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### Exploring the Direct Relationship Between Sustainability Leader Ecospirituality and Human Capital Sustainability Leadership Capacity: A Moderated Mediation Study

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EXPLORING THE DIRECT RELATIONSHIP BETWEEN SUSTAINABILITY  
LEADER ECOSPIRITUALITY AND HUMAN CAPITAL SUSTAINABILITY  
LEADERSHIP CAPACITY: A MODERATED MEDIATION STUDY

by

Krystal L. Gabel

A DISSERTATION

Presented to the Faculty of

The Graduate College at the University of Nebraska

In Partial Fulfilment of Requirements

For the Degree of Doctor of Philosophy

Major: Human Sciences

(Leadership Studies)

Under the Supervision of Professor Gina S. Matkin

Lincoln, Nebraska

December, 2022

EXPLORING THE DIRECT RELATIONSHIP BETWEEN SUSTAINABILITY  
LEADER ECOSPIRITUALITY AND HUMAN CAPITAL SUSTAINABILITY  
LEADERSHIP CAPACITY, A MODERATED MEDIATION STUDY

Krystal L. Gabel, PhD

University of Nebraska, 2022

Advisor: Gina S. Matkin

The primary purpose of this quantitative study was to determine if a sustainability leader's ecospirituality significantly impacts one's human capital sustainability leadership. The secondary purpose of this study was to determine if one's psychological capital mediates this relationship and if one's environmental attitudes moderate the relationships between ecospirituality, human capital sustainability leadership, and psychological capital.

Participants in this study included sustainability leaders in top positions at their organizations in the four highest-ranked countries (Denmark, Sweden, Norway, and the United Kingdom) on the 2022 Climate Change Performance Index. These individuals had positions of chief sustainability officer, head of sustainability, or sustainability manager in their respective organizations.

The quantitative results indicate that ecospirituality significantly impacts human capital sustainability leadership. However, psychological capital was not found to have a significant mediating impact on this relationship. Additionally, environmental attitudes did not have a significant moderating impact on any of the relationships between ecospirituality, human capital sustainability leadership, and psychological capital.

Additional findings included an influence of gender and age on ecospirituality and a direct relationship between psychological capital and human capital sustainability

leadership. The hypotheses test results and the additional findings are discussed along with potential areas for future research.

## DEDICATION

To my parents and all of my ancestors, had it not been for their courage, resilience, and perseverance in their own personal journeys, my journey would not have been possible. Although some of you walked with me when I embarked on this journey, time took its toll, and the final leg of this journey has been travelled without you at my side. Even though you are not here physically, a part of each of you is reaching the pinnacle of this mountain with me, you all will always be in my heart.

To Scott, you may have been a cousin, but I loved you like a brother. Even on your toughest days, you comforted those around you. You put up a gallant fight against the ugliness of brain cancer. Unfortunately, you left us much sooner than any of us had hoped. I miss seeing your big smile and hearing your distinct laugh.

May you all rest in peace.

Mom, Dad, and Scott, I love you and miss you every day.

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## Chapter 1: Introduction

Uncertainty and accelerated change, new norms in today's business environment, are challenging the traditional roles of leaders. In the past, business environments were believed to be reasonably stable and organizational leaders were looked to for guidance, direction, and inspiration in achieving defined organizational goals (Ferdig, 2007). Ferdig (2007) contends this mechanistic model of linear patterns of motion to achieve predictable outcomes has been proven to be flawed by science. Rather than stable entities, scientists have found that social, physical, and biological systems are dynamic and interdