee outcomes and key variables
*Note*. Blue lines represent positive relationships, red lines represent negative relationships




**WB**= Well-being

**TP**= Task performance

**CP**= Contextual Performance

**CWB**= Counterproductive work behaviour

**SUS**= Sustainability

**EW**= Environmental worldview

**SD**= Self-determination

**POfit**= Person organisation fit

**CL**= Conservation lifestyle

**LS**= Land stewardship

**SE**= Social environmentalism

**EC**= Environmental citizenship

## Method

### *Participants and Procedure*

Data were collected from the same participants at two timepoints (n= 628, n= 493 ) using Prolific, an online research recruitment platform. Australia was used as the sample country to avoid potential bias associated with the current political climate in more commonly studied populations such as the UK and USA, which may influence responses related to well-being and

politically charged issues such as sustainability (Van Bavel *et al.*, 2024). Thus, to be eligible to participate, individuals had to be employed and living in Australia. Following data cleaning (outlined below), data from 573 participants were retained for analysis at Time 1, and data from 451 matched participants were retained at Time 2. Within this study a two-week time lag was chosen to assess short term attitudinal stability, this was identified as optimal based on research suggesting if the lag period is too short respondents may remember their responses and respond using their past feelings not how they feel when taking the survey (Kawakami et al., 2020).

Demographics were as follows: 54.97% female, 42.06% male, 2.97% other/prefer not to say. The age of participants ranged from 18 to 79 (M = 36.41, SD = 11.34). The majority of participants (51.93%) identified as white/European, 22.81% as Australian, 19.47% as Asian, 0.7% as Aboriginal or Torres Strait Islander and the remaining 5.09% as other. Participants were employed in a diverse range of sectors, including Healthcare (17.28%), Education (15.71%), Office/Administration (13.61%), Retail (9.25%), Government (9.08%) and other (35.07%), with a mean tenure of 5.13 years (SD = 5.83).

*Measures*

*Sustainability* is an inherently broad and multifaceted concept, yet existing measures often lack standardisation and capture only one specific dimension relevant to the researcher's focus. This narrow approach to sustainability, for example, assessing only whether an organisation recycles, overlooks the wider range of environmental practices and commitments that together define sustainability (Hall *et al.*, 2022). Moreover, an organisation might market its sustainability, with various policies and initiatives, but there may be minimal actual resourcing to enable these to succeed. To mitigate such concerns and measure the breadth and reality of the organisation's sustainability actions, we used employee perceptions of their workplace's sustainability (Sheeran *et al.*, 2025). This scale combines two domains. The first dimension, *perceived protection of the natural environment*, uses the 7-item Corporate Stakeholder Responsibility Scale (CStR–NE; El Akremi et al., 2018). An example item is, "Our company makes investments to improve the ecological quality of its products and services". The second dimension, *perceived organisational support towards the environment*, consists of the 5-item scale developed by Lamm et al. (2015). An example item is, "My actions toward sustainability are appreciated by my organization". Together, these two domains capture employee

perceptions of both the direct environmental actions of their organisation and the frameworks their employer puts in place to support employees' environmental actions (Sheeran *et al.*, 2025). This combined measure of perceived environmental sustainability showed high internal consistency (Time 1 α = .93; Time 2 α =.94).

*Self-determination* was measured using Sheldon and Deci's self-determination scale (2016). The scale measures self-perceptions of determination through ten pairs of statements split into two subscales, each comprising of five pairs of items. The first subscale, awareness of oneself, includes pairs of statements relevant to individuals' awareness of their thoughts, feelings and attitudes. An example pair is, "(A) I feel that I am rarely myself" and "(B) I feel like I am always completely myself". The second subscale, choice in one's actions, includes pairs of statements that are relevant to individuals' autonomy. An example pair is,. "(A) I feel pretty free to do whatever I choose to" and "(B) I often do things that I don't choose to do". Participants were asked which statement they felt was more true using a 5-point scale ranging from 1 "A feels more true than B" to 5 "B feels more true than A". According to Sheldon and Deci (2016), the subscales can be used separately or combined; we took the latter approach, combining the two subscales into an overall measure of self-determination. In the present study, the combined scale showed good internal consistency (Time 1 α = .84; Time 2 α = .83).

*Person-organisation fit* was measured using the three-item Perceived Person–Organisation Fit scale (Cable and Judge, 1996). An example item is, "My values match or fit with the values of this organisation"). Responses were on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree". The scale showed good scale reliability (Time 1 α = .87; Time 2 α = .88).

*Pro-environmental behaviour* was measured using Larson et al.'s (2015) Pro-EB scale. The scale consists of four subscales, each asking how often respondents engage in behaviours across the four Pro-EB dimensions: conservation lifestyle (3 items; e.g., "Recycled paper, plastic and metal"); land stewardship (3 items; e.g., "Volunteered to improve wildlife habitat in my community"); social environmentalism (3 items); e.g., "Talked to others in my community about environmental issues") and environmental citizenship (4 items; e.g., "Signed a petition about an environmental issue"). Responses were recorded on a 5-point Likert scale ranging from "never" to "very often". All scales showed low but adequate scale reliability, aligning with Larson's original reliability findings (above α = .66). Ziegler et al. (2014) discuss the challenges of using Cronbach's alpha to measure scale reliability in short scales. To address this concern we highlight the test-retest reliability (Rammstedt and Beierlein, 2014), found to be good across all four scales ($r > .72$, $p < .01$).

*Environmental worldview* was measured using the Revised New Ecological Paradigm Scale (Dunlap *et al.*, 2000). The scale consists of 15 items that measure an individual's worldview regarding the state of the environment and environmental issues, e.g. "When humans interfere with nature it often produces disastrous consequences". Following Hawcroft and Milfont's (2010) guidelines, responses were on a 5-point Likert scale, ranging from strongly disagree to strongly agree. The scale's unidimensionality was supported by the full scale showing good reliability (Time 1 α = .86; Time 2 α =.88).

*Employee well-being* was measured using the Employee Well-Being Scale (Zheng *et al.*, 2015), consisting of 18 items (e.g. "I find real enjoyment in my work"). Responses were recorded using a 6-point Likert scale ranging from 1 "never" to 6 "all of the time". The scale reliability was good (Time 1 and Time 2 α =.93).

*Performance* was measured using the Individual Work Performance Questionnaire (IWPQ) (Koopmans *et al.*, 2012). The IWPQ comprises of three self-report dimensions of individual performance at work: task performance (5 items; e.g., "I planned my work optimally"); contextual performance (8 items; e.g. "I continually sought new challenges in my work"); and CWB (5 items; e.g., "I made problems at work bigger than they were"). Responses were recorded on a Likert scale ranging from 0 "seldom" to 4 "always" for task and contextual performance, and from 0 "never" to 4 "often" for CWB. The scale showed good reliability over dimensions and time (Time 1 α =.82, .88 and .83; Time 2 α =.81, .88 and .83, respectively).

*Data analyses*

Prior to analysis, data were cleaned using three exclusion criteria: failure to commit to answering honestly, failure to respond to more than 95% of the questions and completing the survey faster than 50% of the median completion time. Descriptive and correlational analyses were run using IBM SPSS. Network analyses were then carried out using R software (version 4.5.1) (R Core Team, 2025). Network analysis was chosen because it allows us to model the structural interdependencies among constructs empirically rather than imposing predefined latent structures, resulting in the predictability of variables being highlighted, which may be obscured in more traditional analyses. All variables measured at Time 1 were added as nodes in the Gaussian Graphical Model (GGM). Extended Bayesian Information Criterion Graphical LASSO (EBICglasso) methodology was used to identify the unique pathways between variable pairs (Epskamp et al., 2012), and 5000 bootstrap samples were estimated to gain confidence

intervals and assess network stability. A combination of exploratory (Time 1) and confirmatory (Time 2) network analyses were used, with comparisons also being made to assess network stability between the two timepoints. Following network analysis formation and comparison, the predictability of each node was then calculated. Predictability is the extent to which each node may be predicted by all other nodes within the network; it is calculated using Bayesian R2 (Chalmers et al., 2022). Predictability, therefore, indicates how interconnected each individual node is within the network and can be used as a measure of how important each measure is within its network. Although it should be noted, centrality and predictability reflect statistical interconnectedness rather than causal influence.

**Results**

*Descriptive statistics*

Descriptive and correlational statistics are presented in Supplementary Table S1. Differences between variable scores at the two timepoints were assessed using paired t-tests, as establishing stability over time is essential for ensuring that subsequent network analyses yield meaningful and interpretable conclusions (Hevey, 2018). Only three variables showed significant differences between Time 1 and Time 2, and these were all small. The three differences were for sustainability ($t$= 2.407, $p$= .016, *Cohen's d*= .115), and two Pro-EB facets (conservation lifestyle, $t$= 4.574, $p$= <.001, *Cohen's d*= .218; and environmental citizenship, $t$= 2.668, $p$= .008, *Cohen's d*= .127), see Supplementary Table S2. The small number of significant differences and the small effect size of these differences indicate participants' responses generally remained stable over time. This supports the variables' stability; given the observed stability in responses, we proceeded to conduct network analyses to explore the relationships between variables at both timepoints.

*Exploratory network analysis*

Data collected from participants at Time 1 were used to estimate an exploratory network analysis to investigate relationships between variables; the resulting GGM is shown in the top half of Figure 2. Visual analysis and edge weight estimates show sustainability has significant positive relationships with several variables, most notably P-O fit (edge weight = .39 [.31 to .45]), well-being (edge weight = .07 [.00 to .15]) and contextual performance (edge weight =.08 [.00 to .15]). The network also showed strong positive correlations between self-determination, P-O fit, well-being and performance. Further, the network highlighted the

interconnectedness of the 4 facets of pro-environmental behaviours. See Table S3 for a summary of network statistics.

*Confirmatory network analysis*

Data collected from participants at Time 2 were used to estimate a confirmatory network analysis (see the bottom half of Figure 2 for the Time 2 GMM). This enabled us to verify the relationships between variables found at Time 1. Visual analysis of the model, coupled with edge weight estimates, shows sustainability to again have significant positive relationships with several variables. Most notably sustainability was positively associated with P-O fit (edge weight = .45 [.38 to .53]) and well-being (edge weight = .26 [.18 to .33]), though the relationship with contextual performance was weaker at Time 2 than Time 1. Further confirming the Time 1 network, the Time 2 network showed similarly strong positive correlations between self-determination, P-O fit, well-being and performance. And finally, the Time 2 network also confirmed the interconnectedness of the four facets of pro-environmental behaviours. See Table S3 for a summary of network statistics.

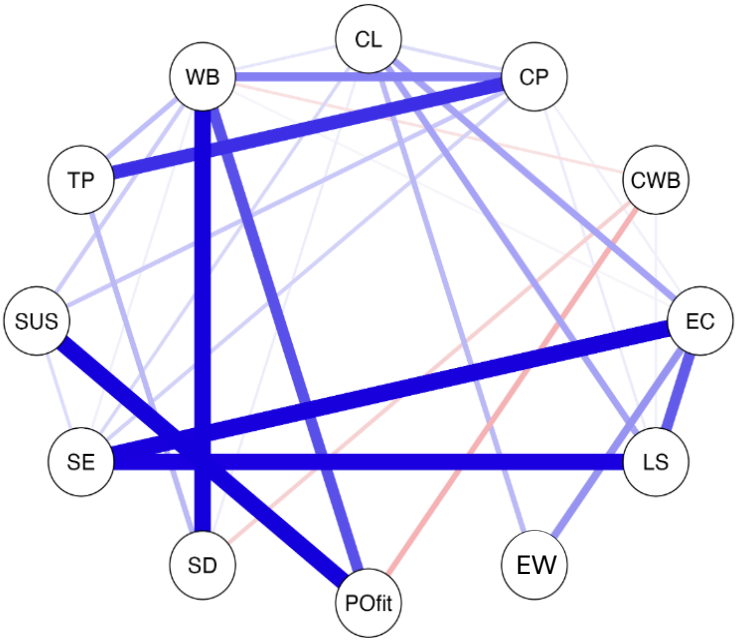
*Predictability*

Predictability in network analyses refers to the extent to which one node can be predicted by all other nodes in the network. In other words, predictability tells us how important each node is within the network: the higher the predictability, the more important the node. Predictability showed the same results at both Time 1 and Time 2: the three facets of pro-environmental behaviours, namely environmental conservation, social environmentalism and land stewardship, showed the highest predictability (Time 1: .52, .51 and .45; Time 2: .51, .53 and .47). Other key nodes with high levels of predictability at both times include well-being (Time 1 = .49, Time 2 = .45), sustainability (Time 1 = .34, Time 2 = .31) and P-O fit (Time 1 = .38, Time 2 = .39). Both counterproductive work behaviours and environmental worldview were at the lower end of the predictability spectrum (Time 1 = .08 and .11, respectively; Time 2 = .10 and .13, respectively). See Table S4 and Figure S1 for the predictability summary and comparison by time point.

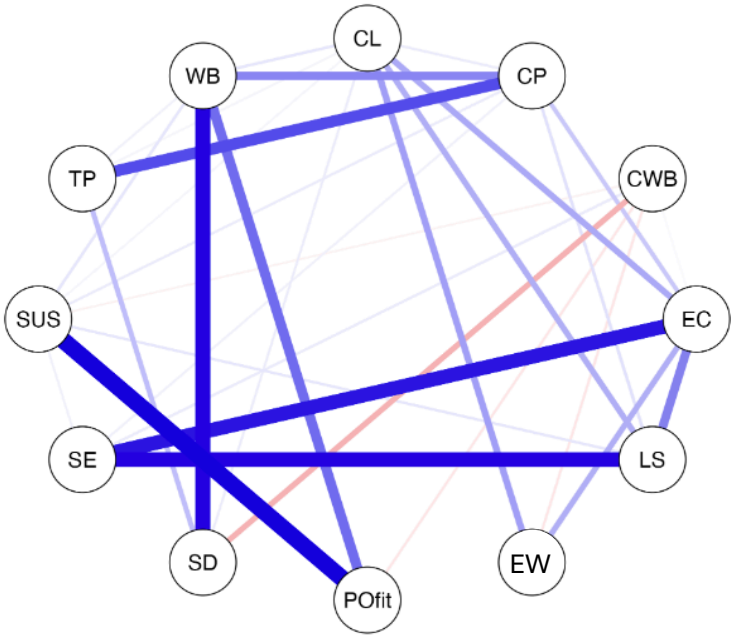
**Figure 2**

Networks of sustainability, employee outcomes and key variables

Timepoint 1




Timepoint 2

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*Stability*

We conducted a network comparison test to compare the structure and strength of the network over time, assessing the stability between Times 1 and 2. The results indicated there was no significant variance in the network structure between timepoints ($M$ =.086, $p$ = .63). Similarly, no significant differences were found when assessing global strength ($S$ = .21, $p$ = .47), indicating that the overall level of connectivity among variables, and thus the general degree of interdependence within the network, remained stable across the two timepoints. Edge invariance tests revealed one edge, between well-being and social environmentalism, showed a significant change ($p$ =.01). No other edges differed significantly between timepoints.

## Discussion

In this study, we used network analysis to investigate the interconnections between workplace sustainability, perceptions of self-determination and P-O fit, pro-environmental behaviours, environmental worldview and the key employee outcomes of well-being and performance.

Our results find positive relationships between employee perceptions of their workplace's sustainability and their well-being, providing support from a new context and sample for previous findings (e.g., Han et al., 2021; Sadick & Kamardeen, 2020). Furthermore, our findings show sustainability to be positively associated with contextual performance, building on emerging research (e.g., Sheeran et al., 2025) suggesting that employees may be more likely to go beyond their formal role requirements when they perceive their organisation as doing good for the environment, and extending this work through the use of network analysis, which offers a more nuanced, fine-grained understanding of how sustainability perceptions relate to contextual performance. It is important to note that the network edges may partially reflect shared evaluative schemas or common method variance, and therefore the findings should be interpreted as relational patterns. We do not suggest our findings provide evidence of distinct causal mechanisms.

Although CWBs did not emerge as strongly connected within our network, this pattern is consistent with research suggesting that CWB tends to arise from more distal processes. Prior research indicates that CWB is typically shaped through indirect pathways involving stress, burnout, and negative workplace perceptions, rather than directly through positive value-based constructs (Abdullah and Al-Abrrow, 2025), as investigated in the current study. As such, the weak negative associations we observed may reflect the absence of adverse workplace

conditions in our sample, with sustainability functioning more strongly as a positive factor for well-being and performance than as a direct inhibitor of counterproductive behaviour.

Previous research has clearly established a link between more self-determined individuals and higher levels of well-being and task performance, as well as decreased levels of counterproductive work behaviours (e.g. Ryan and Deci, 2000). Interestingly, however, the findings of our network analyses did not provide support for the theorised relationships between self-determination and sustainability, despite finding significant weak positive correlations at both timepoints. As network models control for all other nodes, weak links may not appear as edges once shared variance is accounted for and it is likely, therefore, that the relationship between self-determination and sustainability may be explained by other variables in the network.

The networks remained stable over time, with no significant network structure variance or global strength variance, indicating that the network's structure, density and strength remained generally stable between timepoints. The weakening of the edge between well-being and social environmentalism between timepoints may suggest that the initial link was context-dependent or driven by short-term awareness. Between timepoints, the perceived connection between socially oriented environmental behaviours and personal well-being weakened. However, the consistently high predictability of social environmentalism across both time points suggests it remains strongly influenced by other factors within the network, even as its direct link with well-being weakened. This finding adds to existing research showing that individuals are more likely to act sustainably when surrounded by others who carry out sustainable behaviours (Darner, 2009; Zorell, 2020), further highlighting the value of creating a workplace culture that both supports and normalises sustainability practices.

Previous work has found that personal experiences and connection with nature are key forces that shape an individual's environmental worldview (Kukkonen et al., 2018). Similarly, in our research, environmental worldview was found to have relatively low predictability (or interconnectedness) within the network, suggesting that it may function more as an outcome variable rather than a driver of other constructs. In other words, carrying out Pro-EBs may influence an individual's environmental worldview rather than the other way around.

*Implications*

According to P-O fit theory, employees experience higher levels of well-being and performance when their personal values align with those of the organisation (Judge and Kristof-Brown, 2004). Our results highlight P-O fit as a crucial variable in the complex network of relationships, suggesting this is a potential theoretical mechanism for the relationship between organisational sustainability and employee outcomes. These network insights imply that organisations may benefit from prioritizing leverage points such as P-O fit. Aligning with Schneider's ASA model (1995), organisations that successfully and visibly embed sustainability into their strategy may therefore be more likely to attract, retain, and motivate sustainably minded employees, in turn leading to positive employee outcomes.

In contrast, although SDT provides a useful conceptual lens, we found it played a limited role in the network and showed low predictability. While autonomy, competence, and relatedness are theorised to support well-being and performance, our findings suggest these motivational elements are less influential than value alignment with the organisation. This may mean within the context of workplace sustainability, fostering P-O fit is more critical than targeting intrinsic motivation directly.

Furthermore, the four facets of pro-environmental behaviour – conservation lifestyle, land stewardship, social environmentalism, and environmental citizenship – exhibited high levels of predictability within the network models. This suggests that employees who actively engage in Pro-EBs may also be those with values that are more closely aligned with the organisation's sustainability values. From a P-O fit perspective, this alignment is likely to enhance positive outcomes. Practically, this highlights the potential benefit of recruiting or developing employees with strong pro-environmental orientations, as it is likely they will both contribute to the organisation's sustainability objectives and function as more motivated and productive employees.

Additionally, the high level of interconnectedness between the facets of Pro-EBs suggests that promoting one form of sustainable behaviour may lead to increases in others, consistent with findings that environmentally conscious behaviours often cluster together (Larson et al., 2015). Specifically, the high predictability of social environmentalism, which remained stable between timepoints, demonstrates the importance of including social aspects in understanding the interaction between sustainability and human outcomes. These social factors, such as relationships and organisational culture, play a critical role in determining how sustainability

practices are perceived and adopted by employees (Gadomska-Lila, 2024). Practically, this may provide organisations with further incentive to focus on the social aspects of sustainability to benefit from increased positive employee outcomes. For example, organisations can embed sustainability into workplace culture by sharing employee success stories in sustainability newsletters or integrating environmental achievements into recognition programs. These practices make sustainability a visible and valued part of the organisational identity, strengthening employees' sense of shared purpose and commitment and placing focus on the social aspect of sustainable actions (El Akremi et al., 2018).

*Limitations and future directions*

Whilst our findings offer meaningful insights, the study was not without limitations. Firstly, our sample consisted of employed individuals living in Australia. Whilst this was chosen to mitigate biases associated with the current political climate in more commonly studied populations such as the UK and USA, we acknowledge this may limit our results' generalisability due to Australia's unique, relaxed and flexible culture (Ang et al., 2006). Additionally, Australia has its own unique sustainability challenges, performing relatively poorly on international environmental sustainability metrics, with challenges in climate policy, biodiversity protection, and carbon emissions (OECD, 2019). Therefore, our sample may have been biased by a mismatch between perceived and actual sustainability, limited workplace exposure to robust sustainability practices, and cultural norms that negatively influence the salience of environmental issues. Such biases may have led to weaker associations between sustainability and employee outcomes, as sustainability may have been viewed more as an abstract concept than as an experienced organisational reality. Consequently, the effects of sustainability on well-being and performance may have been underestimated in this sample. Similarly, the lower reliability of the Pro-EB scales mean that caution should be exercised in interpreting these relationships and future work should perhaps use more robust scales. Further work could also assess the added value of network models alongside established methodologies such as structural equation modelling, to aid in providing clarity to these complex relationships.

Another limitation faced in this study involves the reliance on self-report data collection. This means the findings may be influenced by common method variance, which could inflate observed associations despite the use of network modelling. Furthermore, several other biases are possible due to self-report methodology, especially for variables such as job performance

and perceptions of their organisation's sustainability. Self-report measures were used to assess performance due to their practicality for online participant recruitment; we acknowledge they are vulnerable to social desirability bias (Krumpal, 2013), where participants may overestimate their performance to present themselves as higher performing. Conversely, cognitive biases, such as the Dunning-Kruger effect, may also cause inaccurate reporting where low performers overrate their abilities (Dunning, 2011). Equally, self-report perceptions of sustainability are subjective and may be influenced by a number of factors, including an individual's knowledge or interpretation of sustainability (Hall et al., 2022). Responses may also be shaped by recency biases (Baddeley and Hitch, 1993), for example, if their organisation recently implemented a small sustainability initiative, employees may inflate their perceptions of how sustainable their workplace is. Another notable limitation of the scales used is that the scale used to measure employee self-determination was not made up of subscales measuring autonomy, competence and relatedness. By investigating self-determination as a single variable some theoretically meaningful distinctions may be obscured, therefore we encourage future research to measure the three psychological needs distinctly.

A further limitation of this research is while organisational sustainability is often framed as a positive organisational value, it may also introduce emotional burdens for some employees, including feelings of guilt, pressure, or exhaustion associated with environmental responsibility. These negative dynamics were not explored in the present study and represent an important avenue for future research. Additionally, although the Pro-EB scale used in this study mirrored the scale reliability found during scale creation, future research may benefit from using more robust Pro-EB scales.

Given that this study focused on a specific population from a wealthy, predominantly white, English-speaking country, future research could apply similar network-based analyses to more diverse populations. Comparisons could then be made to establish cross-cultural differences or similarities and assess the generalisability of this study's results. Additionally, as our study's key finding highlighted the crucial role of P-O fit in the relationship between sustainability and employee outcomes, and the lack of influence stemming from individuals' environmental worldview, further research should investigate whether other specific personal values (such as environmental concern or activism) influence the relationship between P-O fit and outcomes.

## Conclusion

This study contributes to the growing literature on workplace sustainability by demonstrating the robust and stable network relationships between organisational sustainability, P-O fit, employee well-being and performance. Using a two-wave design and network analyses, we found that P-O fit plays a central role in linking organisational sustainability to positive employee outcomes, with sustainability also significantly relating to contextual performance and well-being. Accordingly, the contribution of this study lies in demonstrating how network analysis can be used as a theory-testing tool to enrich understanding of existing frameworks, rather than in extending or reformulating theory itself. Interestingly, self-determination and environmental worldview were less central in the network. Conversely, the high predictability and interconnectedness of pro-environmental behaviours underscore the importance of human factors in workplace sustainability systems. These findings highlight how sustainability efforts may influence employees and reinforce the value of embedding and promoting sustainability within organisations to support positive organisational and individual outcomes. At a broader level, cultivating sustainability within workplaces may also contribute to the wider societal transition toward environmental responsibility and ecological resilience.

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# Chapter Five: Increased Sustainability, Increased Well-being and Performance? A Mixed Method Intervention

## Citation

Sheeran, Z., Sutton, A., & Cooper-Thomas, H. D. (under review) A sustainable intervention: exploring the influence of workplace sustainability, employee well-being and job performance using a mixed methods approach. Submitted to: *Humanistic Management Journal*

## Preface

The preceding chapters established relationships between perceived sustainability, well-being, and performance, first in student populations and then in working populations, with network analysis providing a deeper understanding of how these variables interconnect over time and the central role of person-organisation fit. Building on this foundation, chapter five takes the findings a step further by exploring causality: does enhancing sustainability actively lead to better human and organisational outcomes?

This study employed a sustainability-focused intervention with 72 employees across two New Zealand organisations, using a waitlist control design with three survey timepoints. Following the intervention, we observed significant increases in perceived sustainability, well-being, and performance, suggesting that improving sustainability can positively influence employee outcomes. While limitations in recruitment and retention warrant caution in claiming causality, these findings provide a practical basis for future research in this area.

# A sustainable intervention: exploring the influence of workplace sustainability, employee well-being and job performance using a mixed methods approach

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## Abstract

This study investigates whether interventions to increase employee perceptions of their organisation's environmental sustainability influence well-being and job performance. While previous research has found correlational links between sustainability and employee outcomes, intervention-based evidence remains limited. Aligned with the Sustainable Development Goals (SDGs), particularly those related to health, decent work, and climate action, this study implemented a sustainability-focused intervention in two medium-sized organisations using a waitlist-control design and mixed methods approach. Over 18 weeks, employees (n= 72) completed pre- and post-intervention online surveys measuring well-being, environmental worldview, perceptions of organisational sustainability, and three job performance indicators. Semi-structured interviews with a subset of participants (n = 4) retroactively explored their experiences of the intervention in more depth. Quantitative results showed statistically significant increases in employee outcomes following the intervention. This was further supported by qualitative findings which revealed subtle but positive changes in mood, attitudes, workplace culture and employee well-being – with findings from thematic analysis suggesting that even small-scale sustainability initiatives may foster improvements in employees' experiences at work. These findings indicate that while caution is required when interpreting much of the sustainability literature's correlational research as causal, simple interventions have potential for enhancing workplace well-being and performance. To our knowledge, this study is among the first to use intervention-based research to evaluate the effects of sustainability interventions on employee outcomes and highlights the need for further large-scale research.

**Keywords:** Workplace, Well-being, Environmental Sustainability, Job Performance

Organisations are under increasing pressure to follow sustainable business practices. Consumers prefer 'green' goods and services; talented workers are drawn to employers that demonstrate care for the natural environment; and governments worldwide are introducing regulations and incentives to reward environmentally responsible behaviour (Sharma, 2021; Wirba, 2023). Organisations face growing demands to support employee well-being, with low well-being linked to costly outcomes such as burnout, absenteeism, and disengagement, and high levels of employee well-being predicting increased job satisfaction and reduced turnover (Goetzel and Ozminkowski, 2006). Meanwhile, employee performance remains a central organisational priority, with human capital widely regarded as critical to organisational success (Na-Nan *et al.*, 2016).

Recent research provides evidence of links between environmental sustainability and a range of employee outcomes. For example, sustainable work environments (workplaces that minimise environmental impact and emphasise the dualistic relationship between humans and the natural environment) are known to reduce stressors and noise pollution as well as increase air quality and connectedness with nature, factors known to promote both well-being and performance (Geng *et al.*, 2019; Mohezar *et al.*, 2021; White *et al.*, 2019). Furthermore, when organisations invest in sustainability, employees may perceive this as a form of support and be more likely to reciprocate with positive attitudes and behaviours (Lamm *et al.*, 2015). Therefore, the sustainability of an organisation could play a key role in influencing employee well-being and performance.

Given these global organisational trends and emerging research-based insights, it is critical to examine the potential benefits of sustainable business practices, particularly in relation to employee well-being and performance. While existing research has established positive associations between sustainability and employee outcomes (Bohlmann et al., 2018; Han et al., 2021), a key gap in the literature remains: it is unclear whether these relationships are causal or merely correlational. Addressing this question is essential for organisations seeking to implement evidence-based sustainability strategies that not only benefit the environment but also enhance employee functioning and organisational success and may provide a compelling argument for persuading organisations to increase their sustainability. The widely acknowledged truism that correlation does not equal causation has led to a taboo against explicit causal inference in nonexperimental psychological research (Grosz *et al.*, 2020). In this paper, we use a randomized control trial with a waitlist control design to test how employee well-being and performance are affected by perceptions of sustainability.

***Sustainability in organisations***

Sustainability is ensuring there is enough for all, forever; guaranteeing the availability of natural resources for future generations through adequate resource management and protection of the natural environment in which the resources come from (Goodland, 1995). Hence this paper focuses solely on the dualistic relationship between humans and the natural environment they inhabit, and excludes other dimensions of sustainability (e.g. social or economic).

Sustainability is critical for the world, yet many resources are squandered. If we sustain current resource consumption levels, projections suggest that by 2050 we will require the equivalent of three Earths' worth of resources (United Nations, 2022). Environmentalists fear we are nearing the point at which environmental disaster cannot be averted through sustainable change (Cassegård, 2023). This notion of time running out has ignited an interest in sustainability at both individual and organisational levels (Acaroglu, 2021; Ruepert *et al.*, 2016).

Not only do sustainable business practices benefit the natural environment, but they may also provide the organisation with a competitive advantage. Sustainability is key for attracting both talented employees and consumers, as well as pleasing stakeholders and investors (Porter and Kramer, 2019). Other key benefits of implementing sustainable business practices at the organisational level include increased profitability, improved reputation, and increased legal and moral compliance; at the employee level, there are equally a multitude of positive outcomes, including increased job satisfaction and decreased turnover (Molenaar and Kessler, 2017).

We argue that organisational sustainability becomes most meaningful when it resonates with employees' personal environmental values. We therefore draw on the theoretical framework of person-organisation fit (P-O fit). Person-organisation fit (Judge and Kristof-Brown, 2004) proposes that a better alignment between individual's values and an organisation's values results in positive outcomes, and is supported by research demonstrating greater fit results in increased employee well-being and performance at both the individual and organisational levels (Chen *et al.*, 2016; Sousa and Porto, 2015). In other words, when employees who hold strong environmental worldviews perceive their organisation as prioritising sustainability, this alignment may enhance their well-being and performance. In this paper, we specifically focus on the P-O fit occurring by the alignment between the employee's and organisation's environmental values and we assess how strongly an individual cares about the environment by measuring their environmental worldview: their personal values and attitudes regarding the environment and the factors that affect it (Milfont, 2012). By examining the fit between

individual and organisational environmental values, this paper seeks to understand how sustainability initiatives can foster positive employee outcomes, specifically well-being and performance.

### *Sustainability and employee outcomes*

*Well-being*

A simple and useful definition of well-being is both feeling good and functioning well (Diener *et al.*, 1999). Employees and employers alike are becoming increasingly aware of the importance of high levels of well-being in the workplace, or employee well-being (EWB), with recent research finding the work environment is a central factor in promoting well-being and its associated benefits, conversely, poor work environments can significantly undermine well-being and lead to negative outcomes (Le *et al.*, 2021). Research consistently finds high levels of reported EWB to be associated with lower levels of presenteeism, absenteeism, depression, anxiety, stress, burnout and turnover intention (Goetzel and Ozminkowski, 2006; Pescud *et al.*, 2015).

Several studies have made links between an organisation's sustainability and employee well-being (e.g., Han et al., 2021; Sadick and Kamardeen, 2020; Sheeran et al., 2025). Poor mental health costs the global economy an estimated USD 1 trillion each year through absenteeism and lowered productivity (World Health Organization, 2022). Given the number of positive outcomes associated with high levels of employee well-being, the monetary cost associated with low levels of employee well-being, and the increase in health and safety legislation, there has been a global industry-wide shift towards prioritising worker well-being (Adams, 2019). This shift aligns with the United Nations Sustainable Development Goals (SDGs), particularly Goal 3 (Good Health and Well-being) and Goal 8 (Decent Work and Economic Growth), which underscore the importance of employee health and sustainable work environments (United Nations, 2022). Importantly, research over the past century has shown a robust positive relationship between EWB and job performance (Sender *et al.*, 2021; Viteles, 1930), suggesting that well-being is not only a desirable outcome in its own right but also a critical driver of organisational success.

The happy–productive worker hypothesis (HPWH) proposes that employees with higher levels of well-being perform better than their less happy counterparts. Over the last century, substantial evidence has shown support for a positive relationship between well-being and

performance (Sender *et al.*, 2021; Warr and Nielsen, 2018). Several theoretical frameworks help explain this link, notably equity theory and broaden and build theory. Equity theory states that when employees perceive fairness between the efforts they put in and the rewards they get out of their organisation, they feel satisfied and, in turn when they perceive extra rewards – in this case a sustainable work environment – they invest greater effort to maintain equity (Adams, 1963; Taris and Schreurs, 2009). Similarly, broaden-and-build theory (Fredrickson, 2001) proposes positive emotions expand awareness, foster curiosity, and build both personal and social resources that enhance performance. Further expansion on the broaden and build theory has found positive affect is also linked to greater levels of cooperation, creativity, and problem-solving, all of which support overall effectiveness at the individual and team levels (Madjar *et al.*, 2002; Zelenski *et al.*, 2008). Taken together, these perspectives suggest that well-being not only enhances employees' internal resources and motivation but also translates into tangible improvements in their performance outcomes.

*Performance*

Work performance can be defined and measured in a variety of ways. This study adopts a multidimensional approach, focusing on three key components: task performance, contextual performance, and counterproductive work behaviour. Task performance refers to the proficiency with which individuals carry out core job responsibilities and is central to most definitions of performance, including Campbell's early conceptualisation of work performance as all behaviour relevant to organisational goals (Campbell, 2012). However, focusing solely on task-related behaviours provides a limited view of employees' contributions to organisational effectiveness (Koopmans *et al.*, 2011). A more comprehensive understanding of work performance also includes contextual performance**,** voluntary behaviours that support the social and psychological environment of the workplace, such as helping colleagues; and counterproductive work behaviours (CWB**)**, which are intentional actions that harm the organisation, such as spreading negative sentiment (Koopmans *et al.*, 2011)

At both the organisational and individual levels, sustainability has been found to positively correlate with performance (Bohlmann *et al.*, 2018; Pinzone *et al.*, 2015; Schrettle *et al.*, 2014; Sheeran *et al.*, 2025). One possible explanation of why this relationship exists is that sustainable business practices often create better working conditions. For example, the addition of plants and practices such as electrifying fleet pools to reduce pollution result in increased air quality and reduced noise pollution, both of which have been linked to increased

focus, energy levels and therefore performance (Geng *et al.*, 2019; Mohezar *et al.*, 2021). Another potential explanation of the relationship is that employees who see their organisation as sustainable and doing good for the planet, feel by working for that organisation they are playing a crucial role in doing good for the environment. In turn, they feel more motivated to increase their performance because it is contributing to a greater cause, sustainability, especially if the employee holds strong environmental values (Nusraningrum *et al.*, 2024; Yong *et al.*, 2022).

As noted, the relationships that have been established thus far between organisation's sustainability and employee outcomes are correlational. In this paper, we propose that an intervention designed to increase an organisation's sustainability will positively influence employee well-being and performance.

***Improving organisational sustainability***

Organisations adopt a wide variety of approaches when it comes to increasing their level of sustainability. Such approaches include operational changes (e.g., reducing energy use or implementing recycling programmes), strategy changes (e.g., reducing expenditures through implementing green policies), and employee-centred initiatives (e.g., training or enhancing engagement with operational changes) (Epstein and Buhovac, 2010). While the specific form of the sustainable initiative may vary, positive outcomes are driven by the organisation's visible and authentic commitment to protecting the natural environment, and actions to support staff in carrying out sustainable behaviours (Glavas, 2016; Lamm *et al.*, 2015). To our knowledge, ours is one of the first studies to test the effects of a sustainability-improving intervention on employee well-being and performance.

Given the limitations of quantitative data in capturing the wide range of potential influences, especially in novel research areas, it was important to complement the statistical findings with contextual insights from participants. Therefore, a mixed methods approach was adopted to provide a more holistic understanding of the sustainability intervention. This approach is particularly valuable in intervention designs, where changes may occur in areas not initially anticipated (Venkatesh *et al.*, 2016). Qualitative data can unearth these unexpected outcomes, offering nuanced understandings of how and why certain changes occur,

Accordingly, the study included two sources of qualitative data. First, both pre- and post-intervention surveys featured open-ended questions to gather initial and evolving perceptions.

Second, semi-structured interviews were conducted to explore in depth their retrospective views on the sustainability initiative and its impact on their well-being and job performance. This allowed us to explore two core research questions: How do employees perceive the sustainability of their organisations? And how does this sustainability influence employee outcomes?

***The present study***

While existing studies consistently report positive associations between environmental sustainability and both well-being (Barrington-Leigh, 2016; Han *et al.*, 2021; White *et al.*, 2019) and performance (Bohlmann *et al.*, 2018; Pinzone *et al.*, 2015), this body of evidence remains largely correlational. As a result, we still lack a defined understanding of if, and how, sustainability directly improves these outcomes. Organisations use proven sustainability practices, yet they are often not implemented systematically and their impacts on employee well-being and performance are not empirically observed. Addressing this gap is essential to test theory and move beyond correlational findings.

The present study therefore aimed to test whether perceived environmental sustainability meaningfully affects employee well-being and job performance using an intervention-based design and a mixed methods approach. In the quantitative phase of the study, employee outcomes were measured before and after the implementation of interventions designed to increase employee perceptions of their organisations' sustainability. In the qualitative phase, employee perceptions of the intervention, their well-being and performance were explored in depth.

Although all part of a single, 4 wave data collection effort, the findings are structured here in terms of three distinct phases for ease of reporting. Phase 1 consisted of a quantitative evaluation of the intervention using a waitlist control design. Phase 2 consisted of a mixed method evaluation of immediate participant experiences of the intervention and Phase 3 consisted of in-depth interviews with a subset of participants. Each phase was guided by the following hypotheses and research questions (RQs):

Phase 1 Hypotheses:

H1: Well-being and performance are positively related

H2: Perceived sustainability and well-being are positively related

H3: Perceived sustainability and performance are positively related

H4: Sustainability intervention will increase perceived sustainability

H5: Sustainability intervention will increase a) well-being and b) performance

Phase 2 RQs:

Does the intervention change employee perceptions of the relationship between sustainability and their own well-being and performance?

How do employees understand the relationship between the organisation's sustainability efforts and their own well-being and performance?

Phase 3 RQ:

How do sustainability interventions influence employee perceptions of sustainability?

## Phase 1

### Method

#### *Participants and procedure*

Two organisations in New Zealand agreed to take part in the study, which involved implementing a six week tailored programme to improve perceived sustainability within the workplace. We invited employees to complete online surveys before and after the intervention was implemented.

An a priori power analysis using G*Power 3.1 for a two-tailed paired samples t-test (pre-post), assuming a small-to-medium effect size (Cohen's $d = 0.55$), $\alpha = .05$, and power = .80, indicated a required sample size of 28 participants.

A total of 72 employees signed up to participate in the study, n = 39 from Organisation 1 in the government sector (approximately 20% of the location's workforce), and n = 33 (approximately 80% of the workforce), from Organisation 2 in the education sector. After data cleaning (outlined in 2.4) data from 47 participants were retained from the pre-intervention survey and data from 38 participants were retained from the post-intervention survey. Due to some participants not participating in all surveys, full data from 32 participants who completed both pre- and post-intervention surveys were retained for analysis. Demographics were as follows: 79.2% female, 20.8% male; 58.2% of participants identified as NZ European, 26.8% as Māori, 7.5% as Asian and 7.5% as other. The ages of participants ranged from 22 to 63 ($M$ = 38.5, $SD$ = 11.96) and the average tenure was 5.05 years ($SD$ = 5.68).

This study used a waitlist-control intervention design. The waitlist control design is particularly beneficial in applied research settings where it would be impractical or unethical to exclude participants from an intervention. Using this design, all participants receive the intervention, but one group acts as a 'control' group (completing two surveys before the intervention is implemented) before going on to experience the intervention. In our study, this was essential for mitigating biases such as demand characteristics or a priming effect.

Within each organisation, participants were randomly assigned to either the waitlist control or standard group. Each group completed an online survey 1 week before and 6 weeks after the intervention: the pre- and post-intervention surveys (see Figure 1 for schedule overview). In addition, the waitlist control group completed the survey 6 weeks before the intervention. This was to allow evaluation of the extent to which completing the survey (and thus potentially raising participants' awareness of the variables being measured) might influence their responses. The original design also invited participants in the standard group to complete the survey 12 weeks after the intervention, in order to assess longer term effects. Unfortunately, the dropout rate was so high that this survey wave did not collect any usable data.

**Figure 1**

Waitlist-control Schedule Overview

| | x-6 weeks | x-1 week | x | x+6 weeks |
|---|---|---|---|---|
| Waitlist control group | Control survey | Pre-intervention survey | Intervention | Post-intervention survey |
| Standard group | | | | |

***Interventions***

The interventions implemented in this study were tailored to each participating organisation to account for variations in organisational context, culture, and existing sustainability practices. They were, however, underpinned by a common objective: to enhance perceived environmental sustainability within the workplace and to promote employee engagement with sustainability practices. Each intervention sought to increase awareness of sustainable behaviours and to make sustainability more visible and accessible in the organisation. By embedding pro-environmental actions into everyday work life, interventions aimed to support employees in adopting sustainable practices and to strengthen their perceptions of the organisation's level of sustainability. While this approach came with limitations, such as reduced standardisation, the contextual adaptation of each intervention enhanced the study's ecological validity, reflecting the diversity of sustainability practices observed in organisations.

Both interventions followed a common pattern. First, an intervention was designed to fit with and build on the organisation's current sustainability practices. Second, employee awareness and engagement was built through posters, emails and voluntary activities. Third, the impact of the ongoing intervention was emphasised through email updates.

The intervention in Organisation 1 was the introduction of a communal garden. The organisation had a dedicated outside area (around 80$m^2$, on the third floor, overlooking a park) for employees, although the space was overrun with dead plants and bare soil in planter boxes. The intervention, carried out by the research team in collaboration with volunteer employees,

added over 20 types of edible plants that could be used by employees as well as decorative plants to increase the natural beauty of the area.

The intervention in Organisation 2 was the introduction of a recycling system into the staff room. Before the intervention, the organisation only recycled paper and all other waste was sent to landfill. During the intervention, recycling collection bins were added for glass, plastics, metal and e-waste, which were collected weekly and taken to a local recycling centre.

***Measures***

*Employee well-being* was measured using the Employee Well-Being Scale (Zheng *et al.*, 2015), consisting of 18 items (e.g. "I generally feel good about myself, and I am confident") and a 6-point Likert scale ranging from 1 "never" to 6 "all of the time". In the present study, the internal reliability was found to be good (α =.93).

*Environmental worldview* was measured using the Revised New Ecological Paradigm Scale (Dunlap *et al.*, 2000). The scale consists of 15 items that measure an individual's worldview regarding the environment and environmental issues e.g. "When humans interfere with nature it often produces disastrous consequences". Following Hawcroft and Milfont's (2010) suggestion, we used a 5-point response scale, ranging from strongly disagree to strongly agree. The scale showed good internal consistency (α = .76).

*Sustainability* was measured through employee perceptions of their organisation's environmental sustainability, using a scale developed by Sheeran et al. (2025). The scale combines two domains: perceived protection of the natural environment and perceived organisational support towards the environment, to capture employee perceptions of the direct environmental actions of their organisation and the frameworks their employer puts in place to support employees' environmental actions, e.g "Our company contributes toward saving resources and energy (e.g., recycling, waste management)". The combined measure of perceived environmental sustainability had high internal consistency (α = .93).

*Performance* was measured using the Individual Work Performance Questionnaire (IWPQ) (Koopmans *et al.*, 2012). The IWPQ is a self-report measure of individual performance at work across three facets. Task performance (5 items) focused on the effectiveness with which individuals carry out core job responsibilities, e.g. "I kept in mind the work result I needed to achieve". Contextual performance (8 items), measures behaviours that benefit the wider

organisation through enabling it to function effectively, e.g. “I took on challenging work tasks when these tasks were available”. CWB (5 items) covers behaviours that hinder the organisation’s objectives or cause harm to the organisation and its stakeholders, e.g. “I talked to people from outside of the organization about the negative aspects of my work.”. The IWPQ asks participants to respond to each item on a Likert scale ranging from 0 “seldom” to 4 “always” for the task and contextual performance subscales, and from 0 “never” to 4 “often” for the CWB subscale, based on the last three month period. In the present study, the internal validity of all three scales was found to be good (α =.83, .86 and .85 respectively).

### *Data analysis*

Quantitative data were retained for analysis if the surveys were at least 95% complete, as suggested by Schafer (1999). Normality of data was confirmed with Shapiro-Wilk tests.

First, we tested the waitlist control to determine whether completing the questionnaires influenced participants’ subsequent survey responses. Results (see Table S1) indicated that there were no significant effects in either organisation, and we can therefore be confident that any changes pre- and post- measures were more likely to be due to the intervention than raising participant awareness of the variables. Second, paired t-tests were run to determine whether data from the different groups were sufficiently similar and could be combined (see Table S2 to S4). There were relatively few differences so responses were combined into the overall pre- (n = 47) and post-intervention (n = 32) datasets.

Subsequently, descriptive and correlation analyses were conducted to test Hypotheses 1 and 2. Finally, to test for the intervention's effectiveness (H3 and 4), paired t-tests were run.

## Results

### *Descriptives and correlations*

Descriptive statistics and bivariate correlations are shown in Table 1. In support of H1, well-being was found to be positively related to performance at both the pre-intervention and post-intervention timepoints. At the pre-intervention timepoint, well-being was positively correlated with contextual performance and negatively correlated with counterproductive work behaviour

(r = .306, p = .036; r = -.339, p = .020, respectively). At the post-intervention timepoint, well-being was positively associated with contextual performance (r = .363, p = .041).

Perceived sustainability was found to negatively correlate with environmental worldview within the pre-intervention timepoint (r = -.296, p = .043). A further significant and notable correlation was observed between the pre-intervention measure of sustainability and the post-intervention measure of environmental worldview (r = -.405, p = .022).

**Table 1**

Descriptive statistics and correlations of variables pre- and post-intervention

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | M | SD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Pre-intervention** | | | | | | | | | | | | | | |
| 1. Well-being | — | | | | | | | | | | | | 4.57 | .68 |
| 2. Environmental worldview | -.232 | — | | | | | | | | | | | 3.87 | .48 |
| 3. Sustainability | .041 | -.296* | — | | | | | | | | | | 4.23 | .94 |
| 4. Task performance | .207 | .163 | -.146 | — | | | | | | | | | 3.55 | .75 |
| 5. Contextual performance | .306* | .026 | -.074 | .521*** | — | | | | | | | | 3.63 | .77 |
| 6. Counterproductive work behaviour | -.339* | -.165 | -.035 | .019 | .063 | — | | | | | | | 1.70 | .70 |
| **Post-intervention** | | | | | | | | | | | | | | |
| 7. Well-being | .811*** | -.197 | -.189 | .114 | .297 | -.066 | — | | | | | | 4.68 | .81 |
| 8. Environmental worldview | -.199 | .784*** | -.405* | .239 | .201 | .042 | -.057 | — | | | | | 3.94 | .43 |
| 9. Sustainability | -.064 | -.298 | .750*** | -.222 | -.129 | .111 | .096 | -.203 | — | | | | 4.50 | .95 |
| 10. Task performance | .299 | .108 | -.261 | .801*** | .472** | -.146 | .315 | .160 | -.045 | — | | | 3.75 | .80 |
| 11. Contextual performance | .327 | .045 | -.213 | .483** | .726*** | -.112 | .363* | .041 | -.002 | .666*** | — | | 3.77 | .76 |
| 12. Counterproductive work behaviour | -.316 | .214 | -.131 | -.105 | .040 | .549** | .017 | .232 | .111 | -.060 | .118 | — | 1.82 | .86 |

Note. pre-intervention N = 47; post-intervention N = 32; * p < .05, ** p < .01, *** p < .001

***Pre- and post-intervention measure comparisons***

A paired t-test showed that perceived sustainability improved significantly following the intervention (Table 2), supporting H4. Furthermore, in support of H5, well-being as well as both task and contextual performance increased following the intervention.

**Table 2**

Paired t-Tests for Pre- and Post-Intervention Measures

| Variable | Pre/post intervention | Mean | SD | t-test | p |
|---|---|---|---|---|---|
| Well-being | Pre | 4.574 | .677 | -2.391 | .012 |
| | Post | 4.686 | .805 | | |
| Environmental worldview | Pre | 3.870 | .480 | -.587 | .281 |
| | Post | 3.938 | .431 | | |
| Perceived sustainability | Pre | 4.225 | .937 | -3.288 | .001 |
| | Post | 4.496 | .948 | | |
| Task performance | Pre | 3.545 | .746 | -3.008 | .003 |
| | Post | 3.750 | .802 | | |
| Contextual performance | Pre | 3.630 | .766 | -1.901 | .033 |
| | Post | 3.770 | .759 | | |
| Counterproductive work behaviour | Pre | 1.702 | .704 | -.854 | .800 |
| | Post | 1.819 | .863 | | |

*Note. For all tests (apart from CWB), the alternative hypothesis specified pre-measure is less than post-measure, for CWB the alternative hypothesis specified pre-measure is more than post-measure*. n=32

## Phase 2

Findings in Phase 1 suggested that the sustainability intervention may have influenced participants' views of their organisation' sustainability, their well-being and their performance. Whist the hypothesised links between sustainability and well-being were not found in Phase 1's correlational analyses, these were tested and explored further in Phase 2, through both categorical response questions and open-ended questions.

### Method

Participants (N = 32) completed categorical and open-ended questions as follows (see Supplementary Materials for wording). In the pre-intervention survey, participants were asked to describe their organisation's environmental sustainability.

In both the pre- and post-intervention survey participants were asked *Do you feel that the environmental sustainability of your workplace affects your well-being at work / how well you do your job?* They responded with yes, no, or maybe. Subsequent open-ended prompt questions asked participants to explain their answers. These questions were designed to gain insight into their understandings of workplace sustainability, as well as their perceptions of how sustainability influenced their well-being and performance.

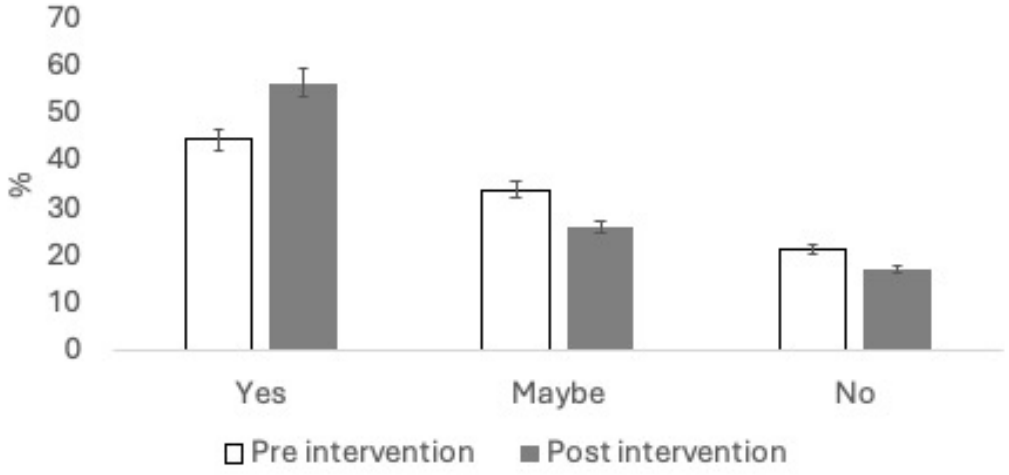
Comparisons of categorical data were made using Marginal Homogeneity (Stuart Maxwell) tests in RStudio (R Core Team, 2025) and open-ended responses were analysed using thematic analysis (Clarke and Braun, 2017).

### Results

Following the intervention, a larger proportion of employees felt their well-being was affected by the sustainability of their workplace, when compared with pre-intervention measures. While Figure 2 visually suggests a noticeable increase in 'yes' responses from pre- to post-intervention measures, the Marginal Homogeneity Test indicated that these shifts were not statistically significant ($\chi^2(2, N = 32) = 1.83$, $p = .40$).

**Figure 2**

Participants responses to the question " Do you feel that the environmental sustainability of your workplace affects your well-being at work?" before and after the intervention.

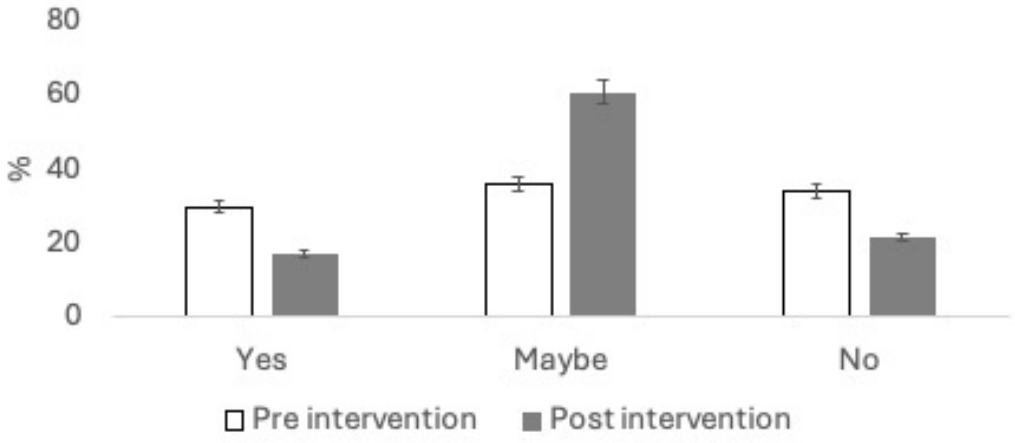



*Note*. 95% CI

Following the intervention, the proportion of employees saying sustainability either affected or did not affect their performance decreased, whilst a larger proportion responded "maybe" (see Figure 3). This change was found to be statistically significant following a Marginal Homogeneity Test ($\chi^2(2, N = 32) = 6.5, p = .04$).

**Figure 3**

Participants responses to the question "Do you feel that the environmental sustainability of your workplace affects your how well you do your job?" before and after the intervention.




*Note*. 95% CI

Thematic analysis revealed the following themes: definitions of sustainability, linking sustainability with human outcomes, and potential mechanisms explaining why participants felt this connection.

***Defining sustainability***

Participants were asked about their organisation's sustainability. Many responses included brief definitions of sustainability and how it is integrated with their role, with participants commonly defining sustainability in terms of environmental protection

> Through my work, I get to advise on ways we can protect nature and ensure our natural spaces are preserved for future generations.

***Linking sustainability with human outcomes***

After describing what sustainability meant to them, participants went on to discuss how these practices affected their own experiences at work. The majority discussed feeling good about themselves as they felt by working in a sustainable organisation, their work made a positive impact on the planet:

> When it comes to sustainability and my happiness I think I am happier knowing I work for a green workplace, it makes me feel like I am helping the planet when at work…

Some responses further outline that belonging to an organisation committed to protecting the environment encourages them to perform better at work:

> I feel motivated to work hard because I know that my workplace is ultimately trying to improve the environmental state of our region.

***Potential mechanisms***

When asked to explain their response, many participants discussed how their personal values align with their organisation's values in turn motivating their work performance. This perceived alignment between personal and organisational environmental values appears to enhance motivation, consistent with person–organisation fit theory:

> I am surrounded by coworkers who are passionate about the region's natural spaces and work hard in everything they do to ensure they are always doing their job to the best of their abilities in order to help the environment.

Together, these themes capture the core ways participants define sustainability and connect it with their work experiences. These patterns were further supported and are expanded upon in Phase 3, which presents interview responses.

**Phase 3**

Following completion of the final survey, participants were invited to take part in a semi-structured interview. Four employees volunteered, one from Organisation 1 and three from Organisation 2. In line with transparency recommendations (Aguinis and Solarino, 2019), we note here that the interviewer had an outsider's perspective, having developed only brief acquaintance with the participants over the course of the intervention. Further, this was a convenience sample, and although it had representation from both organisations, the limited number of participants presented a challenge in reaching thematic saturation. We note this in detail in the findings section: while recurring patterns began to emerge, the small sample size may have constrained the breadth and depth of perspectives. We were able to partially address this challenge by cross-checking themes from the interviews with themes from the open-ended questions in the survey from Phase 2.

The interview proforma is provided in the Supplementary Materials. Questions explored perceptions of organisational sustainability personal environmental values and perceived alignment with organisational values. Finally, to support interpretive validity and participant engagement, a summary of the quantitative results was shared with participants and they were

invited to comment on the accuracy, relevance, and implications of the findings in relation to their experiences. This process aimed to identify any potential misinterpretations or overlooked contextual factors.

Interview data were analysed using thematic analysis, following Braun and Clarke's (2006) guidelines. Following familiarisation with the data, labels were assigned to meaningful text extracts, then themes were developed and refined. Finally, key quotes were extracted and used in the results section to illustrate the themes.

***Qualitative findings and interpretations***

In this section, we outline the themes (see Table 3), with illustrative quotes, and draw on the literature to help explore them in depth.

**Table 3**

Data structure: Key themes and subthemes found during thematic analysis of qualitative data

| Themes | Subthemes | Key codes |
|---|---|---|
| Defining sustainability | Naming sustainable actions | Green technology/infrastructure to support sustainability |
| | | Green policies and procedures |
| | | Support / encouragement towards staff behaving in sustainability-promoting ways |
| | It's the small things | Individual level actions that contribute to sustainability |
| | | Everyone doing their part in protecting the environment |
| | It's the big things | Organisation/national level actions to protect the environment/natural resources |
| | | Small actions toward sustainability aren't enough to make a sustainable future |
| Effectiveness of intervention | Had a noticeable effect | Own well-being and/ or performance improved |
| | | Coworkers well-being and/or performance improved |
| | Did not have a noticeable effect | No mention of change |
| Environmental worldview | Alignment with organisation's values | Employees feel a sense of fit, and the associated benefits, from working for an organisation that helps not harms the environment |
| | Strong environmental worldview leading to negative outcomes | Frustration that institutions are not doing enough to promote sustainability |
| | | Feelings of hopelessness due to climate anxiety |

***Defining sustainability***

Employees defined sustainability in a range of ways, reflecting the breadth and subjectivity of this concept (Hall *et al.*, 2022). For some, sustainability is about outward-facing sustainable policies, procedures and actions they notice at work:

> I think of our fleet of hybrids and EVs. I think when working in a public-facing role, it is important to be seen as protecting the environment.

This raises the question, is it more important to be sustainable for the planet or to be seen as sustainable to uphold an image for stakeholders? Although fleet electrification is a common way organisations reduce their carbon output, some stakeholders (both internal and external) may see these bold, outward-facing actions as an attempt to greenwash the organisation's image (Hickman, 2023). These feelings were also expressed by participants:

> We talk the talk, but what we do doesn't match… It feels tokenistic

For many, sustainability is viewed through the lens of personal responsibility, small everyday individual actions – such as recycling, cutting down on waste, or conserving energy can collectively lead to large scale, positive environmental change (Li *et al.*, 2019). This perspective, emphasises the importance of everyone playing their own part:

> For me, it's the rubbish, using less of the non-recyclable plastics… it's the little bits that do a lot, even more than the big bits

Conversely, a common alternative lens through which sustainability is often seen places the responsibility for sustainability primarily at the organisational or national level. Advocates for this perspective argue that small, individual actions may not be enough to make the necessary systematic change and place emphasis on large organisations and governments (Sheehy and Farneti, 2021). Aligning with this, some respondents viewed sustainability in complete contrast to other respondents, voicing their opinion that it's not just the small things:

> It's not necessarily the little things we are doing… It's more like how much land we are farming and how we are compensating [the environment] to ensure that the land and the farming can continue in equilibrium.

Participants who view sustainability through the lens that only large-scale sustainability actions matter may help explain the insignificant quantitative findings. If individuals believe their own efforts, or those of their organisation (i.e. the intervention), are too small to make a genuine and meaningful difference, they may feel hopeless in the face of environmental issues (Sheehy and Farneti, 2021). As such, they are unlikely to perceive any positive impact on well-being or job performance. This mindset may even contribute to a decrease in one's environmental worldview due to the awareness and normalisation of how meaningless small actions are in mitigating large environmental issues (Schaupp, 2025).

***Effectiveness of the intervention***

Lastly, and arguably most importantly, the final theme concerned the effectiveness of the intervention. Many responses noted the intervention did have a positive effect on employees at either the individual level, the group level or both. Not only did participants acknowledge they benefited from the intervention, but they also noticed their coworkers were also benefiting from the intervention. One participant described a change in work culture sparked by the intervention, showing a long-lasting positive impact and change towards more self-initiated sustainable actions. Research has consistently identified the importance of building a supportive and sustainable organisational culture to receive maximum benefit, and employee buy-in, from sustainability initiatives, leading to increased employee output, job satisfaction and well-being (Di Fabio, 2017; Linnenluecke and Griffiths, 2010).

> [one outcome of the intervention] was the community that grew around the garden, seeing the [garden improve] helped spur some other initiatives… the crop swap came around, then the book swap… and puzzle swap. It showed that there was a bit more of a drive for these kind of sustainable things, so we started implementing a lot more

These qualitative insights highlight positive shifts in attitudes, behaviours, and culture expanding upon the quantitative finding of increased sustainability perception, self-reported well-being, task and contextual performance following the intervention.

***Environmental worldview***

The second key theme captures the recognition by employees of the importance, and influence, of their personal environmental worldview. Within this theme, two subthemes emerged: alignment of personal worldview with organisational values and culture led to positive outcomes, and strong environmental worldview may not always result in solely positive outcomes. Both quantitative and qualitative findings showed the majority of participants saw themselves as having strong environmental values, potentially why they agreed to participate in the study. Aligning with the theory of person-organisation fit, qualitative responses showed a consensus that when employee's environmental values align with their organisation's environmental values it leads to positive outcomes, including feeling good about themselves and their workplace as well as feeling happier and feeling more motivated, leading to higher performance:

> I care about the environment… When I feel that my employer cares for the environment, it feels like they also care about me, my whānau (family) and our future… Because I feel cared for when my workplace cares about the environment, I want to work harder and get more done. It makes me feel like by working hard I am also caring for the environment.

However, for some, holding a strong environmental worldview and being passionate about protecting the natural environment may result in negative outcomes, especially when actions taken by the workplace are seen as too small, tokenistic or expected - leading to feelings of hopelessness, frustration or in some cases climate anxiety (Pihkala, 2020). Some responses from participants demonstrate the potential for negative outcomes arising from organisations not doing 'enough' or meeting individual's expectations when it comes to carrying out environmental actions:

> My work has a number of initiatives, but I don't link them to my well-being. I see them as the bare minimum requirements of a good corporate citizen.

**Discussion**

This study aimed to test the links between workplace sustainability, well-being and performance. Using a waitlist-control design, over the 18-week study period participants completed 3 surveys to measure their well-being, environmental worldview, organisation sustainability, job performance and their perceptions of the link between sustainability and employee outcomes. This was followed by interviews to explore the issues further.

The quantitative findings align with the HPWH and show a positive link between well-being an performance, supporting H1. Conversely, in contrast to our hypotheses, and prior research, our quantitative findings did not show a significant link between organisational sustainability with either well-being or performance. However, a number of outcomes were found to increase following the intervention, namely perceptions of sustainability, well-being, task performance and contextual performance. Thus, some of the hypothesised relationships (H4 and H5) were supported by the quantitative findings– offering encouragement for future research.

Viewed through a P-O fit lens, the absence of significant correlations between perceived sustainability and well-being or performance paired with the observed improvements following the intervention, may reflect dynamic shifts in value alignment over the course of the intervention. Prior to the intervention, employees may have experienced a sense of misfit if they perceived their organisation's sustainability efforts as inadequate, weakening the overall relationship between sustainability and positive outcomes. However, the sustainability-based intervention may have enhanced employees' sense of alignment with their organisation's environmental values and goals, improving perceived fit, with findings in Phases 2 and 3 supporting this interpretation. This increased congruence likely fostered greater identification, engagement, and meaning at work, mechanisms that are known to enhance well-being and performance (Lee *et al.*, 2015; Salin *et al.*, 2023). Therefore, the findings suggest that it is not merely the level of perceived sustainability that drives positive outcomes, but the alignment between employees' environmental values and their organisation's sustainability practices.

Interestingly, negative correlational relationships were observed between sustainability and environmental values – those who perceived their organisation as having low levels of sustainability had higher levels of environmental worldview. One explanation of this might be that individuals with stronger environmental worldview are more critical or discerning in their evaluations of their organisation's sustainability practices. In other words, those who personally place a high importance on environmental issues may hold their organisation to

higher standards and therefore perceive its sustainability efforts as insufficient, resulting in a negative correlation between personal environmental values and perceived organisational sustainability. This pattern may also help explain why the expected relationships between sustainability and employee well-being (H2) or performance (H3) were not observed. As previously acknowledged, the sample had high mean level of environmental worldview. Given individuals with stronger environmental worldview tended to rate their organisation's sustainability as lower, their perceptions may have masked potential positive effects of sustainability efforts. In other words, even if the organisation was making progress, employees with high environmental concern might have remained sceptical or dissatisfied, weakening the overall associations between perceived sustainability and employee outcomes. This suggests that employees' personal values may play an important role in how sustainability initiatives translate into well-being and performance benefits.

The finding from Phase 1 showing outcomes increasing following intervention is partially further supported by the analysis of our open-ended survey questions which demonstrated that participants became more likely to say sustainability may influence their performance at work. Further, thematic analysis of the interview data provided several key themes to contextualise these results: 1) the broadness of what sustainability means to employees, 2) the influence of environmental worldview, and 3) the effectiveness of the intervention. These findings provide some support for the workplace sustainability intervention having a positive influence on employees, although predominantly on well-being, with fewer employees noting an influence on their performance. This effect came particularly from the perceived alignment of organisational and individual environmental values, supporting the application of person-organisation fit in the sustainability context.

Congruent with sustainability literature (Hall *et al.*, 2022), participants had varied views of sustainability as a concept. At one end of the spectrum, participants saw sustainability as consisting of small actions undertaken at the individual level that amount to large scale change; at the other end, participants viewed sustainability as only counting when it comprised large scale actions and systematic changes enacted by global organisations and governments.

The theme of environmental worldview highlighted the importance of value alignment, consistent with the theory of person-organisation fit. Several participants explicitly referenced that their personal sustainability values matched their organisation's sustainability values and made suggestions that this increased their well-being and performance, and provided them with internal motivation to work hard. On the other hand, this theme also drew out the contradiction

that strong environmental values and attitudes can result in negative outcomes at work, stemming from a heightened awareness that workplace sustainability initiatives may be too small to make an impact, tokenistic or merely an attempt at greenwashing. Prior research has demonstrated that P-O Fit is associated with improved employee well-being and performance (e.g., Chen et al., 2016; Sousa and Porto, 2015), and this study builds on that work by demonstrating how these effects extend into the domain of environmental sustainability. The findings suggest that sustainability-related value alignment functions similarly to more traditionally studied value domains, reinforcing the flexibility of the P-O Fit framework. Additionally, our qualitative findings suggest that employees' reactions to sustainability initiatives are filtered through their own environmental worldview, meaning their personal values play an important role in the success of sustainability interventions.

***Implications***

These findings contribute to the growing field investigating the positive effects of sustainability in organisations by highlighting the challenges of translating theoretical expectations and correlational findings into empirical causal links. This difficulty is widely recognised across psychological, management, social and organisational research; establishing robust causal relationships often proves more complex than initially anticipated regardless of prior correlational evidence (Grosz *et al.*, 2020).

The qualitative findings provide support for the applicability of P-O fit theory to sustainable workplace research. P-O fit has been applied to a wide array of contexts including the fit between employee's environmental values and their organisation's environmental policies, procedures and practices (Kühner *et al.*, 2024). Yet qualitative, context specific support remains scarce. Participants described the importance of holding environmental values that align with the employers' values and the positive influence this congruence has on employee outcomes.

Practically, these findings suggest that the implementation of sustainability practices into organisations may result in significant increases to employee perceptions of (1) the organisation's level of sustainability, (2) employee well-being and (3) employee performance. A further practical implication in need of highlighting is that sustainability interventions require careful consideration of contextual and employee factors to ensure organisations receive the maximum amount of benefit from their investment in sustainability. Previous research has

highlighted the necessity of tailoring sustainability interventions, especially taking key factors valued by employees into account, such as leadership styles, rewards and training (Ones and Dilchert, 2012; Young *et al.*, 2015). In the present study, interventions were designed in consultation with the participating organisations to work around their sustainability needs and prevent redundancy. In recognition of this, we recommend that sustainability interventions be designed with the following in mind: (1) fit with sustainability needs and goals of both individuals and organisations; (2) employee values; (3) two-way communication and co-creation with staff; and (4) integration of sustainability goals into performance recognition systems. In practice, this means going beyond symbolic gestures to embed sustainability into everyday work practices, ensuring that individual actions (e.g. using the correct recycling bin or tending green spaces) are meaningfully connected to broader organisational goals through shared values, visible support, and systems that reinforce sustainable behaviours as part of a supportive and sustainable work culture.

***Limitations and directions for future research***

Several key challenges were encountered throughout this research, resulting in a number of notable limitations. Firstly, significant challenges were faced during the organisational recruitment process. During the recruitment process, over 60 organisations were contacted; out of these, only three organisations were willing and able to facilitate the research needs and one ceased contact after their initial agreement to participate. Furthermore, of the respondents from the two participating organisations, we faced a dropout rate of 48% between the sign-up period and the third measure. We hope that this paper, indicating the promise of sustainability interventions, will help encourage further organisational engagement in this area.

Another limitation is the potential of a ceiling effect. Organisation 1 was already relatively sustainable: they had robust environmental policies and procedures, and were located in a new, purpose-built sustainable building. This also resulted in a challenge to find a suitable intervention with the potential to further increase the employee's perception of their employer's sustainability.

To address the limitations and challenges faced in this study, future research could be conducted on a case study basis, in an organisation in the beginning stages of voluntarily implementing a large-scale sustainability initiative, such as adding solar panels to its building or the electrification of its fleet. This approach would reduce budget constraints and may also

lessen resistance to change and participation, as the excitement surrounding the project could enhance engagement and improve survey completion rates.

## Conclusion

This research examined whether enhancing employees' perceptions of organisational sustainability would correspond with increased well-being and performance. Both the quantitative and qualitative findings indicated patterns consistent with the idea that organisational sustainability affects employee outcomes. Employees reported a perception of this relationship, as well as the effectiveness of the intervention. Additionally, the qualitative insights provide a better understanding of how and why the intervention influenced employee outcomes. This study highlights the challenges of conducting longitudinal, intervention-based research in real organisations. We hope the findings of this study encourage further research in the area and provide a promising basis for additional research into sustainability's impact on employee outcomes, encouraging organisations to sanction research throughout their sustainability journeys.

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# Chapter Six: General Discussion

This thesis set out to investigate the timely questions of whether and how the environmental sustainability of an organisation contributes to employee outcomes, namely, well-being and job performance. Research across multiple disciplines has concluded that our planet is simultaneously facing two major crises. One of environmental degradation and the overuse of natural resources (Ali et al., 2021; Bevacqua et al., 2025; McLeman, 2018), and the other of deteriorating mental health (Moitra et al., 2023; World Health Organisation, 2025). This thesis explored whether and how the environmental sustainability of an organisation influences employee outcomes, namely well-being and job performance. We proposed that organisations might help address these two crises not separately, but simultaneously, by creating workplaces where environmental sustainability and human flourishing increase together. We took a four-study approach to address three main questions:

1. What is the relationship between perceived environmental sustainability in organisations and the well-being and performance of their members?

2. What mechanisms explain the strength, structure and stability of the relationships between sustainability and human outcomes?

3. Does organisational environmental sustainability causally influence well-being and performance?

The first question was addressed by Study 1, which established positive links between perceptions of sustainability and well-being in tertiary students, and by Study 2, which established positive links between perceptions of sustainability and well-being in a working population, as well as finding a positive link between sustainability perceptions and job performance. The second question was addressed by Study 3, which explored how variables were connected using network analysis. Study 3 also used a two-wave design, allowing us to understand the stability and robustness of these networks temporally. The third question was addressed through Study 4, which tested whether employee well-being and performance would increase following a sustainability-focused intervention.

This chapter begins by addressing each of the thesis's RQs by summarising the findings from these four studies. Then, the theoretical and practical implications of this thesis's findings will be presented, followed by the limitations, suggested directions for future research and final conclusions.

*RQ1: Establishing positive links between sustainability and human outcomes*

Whilst humankind has always relied on the planet and the natural resources it provides, over the past centuries, we have begun to realise the consequences of our lack of sustainability. This awareness has resulted in scholars focusing research on the environment, sustainability and, more recently, the effects sustainability has on humans. Within workplace settings, research has begun to identify links between sustainability, human well-being, life and job satisfaction and performance (Jabbar et al., 2022; Reyes-Riveros et al., 2021; Suganthi, 2019).

Study 1 demonstrated a clear and positive relationship between students' perceptions of their Higher Education Institute's environmental sustainability and their well-being. Perceived sustainability was significantly asscociated with both overall well-being and academic-related well-being, accounting for meaningful proportions of variance. These findings provide early empirical support for the proposition that environmental sustainability and well-being are interconnected, aligning with broader sustainability frameworks such as the Sustainable Development Goals (United Nations, 2022), and forming a strong basis for the further studies conducted in this thesis.

Interestingly, in contrast to our expectations, the environmental attitudes of students did not moderate the relationship between sustainability and well-being. While Person–Organisation Fit theory suggests that students with strong pro-environmental values might benefit more from studying in a sustainability-oriented institution, the data did not support this assumption. One interpretation is that university choice is more strongly influenced by factors other than environmental values (e.g., academic reputation, program availability, geographic location), reducing the likelihood that sustainability perceptions interact with personal attitudes in shaping student well-being. This suggests that all students benefit from sustainable practices carried out by institutions, regardless of personal values and beliefs.

Study 2 expanded on these findings by testing whether the relationships generalised to working populations, whilst adding the key outcome variable of job performance. Based on the Happy–Productive Worker Hypothesis (HPWH), the idea that happy workers perform better (Staw,

1986), Study 2 demonstrated that employees' perceptions of organisational sustainability did indeed contribute to job performance beyond the effect of well-being. Specifically, we found that sustainability predicted additional variance in contextual performance and counterproductive work behaviours. This pattern aligns with literature suggesting that sustainability enhances organisational care and purpose, which may encourage employees to engage in extra-role behaviours and refrain from harmful actions (Lamm et al., 2015).

*RQ2: Understanding the pathways*

Study 2's mediation analyses contributed to understanding the relationships between sustainability, well-being and performance, and further highlighted the importance of sustainability as a mechanism, not just as a predictor or outcome variable. Perceived sustainability partially mediated the relationship between well-being and both contextual performance and counterproductive work behaviour, suggesting that happier employees may be more appreciative of their organisation's environmental initiatives. As noted in the introduction, equity theory (Adams, 1963) suggests that employees who feel they benefit from their organisation's sustainable actions are motivated to reciprocate through positive workplace conduct, in other words increased effort and performance. These findings demonstrate that sustainability is a meaningful resource for organisations that can help to contribute to employee performance both directly and indirectly.

Study 3 used network analysis to examine how sustainability relates to well-being, performance, and other key individual variables, including pro-environmental behaviours, self-determination, and perceived P-O fit. Across two time points, the network consistently identified P-O fit as the most central and predictable node, highlighting its role as a key connector variable between sustainability and employee outcomes. In contrast, self-determination and environmental worldview, variables often assumed to drive sustainability engagement, were less central than expected. This suggests that both individual motivation and general pro-environmental orientation are less critical for linking sustainability to organisational outcomes than previously assumed. Pro-environmental behaviours, however, displayed high predictability, emphasising that employee's environmental actions, rather than just their attitudes towards the environment, are strongly embedded within the overall network. Taken together, these findings suggest that previous explanations of the link between sustainability and human outcomes (e.g., employee motivation and environmental worldview) may not fully

capture the underlying mechanisms. Instead, employees' actions and their perceived fit with the organisation appear to play a more stable and central role in linking sustainability to workplace outcomes. Furthermore, the robustness and temporal stability of this network further suggest that these connections are enduring over time.

*RQ3: Hinting at causality*

Our final study provided some of the first evidence that the relationships between an organisation's sustainability and its employees' well-being and performance may be causal. Although Study 4 implemented a randomised waitlist control methodology in order to provide stronger causal evidence, given the participant recruitment and retention challenges we faced, the findings provide only weak evidence of causality. Notwithstanding this caveat, following the implementation of sustainability interventions tailored to participating organisations, such as adding communal gardens and recycling systems, employees reported statistically significant increases in perceived sustainability, well-being, and performance. These quantitative improvements underscore the potential of sustainability initiatives to function as low-cost yet high-impact organisational interventions.

Furthermore, the qualitative findings, from both follow up interviews and open-ended survey questions, deepened our understanding of how sustainability interventions might influence employee outcomes. Employees often interpreted the interventions as expressions of shared environmental values, and many explicitly described the experience of improved alignment between personal values and organisational actions, once again highlighting the central role of P-O fit. However, experiences were not universally positive; some employees viewed the efforts as insufficient, symbolic, or only the bare minimum of what should be done. This suggests that interventions must be perceived as genuine by employees to be effective, further emphisising the importance of perceived sustainability as a subjective variable alongside objective sustainability measures.

**Theoretical Implications**

This section discusses the theoretical contributions of this thesis, focusing on its three major theoretical backbones: the happy-productive worker hypothesis, person-organisation fit and self-determination theory.

*The Happy-Productive Worker Hypothesis*

Not only do our findings support the HPWH (Staw, 1986) by consistently finding positive relationships between well-being and performance, but they also extend upon it by demonstrating that the pathway between well-being and performance is influenced by employees' perceptions of their organisation's environmental sustainability. Study 2 showed perceived sustainability is a partial mediating mechanism between employee well-being and two key forms of performance: contextual performance and counterproductive work behaviour. This frames sustainability as an important organisational factor that aids in directing the effects of well-being into employee outcomes, thereby reframing the HPWH as more than a simple direct relationship between feeling good and performing well at work.

From a theoretical perspective, this pattern suggests that well-being does not automatically translate into performance but that this may occur through employees' interpretation of and responses to organisational practices. Drawing on broaden-and-build theory (Fredrickson, 2004), higher levels of well-being are expected to broaden employees' resources, making them more open to, and aware of, organisational initiatives that demonstrate care, support, and prosocial values, in this case environmental sustainability. Therefore, well-being may heighten employees' sensitivity to sustainability practices by expanding how organisational actions are perceived and understood.

Simultaneously, equity theory (Adams, 1963) provides a complementary explanatory mechanism. Sustainability initiatives can be interpreted by employees as indicators of their organisation's investment in them, and more broadly demonstrations of moral and ethical responsibility. When employees perceive their organisation as acting responsibly and fairly toward themselves and the wider community, they are more likely to feel motivated to return to their perceived point of equity, through increased performance and reduced counterproductive behaviours.

Taken together, these mechanisms provide theortical explainations of our findings demonstrating well-being may be a factor in heightening employees' sensitivity to organisational initiatives that show care, support, and prosocial values. In turn organisations may see employees performance increase in areas related to going the extra mile and a reduction in unhelpful workplace behaviours.

This new angle adds to the HPWH, suggesting that the link between being happy and increased performance is influenced by the broader workplace climate. In parallel, recent works have

highlighted the importance of conceptual and measurement distinctions when looking at the relationship between well-being and performance. Drawing on 33 studies from 27 countries, Fang et al. (2025) showed happiness is generally positively associated with productivity, but that the strength of this association varies across occupations and sectors and depends critically on the component of happiness considered. Specifically, how well individuals feel most of the time, exhibits stronger and more consistent relationships with perfromance than cognitive or evaluative components such as life satisfaction or job satisfaction. While longitudinal evidence suggests that a causal effect of happiness on productivity is likely, Fang et al. note that direct evidence of causailty remains limited. Furthermore, Arhin et al. (2025) demonstrate that general well-being does not directly predict performance, yet it does indirectly influence performance through work engagement. On the other hand, work-specific well-being shows both direct and indirect influence on performance. Together these studies demonstrate the importance of understanding how various aspects of well-being can influence work performance and, combined with our findings, how organisational factors (i.e. engagement or sustainability) shape these pathways.

Interestingly, sustainability showed significant partial mediation only for the relationships between well-being and (a) contextual performance and (b) counterproductive work behaviour, but not for (c) task performance. Environmental sustainability may therefore contribute to performance primarily in the social and prosocial domains rather than in core job tasks, suggesting that sustainability does not directly influence the technical aspects of performance but instead shapes employees' willingness to go above and beyond their expected duties. Recent research has highlighted that different antecedents predict distinct facets of performance, with motivational and social factors more strongly linked to extra-role and contextual behaviours than to core task execution. For example, work engagement and personality dispositions, like agreeableness and conscientiousness, account for more variance in contextual performance than in task performance (Pletzer & Abrahams, 2025; Reig-Botella et al., 2024). Moreover, the findings in this thesis align with research showing that job resources, social support, and motivational states often influence how employees go "above and beyond" rather than how they perform prescribed technical duties, demonstrating the importance of distinguishing performance facets when exploring the influence of sustainability on performance.

Further, from an equity theory perspective (Adams, 1963), employees with higher well-being may interpret their organisation's sustainability efforts as a form of human investment. As such,

they may reciprocate by increasing their contextual performance and reducing harmful behaviours. Similarly, through a Broaden and Build theory lens (Fredrickson, 2001), the positive emotions and sense of meaning derived from belonging to a sustainable organisation may broaden employees' prosocial orientation and enable them to build personal resources that support cooperation, while also reducing behaviours that could harm their team's functioning. These ideas suggest that sustainability is a theoretically grounded organisational practice that strengthens the pathways proposed by the HPWH, clarifying how and when well-being translates into different forms of workplace performance.

*Self-Determination Theory*

Self-Determination Theory formed a central component of the initial theoretical framing of this research, due to its emphasis on how the satisfaction of basic psychological needs (autonomy, relatedness, competence) shapes motivation, well-being, and performance. We hypothesised that sustainability initiatives acted to satisfy these needs by supporting and encouraging employees to act on their environmental values (autonomy), increasing their feelings of being capable of contributing in a meaningful way to help the environment (competence), and strengthening social connectedness through creating shared ecological goals (relatedness), thus enhancing well-being and performance. These hypotheses were formed based on existing SDT research (e.g., De Groot & Steg, 2010; Gauthier et al., 2022), which has consistently demonstrated that self-determined behaviour predicts greater well-being and performance in the sustainability domain.

However, our findings, especially the results of the network analysis in Study 3, indicate that SDT plays a far less central role than expected in the context of workplace environmental sustainability. Although self-determination (measured in aggregate) showed significant associations with well-being and performance, it did not emerge as a central mechanism within the network of sustainability-related variables (perceived sustainability, environmental values or pro-environmental behaviour). Importantly, the network revealed no strong unique pathways between self-determination and perceived organisational sustainability once other variables were controlled for, despite small positive and significant correlations at the initial bivariate level. We measured employees' self-determination using Sheldon and Deci's scale (2016). The scale demonstrated good internal reliability across both timepoints, indicating that measurement limitations were unlikely to explain SDT's lower centrality in the network. Instead,

our findings suggest SDT's application may be more context-dependent than initially thought. Whilst SDT remains an important framework for understanding general motivation and well-being, in the specific context of environmental sustainability at work, our research indicates that SDT may operate more peripherally. A recent conceptual review has noted that although autonomous motivation and basic need satisfaction are associated with positive outcomes, the strength of these effects varies considerably across studies and contexts, and clear gaps remain in testing key mechanisms, moderators, and causal pathways (McAnally & Hagger, 2024). This supports the notion that SDT's influence on workplace outcomes is conditional rather than uniformly central. Sustainability initiatives do not perhaps trigger need satisfaction unless they are explicitly designed to give employees autonomy, opportunities for mastery, or strong engagement with coworkers. In contrast, P-O fit captures the alignment of personal and organisational environmental values directly, making it a more central mechanism within sustainable workplace research.

*Person-Organisation Fit*

The overall findings of this thesis strongly support P-O fit as a key theoretical mechanism explaining how and why organisational environmental sustainability influences employee well-being and performance. Evidence from across a variety of quantitative, qualitative, and intervention-based methodologies in this thesis shows P-O fit to have consistently emerged as the psychological pathway through which sustainability efforts translate into improved human outcomes. Study 3, in particular, used network analyses to demonstrate that P-O fit plays a central role within the network of sustainability-related variables, linking perceived organisational sustainability to human outcomes.

The qualitative findings from Study 4 provide triangulation data to further support P-O fit as a mechanism. Participants who felt strongly about the environment repeatedly described feeling more motivated, valued, and engaged when their organisation demonstrated visible commitments to environmental sustainability. The improvement in well-being and contextual performance observed in our quantitative findings following the sustainability intervention may, therefore, indicate an increase in P-O fit; as the organisation's environmental actions became more apparent, employees felt more aligned with the workplace and more willing to invest effort into their roles.

At the same time, the findings identify that the application of P-O fit may not work within all sustainability contexts. In Study 1, we did not find a moderating effect of students' environmental attitudes on the relationship between perceived HEI sustainability and well-being, indicating that P-O fit may be less of a mechanism in contexts where other contextual factors have a greater effect on member well-being. Recent research focusing on P-O fit has identified factors such as job insecurity and work arrangement preferences as key contextual moderators that shape when and how fit influences employee outcomes (Chen et al., 2024; Schweitzer et al., 2025). These findings suggest that the effectiveness of P-O fit is contingent on situational and organisational conditions, rather than operating uniformly across all contexts.

The P-O fit mechanism identified in our employee samples can plausibly extend to higher education contexts, but its strength may vary depending on the degree to which students' values and identity are aligned with institutional priorities. For students, P-O fit may still be relevant, particularly in cases where the university itself represents an important aspect of their personal identity or a long-term personal investment, even if other factors such as academic quality or financial considerations also play a role. Overall, the research presented in this thesis advances the theoretical application of P-O fit by establishing it as a robust and stable mechanism through which sustainability initiatives can foster well-being and performance. This provides a strong conceptual basis for understanding how organisations can simultaneously support environmental goals and enhance human functioning at work.

**Practical Implications**

In addition to the theoretical implications, the results of this research have several key implications for organisations, highlighting ways they can address both the environmental crisis and the mental health crisis simultaneously.

*Integrating sustainability into business strategy*

Our findings show that organisations could approach environmental sustainability as a strategic investment in both employee and organisational success, not just as a corporate responsibility obligation or a way to meet legislative requirements. Embedding sustainability into business strategy can generate multiple key benefits, including advancing their progress on environmental targets (such as aligning with the UNSDGs or meeting local environmental

requirements) while also contributing to improved employee well-being and performance. Making sustainability a central part of the workplace also helps foster a supportive culture in which employees view environmental initiatives as an integrated part of everyday work practices rather than merely symbolic gestures.

Strategically integrating sustainability can further serve as a driver of innovation, efficiency, and competitive advantage (Sapsanguanboon et al., 2025). Organisations that place a focus on sustainable practices, such as reducing resource consumption, reducing waste, or investing in cleaner technologies, can improve their operational performance, reduce operating costs and strengthen their overall brand image. By authentically embedding sustainability into their organisation's identity, employers may also enhance their ability to attract and retain talent (Ma et al., 2023). Our findings suggest that when sustainability is treated as a core part of business strategy rather than as a secondary concern to meet quota, it can make a meaningful contribution to both organisational and individual outcomes by fostering value alignment and encouraging concrete pro-environmental behaviours.

*Awareness and visibility are key*

A central implication of the research carried out in this thesis is that member perceptions of sustainability are key. This highlights the importance of ensuring that sustainability initiatives are visible, meaningful, and well communicated to employees and other members. This does not mean that organisations should only prioritise investments that employees can directly observe and experience, such as improved recycling systems, sustainable transportation supports, or the introduction of visible green spaces. However, it does mean that they should focus on communicating their less visible sustainability efforts to their employees, for example, by updating staff on changing to a more sustainable supplier or highlighting operational policy changes, such as carbon-offset initiatives for business-related travel. Even relatively small-scale initiatives, when tangible and well-promoted, can positively influence perceived sustainability and contribute to shifts in workplace culture, as shown in Study 4.

However, these findings also highlight substantial risks associated with greenwashing, which occurs when an organisation makes its products, policies, or activities appear more environmentally friendly than they really are, often through misleading marketing or vague claims that overstate their sustainability efforts (Spaniol et al., 2024). Employees, particularly those with strong environmental values, are likely to quickly identify and challenge initiatives

they see as insincere or tokenistic. Furthermore, actions viewed as just doing the bare minimum may generate reduced trust in the organisation and lead to other negative employee outcomes (Robertson et al., 2023). To avoid this, organisations should ensure their sustainability efforts are both authentic and substantive enough to align with their employees' expectations. Additionally, regular communication, honest and transparent reporting, and recognition of both individual and organisational sustainability efforts can reinforce the authenticity of the efforts and even encourage further sustainable behaviours (Sun et al., 2025). Therefore, authentic sustainability efforts must be paired with visibility and awareness in order to ensure they meaningfully enhance employee outcomes and do not inadvertently undermine them.

*Practical application of P-O Fit*

One of this thesis's major findings highlighted P-O Fit as an important and central variable in the network between sustainability, well-being and performance. This provides a clear practical implication for organisations: strengthening the value alignment between employee values and organisational values may help lead to desirable outcomes. Clearly displaying sustainability values can be a useful tool for attracting applicants whose personal environmental values are compatible with the organisation's. By recruiting and selecting individuals who already identify strongly with environmental goals, motivation and job satisfaction may be enhanced, whilst turnover intentions may be reduced from day one (Cable & Judge, 1996; Martinez et al., 2022; Schneider et al., 1995).

Beyond recruitment, organisations can aim to create environments that continue to foster this value alignment through training, development and everyday practices. When employees feel that their employer cares about environmental issues, they are more likely to feel cared for personally, which can enhance engagement, satisfaction and performance (El Akremi et al., 2018). Designing sustainability initiatives that involve active employee input is therefore critical. By tailoring interventions to align with employee values, organisations not only strengthen the alignment between their values and their employees, but the initiatives are also perceived by employees as authentic. By integrating sustainability into the full employee lifecycle, organisations can strengthen P-O fit, leading to increased organisational commitment, lower turnover intentions, as well as boosted job satisfaction and performance.

**Limitations and Future Directions**

Studying sustainability in any context is complex, due to its subjective nature and the lack of measurement standardisation. Studying the sustainability of organisations, coupled with human outcomes of their employees, adds further layers of complexity caused by the multidimensionality of both constructs and the unwillingness of organisations to take part in research that might adversely affect their image. This complexity naturally led to several limitations affecting the studies presented in this thesis, which are outlined in this section.

Within Studies 1 and 2, research methodologies were cross-sectional. Although these studies uncovered relationships between key variables, in other words, established links between sustainability and human outcomes, the findings provide only a snapshot at a single point in time, limiting the ability to infer causality or track changes over time. Additionally, the direction of relationships could not be assessed. Accordingly, Studies 3 and 4 adopted longitudinal and intervention-based designs to move beyond the static nature of cross-sectional data and to examine changes over time, enabling stronger inferences regarding the direction of relationships between sustainability and human outcomes.

A notable limitation of all four studies is that they all make the assumption that environmental sustainability is a solely positive concept. In reality, engagement with and awareness of sustainability issues can also contribute to negative outcomes for individuals. For example, climate anxiety, chronic fear about the future of the planet and the consequences of climate change (Dodds, 2021) and eco guilt, feelings of guilt or shame that arise from one's perceived contribution to environmental harm (Nielsen et al., 2024) are becoming more prevalent especially in younger individuals as they become aware of the current state of the environment. Additionally, climate burnout, emotional exhaustion and reduced motivation resulting from prolonged exposure to environmental problems and activism efforts (Bird et al., 2024) are increasingly affecting individuals and societies by causing emotional, cognitive, and behavioural impacts that interfere with daily life and engagement with environmental issues. Ignoring these potential adverse effects may oversimplify the relationship between organisational sustainability and human outcomes.

All four studies relied on self-report data for all measures. This reliance may have introduced several forms of measurement and cognitive biases, potentially distorting the congruence between our findings and the actual relationships between variables. Specifically, when employees self-report on outcomes like job performance, the data is vulnerable to social

desirability bias, where participants may overestimate their abilities to present themselves positively. Additionally, individuals who have low levels of performance may inaccurately overrate their competence, illustrating the potential impact of cognitive biases such as the Dunning-Kruger effect, where individuals with low ability tend to overestimate their abilities (Dunning, 2011). In an attempt to mitigate the limitation of self-report measures we took several steps. Firstly, we utilised a variety of research designs across studies, and while this does not eliminate self-report biases, it may have helped mitigate them through variation of the timing, structure and purpose of the study designs. Secondly, we repeatedly assured participants their responses were confidential and anonymous in the participant information sheet and in the survey questions themselves by using wording following survey questions such as "Reminder: Your answers are completely anonymous and cannot be seen by your supervisor(s) or colleagues". Finally, we assessed the extent of common method bias within each study using Harman's single-factor tests. This step was particularly important given that both independent and dependent variables were collected using self-report surveys, which may have inflated correlations through shared method variance, social desirability, and response styles. The results of Harman's test indicated that no single factor accounted for the majority of variance, suggesting that common method bias was unlikely to be problematic across our studies.

The reliance on self-report measures collected from the same source was a particular limitation of both Studies 1 and 2. It raises the possibility that the observed relationships were potentially influenced by positive affect or halo effects. Specifically, employees with higher levels of well-being may have been more inclined to evaluate both their organisation and their own performance more favourably, potentially inflating the associations observed between well-being, perceived organisational sustainability, and performance. Future research could address this limitation by introducing greater methodological separation between constructs. For example, perceived organisational sustainability could be supplemented with objective sustainability indicators or independent organisational audits, while performance could be assessed using supervisor ratings, 360-degree feedback, or objective performance metrics. This approach would reduce the likelihood that the findings are driven by a general positive response tendency. Additionally, a longitudinal multi-wave design could provide a stronger test of the proposed mediation process by measuring employee well-being at Time 1, perceived organisational sustainability at Time 2, and performance at Time 3, while controlling for positive affect across all timepoints. This would help establish temporal ordering and better distinguish the proposed mediation mechanism from alternative explanations based on positive affect or halo effects.

Furthermore, when measuring perceptions of organisational sustainability, self-reports are subjective and can be influenced by an individual's knowledge or interpretation of sustainability – a concept known to be subjective and divisive (Hall et al., 2022). This leads to the next notable limitation: perceptions of sustainability are not the same as actual sustainability. Many sustainability actions occur behind the scenes and may go unnoticed by employees, causing them to underestimate the organisation's actual commitment. For example, an organisation may invest significantly in upgrading its manufacturing processes to improve energy efficiency and reduce waste, but these technical changes are not communicated effectively to all employees, resulting in employees underestimating the organisation's sustainability performance. On the other hand, employees can be "greenwashed" by organisational messaging, leading them to overestimate sustainability efforts based on public statements or visible, potentially meaningless, initiatives (Spaniol et al., 2024). For example, a company may encourage employees to participate in clean-up activities in local communities by providing volunteer hours and then widely promote these efforts through internal messages of environmental responsibility, but not make any changes to core business practices, such as reducing emissions or adopting sustainable sourcing strategies. As a result, employees may overestimate the organisation's sustainability commitment based on symbolic actions rather than substantive environmental performance.

The potential mismatch between perceived and actual sustainability means that self-reported measures should not be considered a direct proxy for an organisation's true sustainability performance. Within the four studies of this thesis, we adopted a broad approach to measuring perceived sustainability by integrating two facets of organisational sustainability, maintaining a human-centric approach through measuring members' perceptions of how their organisation protects the natural environment, as well as how their organisation supports them in being sustainable at an individual level. We believe it would be beneficial if future research on workplace sustainability were to incorporate independent audits rather than relying solely on employee perceptions; however, it should be noted that this approach may lead to further biases. Additionally, due to the complex and multifaceted nature of sustainability, researchers, practitioners, and organisations would benefit from the development and ecological validation of a standardised self-report measure of perceived organisational sustainability.

A further limitation is the sample size in Study 4. Specifically, while Studies 1, 2 and 3 all recruited a good number of participants (n= 292, 199, 628 [T1] and 492 [T2] respectively); Study 4 recruited only 72 participants from 2 organisations. Of those 72 participants, only 32

completed both the pre- and post-intervention surveys, highlighting both recruitment and retention challenges. As Study 4 involved implementing sustainability-based interventions in organisations, a significant challenge was finding organisations that would agree to participate. Recruitment proved difficult, as only three of over 60 organisations contacted across the Waikato and Auckland regions initially agreed to participate, and one later withdrew. Some of the organisations contacted said they did not want their sustainability shortcomings highlighted to staff or stakeholders, and others felt that sustainability interventions would get in the way of business-as-usual operations. These recruitment and retention challenges are not unique to our study but reflect broader barriers faced by sustainability research in organisational settings. Other researchers in the field have highlighted numerous constraints, including leadership support, resource limitations, and cultural resistance, that can slow the adoption of sustainability initiatives and limit an organisation's engagement with research (Mutua et al., 2025). Research has also highlighted the benefits that occur when an organisation initiates or is actively involved in starting the research, rather than being approached only by the academic researchers (Bush et al., 2017). These benefits include more relevant findings, better uptake of results, stronger partnerships, and practical change in the organisation. This suggests that a solution to recruitment and retention challenges may lie in finding an organisation that wants to both initiate and accommodate research.

To capture a broader spectrum of employee outcomes and further address some of the noted limitations, future studies should consider both the positive and negative effects of sustainability in the workplace. This may include climate anxiety, eco-guilt, and climate burnout and could involve measuring emotional and cognitive responses to sustainability initiatives, and exploring confounding factors such as personal values, coping resources, and organisational support. This would further our understanding of how sustainability initiatives may enhance well-being as well as when they may create psychological strain.

Given the findings and limitations of the studies within this thesis, future research could reduce limitations and increase ecological validity through partnering with organisations which are in the early stages of voluntarily implementing large-scale sustainability initiatives, such as installing solar panels, electrifying their vehicle fleet or rewriting HR policies and procedures to be sustainable. This approach could reduce researcher constraints while minimising organisational resistance. Conducting research in this way would provide more reliable and nuanced insights into how organisations' sustainability initiatives truly impact employee

outcomes in the real world, ultimately advancing our understanding of the connections between environmental practices, well-being and performance in the workplace.

**Conclusions**

This thesis aimed to test whether there may be a single solution to two pressing matters – the climate crisis and the mental health crisis – through showing that organisations' environmental sustainability is positively associated with employee outcomes. Over the past few decades, research has increasingly sought to investigate the crossover between the environment and human outcomes, yet little remains known about how and why sustainability in a workplace setting influences employees' well-being and performance.

Collectively, the research shows that perceptions of organisational sustainability are positively associated with well-being (Studies 1–4) and job performance (Studies 2 and 4), and that these relationships may be more than merely correlational. Study 3 illustrates that sustainability is embedded within a broader network and that person–organisation fit is the central mechanism through which sustainability becomes meaningful to employees. Additionally, Study 4 suggests that sustainability may result in an increase in well-being and performance when initiatives are authentic, wanted and visible.

A key conclusion is that environmental sustainability is not just about the planet; it is about humankind too. When organisations behave in environmentally responsible ways, employees interpret these actions as expressions of care, integrity, and shared values. To employees, this can directly enhance their sense of alignment with their workplace, motivating them to engage more fully, behave in pro-social ways, and invest more into their organisation. Through this lens, sustainability is important for both the natural environment and the workplace.

Theoretically, this thesis extends the HPWH by showing that sustainability partially explains how well-being translates into performance, particularly in the domains of contextual performance and counterproductive behaviour. Our findings also challenge the importance of SDT in sustainability research by demonstrating that SDT may play a more peripheral role in organisational contexts unless sustainability initiatives explicitly target employees' need satisfaction. Most importantly, our findings position P-O fit at the centre of the network linking sustainability to improved human functioning at work, advancing the theory's application in the sustainable workplace domain.

Practically, the research shows that organisations can simultaneously respond to both the environmental crisis and the mental health crisis by embedding sustainability into business strategy, communicating it clearly with employees, and ensuring initiatives are visible, authentic, and aligned with employee values and needs. Sustainability is most effective when it becomes part of everyday work life rather than just symbolic gestures.

Overall, this thesis provides evidence that environmental sustainability meaningfully contributes to human well-being and work performance and that this influence arises through pathways grounded in value alignment. Therefore, our findings show sustainability not only as necessary for the environment but also as a promising and underutilised avenue for enhancing well-being and performance at work. As organisations around the world seek ways to support both people and the planet, our results offer a clear message: environmental sustainability is not simply a nicety or way to stay within ever-evolving legislation, it is a powerful resource capable of forming healthier, happier and better performing workplaces.

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## Appendix A: Supplementary Information Chapter Two

**Table SI**

The 17 Sustainable Development Goals

| | |
|---|---|
| Goal 1 | No poverty - End poverty in all its forms everywhere |
| Goal 2 | Zero hunger - End hunger, achieve food security and improved nutrition, and promote sustainable agriculture |
| Goal 3 | Good health and well-being - Ensure healthy lives and promote well-being for all at all ages |
| Goal 4 | Quality education - Ensure inclusive and equitable quality education, and promote lifelong learning opportunities for all |
| Goal 5 | Gender equality - Achieve gender equality and empower all women and girls |
| Goal 6 | Clean water and sanitation - Ensure availability and sustainable management of water and sanitation for all |
| Goal 7 | Affordable and clean energy - Ensure access to affordable, reliable, sustainable and modern energy for all |
| Goal 8 | Decent work and economic growth - Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all |
| Goal 9 | Industry innovation and infrastructure - Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation |
| Goal 10 | Reduced inequalities - Reduce inequality within and among countries |
| Goal 11 | Sustainable cities and communities - Make cities and human settlements inclusive, safe, resilient and sustainable |
| Goal 12 | Responsible consumption and production - Ensure sustainable consumption and production patterns |
| Goal 13 | Climate action - Make urgent action to combat climate change and its impacts* |
| Goal 14 | Life below water - Conserve and sustainably use the oceans, seas and marine resources for sustainable development |
| Goal 15 | Life on land - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss |
| Goal 16 | Peace, justice and strong institutions - Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels |
| Goal 17 | Partnerships for the goals - Strengthen the means of implementation and revitalize the global partnership for sustainable development |

Source. United Nations (2022), *The Sustainable Development Goals Report 2022*

**Figure SI**

Hypothesised moderation

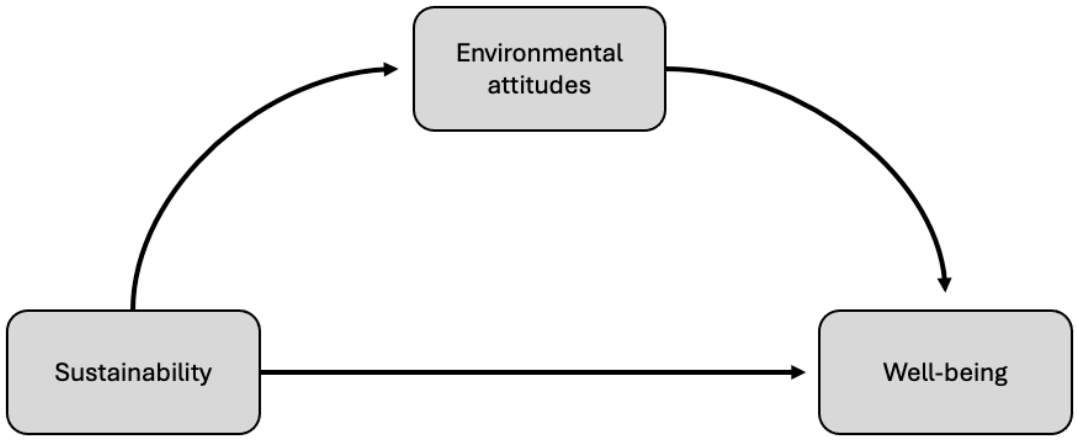


**Table SII**

Zheng et al.'s Employee Well-Being Scale and modifications made for the present study

| Scale | Subscale | Item # | Item |
|---|---|---|---|
| Employee Well-Being Scale (Zheng et al., 2015) | Life WB | 1 | I feel satisfied with my life |
| | | 2 | I am close to my dream in most aspects of my life |
| | | 3 | Most of the time, I do feel real happiness |
| | | 4 | I am in a good life situation |
| | | 5 | My life is very fun |
| | | 6 | I would hardly change my current way of life in the afterlife |
| | Work WB | 7 | I am satisfied with my work responsibilities |
| | | 8 | In general, I feel fairly satisfied with my present job |
| | | 9 | I find real enjoyment in my work |
| | | 10 | I can always find ways to enrich my work |
| | | 11 | Work is a meaningful experience for me |
| | | 12 | I feel basically satisfied with my work achievements in my current job |
| | Psychological WB | 13 | I feel I have grown as a person |
| | | 14 | I handle daily affairs well |
| | | 15 | I generally feel good about myself, and I'm confident |
| | | 16 | People think I am willing to give and to share my time with others |
| | | 17 | I am good at making flexible timetables for my work |
| | | 18 | I love having deep conversations with family and friends so that we can better understand each other |

| | | | |
|---|---|---|---|
| Modified scale for student population | Life WB | 1 | I feel satisfied with my life |
| | | 2 | I am close to my dream in most aspects of my life |
| | | 3 | Most of the time, I do feel real happiness |
| | | 4 | I am in a good life situation |
| | | 5 | My life is very fun |
| | | 6 | I would hardly change my current way of life in the afterlife |
| | Study WB | 7 | I am satisfied with my study responsibilities* |
| | | 8 | In general, I feel fairly satisfied with my studies* |
| | | 9 | I find real enjoyment in my work |
| | | 10 | I can always find ways to enrich my work |
| | | 11 | University is a meaningful experience for me* |
| | | 12 | I feel basically satisfied with my university achievements* |
| | Psychological WB | 13 | I feel I have grown as a person |
| | | 14 | I handle daily affairs well |
| | | 15 | I generally feel good about myself, and I'm confident |
| | | 16 | People think I am willing to give and to share my time with others |
| | | 17 | I am good at making flexible timetables for my university work* |
| | | 18 | I love having deep conversations with family and friends so that we can better understand each other |

*Note*. * indicates item that has been modified for use in the present study with a student population

## Appendix B: Supplementary Information Chapter Three

**Table S1**

Items from the POS-E and CSTR-NE scales included/excluded from the sustainability measure following a CFA

| Scale | Item # | Item |
|---|---|---|
| Support ( POS-E) | 1 | I feel that I am able to behave as sustainably as I want to at the organization where I currently work. |
| | 2 | My organization does not care about whether I behave in a sustainable manner or not. (*reverse-scored*) |
| | 3 | My organization provides an incentive for me to reduce the use of non-renewable resources. |
| | 4* | I do not feel that I make a positive environmental impact through work at my organization. (*reverse-scored*) |
| | 5* | My actions toward sustainability are appreciated by my organization. |
| CSTR-NE | 1 | Our company takes action to reduce pollution related to its activities (e.g., choice of materials, eco-design, and dematerialization). |
| | 2 | Our company contributes toward saving resources and energy (e.g., recycling, waste management). |
| | 3 | Our company makes investments to improve the ecological quality of its products and services |
| | 4* | Our company respects and promotes the protection of biodiversity (i.e., the variety and diversity of species). |
| | 5 | Our company measures the impact of its activities on the natural environment (e.g., carbon audit, reduction of greenhouse gas emissions, global warming). |
| | 6* | Our company invests in clean technologies and renewable energies. |
| | 7 | Our company encourages its members to adopt eco-friendly behaviour (sort trash, save water and electricity) to protect the natural environment. |

*Note.* * indicates items removed from sustainability scale following CFA

Source: Scales by Lamm et al., 2015 (POS-E) and El Akremi et al., 2018

## Appendix C: Supplementary Information Chapter Four

**Table S1**

Correlation matrix between all variables at timepoint 1 and 2

| Variable | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Timepoint 1 (n = 573)** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Well-being | 4.14 | .80 | (.93) | | | | | | | | | | | | | | | | | | | | | | | |
| 2. Task performance | 3.72 | .74 | .338** | (.82) | | | | | | | | | | | | | | | | | | | | | | |
| 3. Contextual performance | 3.41 | .83 | .402** | .445** | (.88) | | | | | | | | | | | | | | | | | | | | | |
| 4. Counterproductive work behaviour | 1.98 | .78 | -.212** | -.110** | -.001 | (.83) | | | | | | | | | | | | | | | | | | | | |
| 5. Sustainability | 3.66 | 1.08 | .343** | .104* | .259** | -.160** | (.93) | | | | | | | | | | | | | | | | | | | |
| 6. Environmental worldview | 3.75 | .61 | .011 | -.014 | .022 | -.043 | -.048 | (.86) | | | | | | | | | | | | | | | | | | |
| 7. Conservation lifestyle | 4.16 | .79 | .197** | .128** | .217** | -.086* | .118** | .255** | (.79) | | | | | | | | | | | | | | | | | |
| 8. Land Stewardship | 2.05 | .88 | .128** | .100* | .225** | .097* | .129** | .145** | .379** | (.66) | | | | | | | | | | | | | | | | |
| 9. Social environmentalism | 2.10 | .88 | .209** | .079 | .260** | .079 | .197** | .106* | .354** | .634** | (.78) | | | | | | | | | | | | | | | |
| 10. Environmental citizenship | 2.16 | .88 | .190** | .046 | .227** | .065 | .143** | .315** | .394** | .579** | .645** | (.79) | | | | | | | | | | | | | | |
| 11. Person-organisation fit | 10.68 | 2.71 | .452** | .111** | .142** | -.240** | .524** | .009 | .123** | .032 | .088* | .081 | (.87) | | | | | | | | | | | | | |
| 12. Self-determination | 35.67 | 7.05 | .537** | .295** | .229** | -.203** | .145** | -.043 | .162** | .071 | .112** | .041 | .249** | (.84) | | | | | | | | | | | | |
| **Timepoint 2 (n = 451)** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13. Well-being | 4.14 | .78 | .840** | .264** | .307** | -.157** | .309** | -.025 | .169** | .109* | .173** | .148** | .419** | .510** | (.93) | | | | | | | | | | | |
| 14. Task performance | 3.72 | .69 | .260** | .724** | .325** | -.107* | .054 | .014 | .161** | .074 | .056 | .040 | .064 | .252** | .259** | (.81) | | | | | | | | | | |
| 15. Contextual performance | 3.42 | .80 | .387** | .334** | .710** | -.027 | .253** | .078 | .221** | .244** | .280** | .284** | .151** | .190** | .387** | .429** | (.88) | | | | | | | | | |
| 16. Counterproductive work behaviour | 2.01 | .77 | -.136** | -.142** | -.021 | .625** | -.167** | -.022 | -.075 | .070 | .069 | .094* | -.190** | -.211** | -.144** | -.095* | .020 | (.83) | | | | | | | | |
| 17. Sustainability | 3.60 | 1.12 | .320** | .046 | .174** | -.126** | .841** | .004 | .099* | .144** | .175** | .118* | .543** | .154** | .316** | .056 | .203** | -.136** | (.94) | | | | | | | |
| 18. Environmental worldview | 3.78 | .64 | .082 | .048 | .091 | -.100* | -.022 | .895** | .288** | .146** | .150** | .294** | .041 | .022 | .030 | .025 | .116* | -.114* | -.021 | (.88) | | | | | | |
| 19. Conservation lifestyle | 4.05 | .80 | .278** | .151** | .197** | -.030 | .140** | .263** | .715** | .326** | .279** | .346** | .095* | .171** | .197** | .153** | .218** | -.076 | .149** | .298** | (.81) | | | | | |
| 20. Land Stewardship | 2.08 | .87 | .179** | .088 | .251** | .096* | .114* | .171** | .290** | .726** | .593** | .503** | .031 | .080 | .104* | .034 | .262** | .049 | .184** | .176** | .368** | (.65) | | | | |
| 21. Social environmentalism | 2.07 | .85 | .145** | .000 | .201** | .125** | .145** | .183** | .272** | .553** | .735** | .575** | .027 | .083 | .132** | -.006 | .249** | .115* | .169** | .185** | .305** | .659** | (.79) | | | |
| 22. Environmental citizenship | 2.10 | .86 | .215** | .032 | .258** | .086 | .098* | .303** | .345** | .488** | .608** | .801** | .097* | .067 | .162** | .008 | .288** | .095* | .113* | .298** | .389** | .589** | .654** | (.80) | | |
| 23. Person- organisation fit | 10.74 | 2.75 | .429** | .052 | .114* | -.193** | .539** | -.033 | .064 | .033 | .045 | .028 | .728** | .197** | .446** | .016 | .144** | -.158** | .575** | -.015 | .080 | .032 | .043 | .058 | (.88) | |
| 24. Self-determination | 36.13 | 6.94 | .554** | .291** | .246** | -.221** | .168** | -.043 | .172** | .125** | .145** | .076 | .242** | .801** | .545** | .268** | .244** | -.236** | .137** | .019 | .167** | .074 | .111* | .059 | .207** | (.83) |

** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed)

**Table S2**

Paired samples t-test between Timepoint 1 and Timepoint 2 responses for all variables

| Variable | Timepoint 1 *M* | Timepoint 2 *M* | t | p | Cohen's d | SE Cohen's d |
|---|---|---|---|---|---|---|
| Well-being | 4.14 | 4.14 | .495 | .621 | .024 | .027 |
| Task performance | 3.72 | 3.72 | .071 | .943 | .003 | .035 |
| Contextual performance | 3.41 | 3.42 | -.192 | .848 | -.009 | .036 |
| Counterproductive work behaviour | 1.98 | 2.01 | -1.076 | .282 | -.051 | .041 |
| Sustainability | 3.66 | 3.60 | 2.407 | .016 | .115 | .027 |
| Environmental worldview | 3.75 | 3.78 | -.819 | .413 | -.039 | .022 |
| Conservation lifestyle | 4.16 | 4.05 | 4.574 | < .001 | .218 | .036 |
| Land stewardship | 2.05 | 2.08 | .195 | .846 | .009 | .035 |
| Social environmentalism | 2.10 | 2.07 | 1.309 | .191 | .062 | .035 |
| Environmental citizenship | 2.16 | 2.10 | 2.668 | .008 | .127 | .030 |
| Person-organisation fit | 10.68 | 10.74 | .023 | .981 | .001 | .035 |
| Self-determination | 35.67 | 36.13 | -.942 | .347 | -.045 | .030 |

**Table S3**

Summary of network analysis results at Timepoint 1 and Timepoint 2

| Node 1 | Node 2 | Timepoint 1 | | | | Timepoint 2 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | SD | 95% CI | | Mean | SD | 95% CI | |
| | | | | Upper | Lower | | | Upper | Lower |
| Conservation lifestyle | Environmental citizenship | .133 | .031 | .072 | .195 | .144 | .033 | .080 | .214 |
| | Land stewardship | .138 | .032 | .068 | .196 | .133 | .034 | .070 | .205 |
| | Person–organisation fit | .009 | .017 | –.033 | .033 | .000 | .006 | –.012 | .012 |
| | Self–determination | .036 | .032 | –.040 | .087 | .032 | .033 | –.037 | .096 |
| | Social environmentalism | .056 | .030 | –.007 | .114 | .011 | .018 | –.036 | .036 |
| | Sustainability | .053 | .035 | –.018 | .121 | .031 | .030 | –.027 | .094 |
| | Counterproductive work behaviour | .012 | .024 | –.047 | .047 | .013 | .025 | –.051 | .051 |
| Contextual performance | Environmental citizenship | .028 | .027 | –.033 | .074 | .091 | .037 | .019 | .167 |
| | Land stewardship | .032 | .030 | –.032 | .087 | .052 | .035 | –.019 | .122 |
| | Environmental worldview | –.002 | .010 | –.021 | .021 | .010 | .020 | –.040 | .040 |
| | Person–organisation fit | –.005 | .016 | –.032 | .032 | .000 | .008 | –.015 | .015 |
| | Self–determination | .004 | .012 | –.024 | .024 | .009 | .017 | –.035 | .035 |
| | Social environmentalism | .062 | .030 | .004 | .125 | .031 | .031 | –.038 | .086 |
| | Sustainability | .086 | .038 | .003 | .154 | .039 | .034 | –.034 | .100 |
| | Conservation lifestyle | –.026 | .033 | –.066 | .066 | –.017 | .029 | –.058 | .058 |
| Counterproductive work behaviour | Environmental citizenship | .010 | .019 | –.038 | .038 | .025 | .031 | –.053 | .071 |
| | Land stewardship | .036 | .033 | –.046 | .085 | .004 | .014 | –.029 | .029 |
| | Environmental worldview | –.011 | .022 | –.044 | .044 | –.052 | .044 | –.127 | .051 |
| | Person–organisation fit | –.110 | .036 | –.181 | –.035 | –.038 | .034 | –.106 | .029 |
| | Self–determination | –.073 | .041 | –.148 | .015 | –.129 | .044 | –.220 | –.044 |
| | Social environmentalism | .021 | .025 | –.051 | .051 | .040 | .035 | –.034 | .106 |
| | Sustainability | –.021 | .026 | –.053 | .053 | –.030 | .032 | –.083 | .045 |
| Environmental citizenship | Person–organisation fit | .000 | .004 | –.007 | .007 | .000 | .006 | –.012 | .012 |
| | Self–determination | –.004 | .012 | –.025 | .025 | –.001 | .007 | –.014 | .014 |
| Land stewardship | Environmental citizenship | .240 | .038 | .162 | .314 | .223 | .039 | .141 | .299 |
| | Person–organisation fit | –.003 | .011 | –.022 | .022 | –.006 | .016 | –.032 | .032 |
| | Self–determination | .000 | .006 | –.011 | .011 | .000 | .005 | –.009 | .009 |
| | Social environmentalism | .366 | .041 | .276 | .442 | .398 | .042 | .315 | .484 |
| | Conservation lifestyle | .119 | .040 | .022 | .184 | .160 | .047 | .067 | .255 |
| Environmental worldview | Environmental citizenship | .176 | .037 | .083 | .230 | .134 | .039 | .056 | .214 |
| | Land stewardship | .000 | .008 | –.015 | .015 | .003 | .011 | –.021 | .021 |
| | Person–organisation fit | .000 | .008 | –.016 | .016 | –.005 | .015 | –.030 | .030 |
| | Self–determination | –.016 | .025 | –.050 | .050 | –.003 | .012 | –.024 | .024 |
| | Social environmentalism | –.012 | .025 | –.050 | .050 | .005 | .013 | –.026 | .026 |
| Person–organisation fit | Self–determination | .010 | .018 | –.037 | .037 | .001 | .009 | –.017 | .017 |
| Social environmentalism | Environmental citizenship | .377 | .038 | .295 | .445 | .380 | .040 | .304 | .462 |
| | Person–organisation fit | .000 | .004 | –.007 | .007 | –.002 | .009 | –.017 | .017 |
| | Self–determination | .004 | .010 | –.021 | .021 | .011 | .019 | –.038 | .038 |
| Sustainability | Conservation lifestyle | .005 | .012 | –.023 | .023 | .022 | .025 | –.036 | .063 |
| | Environmental citizenship | .008 | .015 | –.030 | .030 | .001 | .008 | –.016 | .016 |
| | Land stewardship | .005 | .012 | –.024 | .024 | .043 | .033 | –.026 | .106 |
| | Environmental worldview | –.022 | .029 | –.058 | .058 | –.012 | .024 | –.049 | .049 |
| | Person–organisation fit | .387 | .035 | .307 | .446 | .452 | .038 | .375 | .527 |
| | Self–determination | –.001 | .007 | –.014 | .014 | .000 | .006 | –.013 | .013 |
| | Social environmentalism | .053 | .031 | –.013 | .112 | .027 | .027 | –.031 | .077 |
| Task performance | Conservation lifestyle | .010 | .018 | –.037 | .037 | .034 | .035 | –.054 | .087 |
| | Contextual performance | .309 | .040 | .217 | .377 | .310 | .043 | .219 | .391 |
| | Counterproductive work behaviour | –.016 | .025 | –.050 | .050 | –.016 | .027 | –.053 | .053 |
| | Environmental citizenship | –.003 | .011 | –.022 | .022 | –.016 | .026 | –.052 | .052 |
| | Land stewardship | .003 | .010 | –.019 | .019 | –.003 | .011 | –.022 | .022 |
| | Environmental worldview | –.005 | .014 | –.027 | .027 | –.001 | .010 | –.021 | .021 |
| | Person–organisation fit | –.001 | .008 | –.016 | .016 | –.017 | .029 | –.058 | .058 |
| | Self–determination | .109 | .038 | .027 | .181 | .106 | .043 | .026 | .198 |
| | Social environmentalism | –.001 | .006 | –.012 | .012 | –.013 | .022 | –.044 | .044 |
| | Sustainability | –.001 | .009 | –.017 | .017 | .000 | .008 | –.016 | .016 |
| | Conservation lifestyle | .031 | .029 | –.022 | .093 | .039 | .031 | –.018 | .106 |
| | Contextual performance | .187 | .036 | .113 | .255 | .200 | .037 | .135 | .282 |
| | Counterproductive work behaviour | –.049 | .038 | –.116 | .037 | –.008 | .018 | –.036 | .036 |
| | Environmental citizenship | .023 | .023 | –.032 | .061 | .011 | .018 | –.036 | .036 |
| | Land stewardship | .001 | .005 | –.010 | .010 | –.001 | .006 | –.012 | .012 |
| Well–being | Environmental worldview | –.001 | .007 | –.014 | .014 | –.002 | .011 | –.021 | .021 |
| | Person–organisation fit | .248 | .033 | .181 | .312 | .260 | .039 | .180 | .334 |
| | Self–determination | .383 | .031 | .316 | .442 | .401 | .036 | .333 | .476 |
| | Social environmentalism | .026 | .024 | –.025 | .069 | .003 | .009 | –.019 | .019 |
| | Sustainability | .073 | .036 | .003 | .146 | .042 | .034 | –.025 | .112 |
| | Task performance | .094 | .043 | .008 | .178 | .036 | .035 | –.049 | .092 |

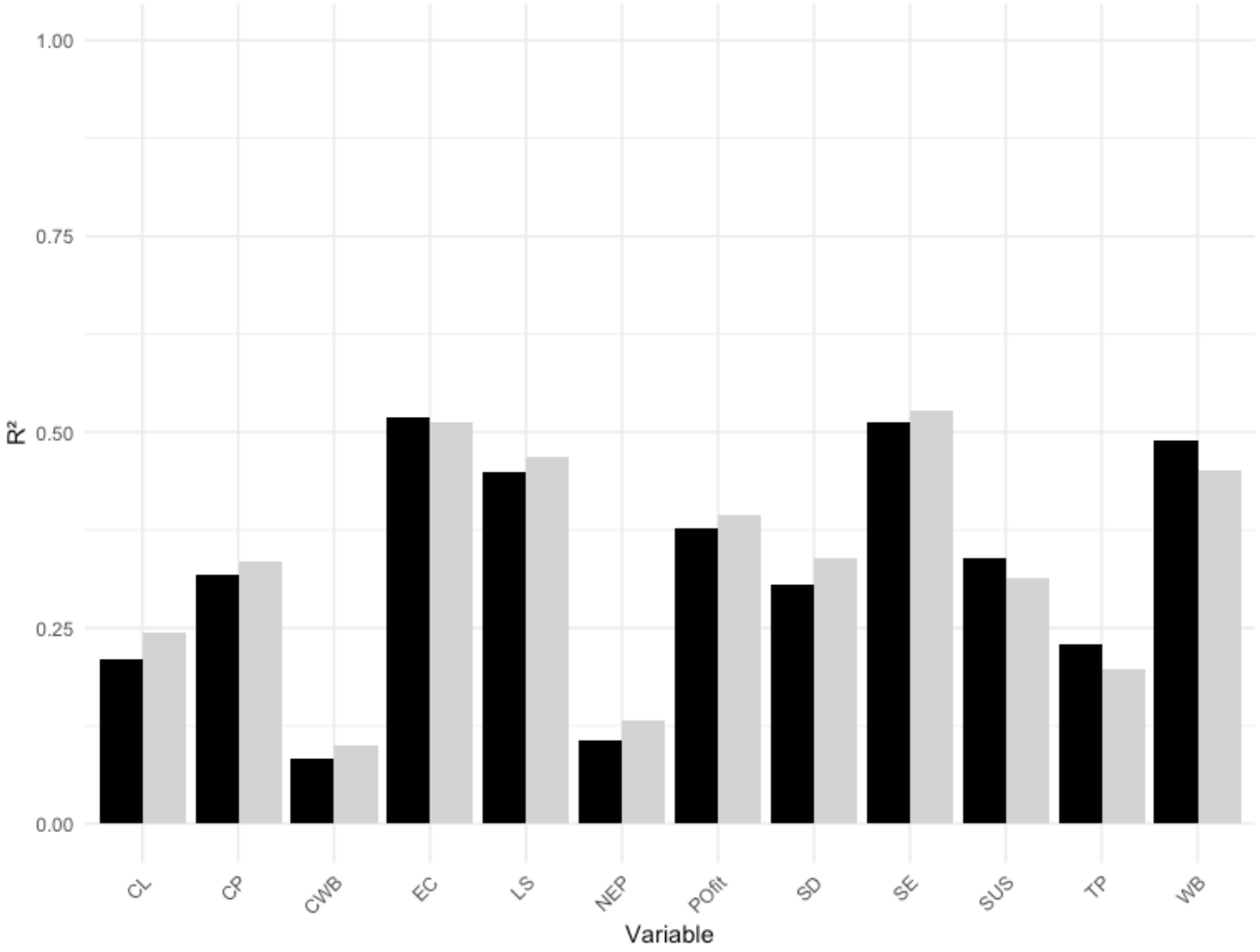
**Table S4**

Predictability test results

| Variable | $R^2$ |
|---|---|
| **Timepoint 1** | |
| Environmental citizenship | .519 |
| Social environmentalism | .513 |
| Well-being | .489 |
| Land Stewardship | .448 |
| Person-organisation fit | .377 |
| Sustainability | .340 |
| Contextual performance | .318 |
| Self-determination | .306 |
| Task performance | .229 |
| Conservation lifestyle | .209 |
| Environmental worldview | .106 |
| Counterproductive work behaviour | .083 |
| **Timepoint 2** | |
| Social environmentalism | .528 |
| Environmental citizenship | .513 |
| Land Stewardship | .469 |
| Well-being | .451 |
| Person-organisation fit | .393 |
| Self-determination | .339 |
| Contextual performance | .334 |
| Sustainability | .314 |
| Conservation lifestyle | .244 |
| Task performance | .197 |
| Environmental worldview | .132 |
| Counterproductive work behaviour | .100 |

**Figure S1**

Visual predictability comparison by timepoint



## Appendix D: Supplementary Information Chapter Five

**Qualitative survey questions:**

"What is the first thing that comes to mind when you think of environmental sustainability at your workplace? Can you tell us about it in a few sentences".

"Do you feel that the environmental sustainability of your workplace affects your well-being at work?" (answered on a three point scale of *yes, maybe* or *no*) followed by: "Can you tell us more about why you think this? For example, what have you noticed about your workplace's sustainability and your own well-being?"

"Do you feel that the environmental sustainability of your workplace affects how well you do your job?" (answered on a three point scale) followed by: "Can you tell us more about why you think this? For example, what have you noticed about your workplace's sustainability and your own work performance?"

**Table S1**

Results of t-tests to test the waitlist control

| | Variable | Group and Timepoint | Mean | SD | t-test | p |
|---|---|---|---|---|---|---|
| Organisation 1 | Perceived sustainability | G1 T1 | 4.65 | 0.564 | -0.324 | .751 |
| | | G1 T2 | 4.786 | 0.565 | | |
| | Well-being | G1 T1 | 4.718 | 0.699 | 0.607 | .554 |
| | | G1 T2 | 4.607 | 0.557 | | |
| | Task performance | G1 T1 | 3.6 | 0.757 | -0.157 | .878 |
| | | G1 T2 | 3.707 | 0.845 | | |
| | Contextual performance | G1 T1 | 3.786 | 0.692 | 0.223 | .819 |
| | | G1 T2 | 3.8 | 0.802 | | |
| | Counterproductive work behaviour | G1 T1 | 1.714 | 0.575 | -0.334 | .744 |
| | | G1 T2 | 1.76 | 0.76 | | |
| | Environmental attitudes | G1 T1 | 4.105 | 0.494 | 1.304 | .215 |
| | | G1 T2 | 3.836 | 0.535 | | |
| Organisation 2 | Perceived sustainability | G1 T1 | 3.586 | 0.717 | 0.386 | .710 |
| | | G1 T2 | 3.406 | 1.04 | | |
| | Well-being | G1 T1 | 5.185 | 0.547 | 1.005 | .344 |
| | | G1 T2 | 4.92 | 0.475 | | |
| | Task performance | G1 T1 | 3.533 | 1.105 | -0.038 | .714 |
| | | G1 T2 | 3.667 | 0.686 | | |
| | Contextual performance | G1 T1 | 4.167 | 0.527 | 0.598 | .567 |
| | | G1 T2 | 3.944 | 0.758 | | |
| | Counterproductive work behaviour | G1 T1 | 1.889 | 0.769 | 0.933 | .378 |
| | | G1 T2 | 1.644 | 0.829 | | |
| | Environmental attitudes | G1 T1 | 3.867 | 0.414 | -0.34 | .743 |
| | | G1 T2 | 3.933 | 0.506 | | |

*Note*. Org 1, G1, T1 N = 14;Org 1, G2, T1 N = 15; Org 2, G1, T1 N = 9; Org 2, G2, T1 N = 9

**Table S2**

Results of t-tests to determine differences of T1 measures between Organisation 1 and Organisation 2.

| Variable | Org, Group & Timepoint | Mean | SD | t-test | p | Cohen's d | SE Cohen's d |
|---|---|---|---|---|---|---|---|
| Perceived sustainability | Org 1, G1, T1 | 4.650 | .564 | 2.302 | .050 | .767 | .742 |
| | Org 2, G1, T1 | 3.586 | .717 | | | | |
| Well-being | Org 1, G1, T1 | 4.718 | .699 | -2.924 | .019 | -.975 | .445 |
| | Org 2, G1, T1 | 5.185 | .547 | | | | |
| Task performance | Org 1, G1, T1 | 3.600 | .757 | -.184 | .858 | -.061 | .628 |
| | Org 2, G1, T1 | 3.533 | 1.105 | | | | |
| Contextual performance | Org 1, G1, T1 | 3.786 | .692 | -1.026 | .335 | -.342 | .545 |
| | Org 2, G1, T1 | 4.167 | .527 | | | | |
| Counterproductive work behaviour | Org 1, G1, T1 | 1.714 | .575 | .180 | .861 | .060 | .560 |
| | Org 2, G1, T1 | 1.889 | .769 | | | | |
| Environmental worldview | Org 1, G1, T1 | 4.105 | .494 | .308 | .766 | .103 | .461 |
| | Org 2, G1, T1 | 3.876 | .414 | | | | |
| Perceived sustainability | Org 1, G2, T1 | 4.786 | .565 | 3.232 | .012 | 1.077 | .735 |
| | Org 2, G2, T1 | 3.406 | 1.040 | | | | |
| Well-being | Org 1, G2, T1 | 4.607 | .557 | -1.920 | .288 | -.397 | .560 |
| | Org 2, G2, T1 | 4.920 | .475 | | | | |
| Task performance | Org 1, G2, T1 | 3.707 | .845 | -.322 | .755 | -.107 | .497 |
| | Org 2, G2, T1 | 3.667 | .686 | | | | |
| Contextual performance | Org 1, G2, T1 | 3.800 | .802 | -1.286 | .234 | -.429 | .474 |
| | Org 2, G2, T1 | 3.944 | .758 | | | | |
| Counterproductive work behaviour | Org 1, G2, T1 | 1.760 | .760 | .322 | .756 | .107 | .551 |
| | Org 2, G2, T1 | 1.644 | .829 | | | | |
| Environmental worldview | Org 1, G2, T1 | 3.836 | .535 | .031 | .976 | .010 | .503 |
| | Org 2, G2, T1 | 3.933 | .506 | | | | |

*Note.* Org 1, G1, T1 N = 14; Org 2, G1, T1 N = 9; Org 1, G2, T1 N = 15; Org 2, G2, T1 N = 9

**Table S3**

Results of t-tests to determine differences of pre-intervention measures between groups

| Variable | Group & Timepoint | Mean | SD | t-test | p |
|---|---|---|---|---|---|
| Perceived sustainability | G1 T2 | 4.268 | 1.018 | .878 | .389 |
| | G2 T1 | 4.048 | 1.054 | | |
| Well-being | G1 T2 | 4.725 | 0.539 | 1.881 | .073 |
| | G2 T1 | 4.384 | 0.727 | | |
| Task performance | G1 T2 | 3.692 | 0.773 | .961 | .347 |
| | G2 T1 | 3.443 | 0.713 | | |
| Contextual performance | G1 T2 | 3.854 | 0.772 | 1.520 | .143 |
| | G2 T1 | 3.457 | 0.725 | | |
| Counterproductive work behaviour | G1 T2 | 1.717 | 0.771 | .312 | .758 |
| | G2 T1 | 1.687 | 0.643 | | |
| Environmental attitudes | G1 T2 | 3.872 | 0.515 | -.451 | .656 |
| | G2 T1 | 3.942 | 0.445 | | |

*Note.* G1, T2 N = 24; G2, T1 N = 23

**Table S4**

Results of t-tests to determine differences of post-intervention measures between groups

| Variable | Group & Timepoint | Mean | SD | t-test | p | Cohen's d | SE Cohen's d |
|---|---|---|---|---|---|---|---|
| Perceived sustainability | G1 T3 | 4.535 | .821 | .548 | .591 | .129 | .269 |
| | G2 T2 | 4.375 | .907 | | | | |
| Well-being | G1 T3 | 4.915 | .653 | 2.135 | .048 | .503 | .375 |
| | G2 T2 | 4.310 | .873 | | | | |
| Task performance | G1 T3 | 3.958 | .776 | 1.572 | .134 | .371 | .359 |
| | G2 T2 | 3.474 | .814 | | | | |
| Contextual performance | G1 T3 | 4.033 | .626 | 2.063 | .058 | .480 | .356 |
| | G2 T2 | 3.461 | .766 | | | | |
| Counterproductive work behaviour | G1 T3 | 1.737 | .825 | -.079 | .441 | -.186 | .319 |
| | G2 T2 | 1.895 | .836 | | | | |
| Environmental worldview | G1 T3 | 3.930 | .550 | -.093 | .927 | .022 | .343 |
| | G2 T2 | 3.926 | .339 | | | | |
| Self-determination | G1 T3 | 35.053 | 7.728 | .973 | .344 | .229 | .288 |
| | G2 T2 | 32.632 | 6.500 | | | | |

*Note*. G1, T3 N = 19, G2, T2 N = 19

**Interview proforma**

Can you tell me about any sustainability initiatives your workplace is involved in?

Are you aware of any sustainability initiatives that have recently been implemented by your workplace?

How does your experience at work now compare to before your workplace adopted these sustainability initiatives?

Have you noticed any changes in your daily work life that you think can be attributed to your workplace's sustainability efforts?

How do you incorporate sustainability into your daily tasks at work?

Can you tell me what environmental sustainability means to you?

Can you describe your views on the environment?

Do you feel your environmental values match the environmental values of your workplace?

Why do you think people reported feeling a positive impact from sustainability initiatives and a relationship between their workplace's sustainability and their well-being and performance in open-ended responses, but this wasn't reflected in the quantitative ratings?

Does this finding reflect with your own experience? Why or why not?

# Appendix E: Co-Authorship Forms

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

## Co-Authorship Form

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This form is to accompany the submission of any PhD that contains research reported in published or unpublished co-authored work. **Please include one copy of this form for each co-authored work**. Completed forms should be included in your appendices for all the copies of your thesis submitted for examination and library deposit (including digital deposit).

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|---|---|
| Please indicate the chapter/section/pages of this thesis that are extracted from a co-authored work and give the title and publication details or details of submission of the co-authored work. | Study 1, Chapter 2<br>Sheeran, Z., Sutton, A., & Cooper-Thomas, H. D. (2025). Investigating the relationships between student well-being and perceived environmental sustainability: student environmental attitudes as a moderator. International Journal of Sustainability in Higher Education. https://doi.org/10.1108/IJSHE-07-2024-0460 |
| Nature of contribution by PhD candidate | ZS developed the research question, collected data, processed and analysed data in cooperation with co-authors. ZS drafted the full manuscript which was then refined with feedback from co-authors. |
| Extent of contribution by PhD candidate (%) | 80 |

## CO-AUTHORS

| Name | Nature of Contribution |
|---|---|
| Anna Sutton | Collaborated on design, reviewed and edited manuscript |
| Helena Cooper-Thomas | Collaborated on design, reviewed and edited manuscript |
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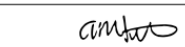
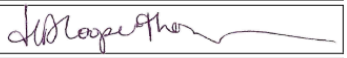
## Certification by Co-Authors

The undersigned hereby certify that:

- the above statement correctly reflects the nature and extent of the PhD candidate's contribution to this work, and the nature of the contribution of each of the co-authors; and
- that the candidate wrote all or the majority of the text.

| Name | Signature | Date |
|---|---|---|
| Anna Sutton |  | 19/01/2026 |
| Helena Cooper-Thomas |  | 19.01.26 |
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| Please indicate the chapter/section/pages of this thesis that are extracted from a co-authored work and give the title and publication details or details of submission of the co-authored work.<br>Study 2, Chapter 3<br>Sheeran, Z., Sutton, A., & Cooper-Thomas, H. D. (2025). Environmental sustainability and the happy-productive worker: examining the impact on employee well-being and work performance in educational institutions. International Journal of Educational Management. 39 No. 2, pp. 469-487. https://doi.org/10.1108/IJEM-11-2024-0704 | |
| Nature of contribution by PhD candidate | ZS developed the research question, collected data, processed and analysed data in cooperation with co-authors. ZS drafted the full manuscript which was then refined with feedback from co-authors. |
| Extent of contribution by PhD candidate (%) | 85 |

## CO-AUTHORS

| Name | Nature of Contribution |
|---|---|
| Anna Sutton | Collaborated on design, reviewed and edited manuscript |
| Helena Cooper-Thomas | Collaborated on design, reviewed and edited manuscript |
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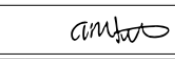
| Anna Sutton |  | *19/01/2026* |
| Helena Cooper-Thomas |  | 19.01.26 |
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Study 3, Chapter 4
Sheeran, Z., Sutton, A., & Cooper-Thomas, H. D. (2025).(under review). Network structures of workplace sustainability and employee outcomes: A two-wave study

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|---|---|
| Nature of contribution by PhD candidate | ZS developed the research question, collected data, processed and analysed data in cooperation with co-authours. ZS drafted the full manuscript which was then refined with feedback from co-authours. |
| Extent of contribution by PhD candidate (%) | 80 |

## CO-AUTHORS

| Name | Nature of Contribution |
|---|---|
| Anna Sutton | Collaborated on design, reviewed and edited manuscript |
| Helena Cooper-Thomas | Reviewed and edited manuscript |
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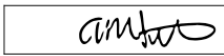
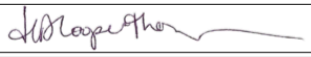
| Anna Sutton |  | *19/01/2026* |
| Helena Cooper-Thomas |  | 19.01.26 |
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Please indicate the chapter/section/pages of this thesis that are extracted from a co-authored work and give the title and publication details or details of submission of the co-authored work.

Study 4, Chapter 5
Sheeran, Z., Sutton, A., & Cooper-Thomas, H. D. (2025). (under review). A sustainable intervention: exploring causal links between workplace sustainability, employee well-being and job performance using a mixed methods approach

| | |
|---|---|
| Nature of contribution by PhD candidate | ZS developed the research question, contacted organisations, collected data, managed interventions, processed and analysed data in cooperation with co-authors. ZS drafted the full manuscript which was then refined with feedback from co-authours. |
| Extent of contribution by PhD candidate (%) | 75 |

## CO-AUTHORS

| Name | Nature of Contribution |
|---|---|
| Anna Sutton | Collaborated on design, reviewed and edited manuscript |
| Helena Cooper-Thomas | Collaborated on design, reviewed and edited manuscript |
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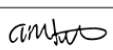
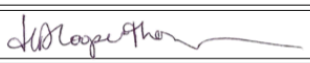
| Anna Sutton |  | *19/01/2026* |
| Helena Cooper-Thomas |  | 19.01.26 |
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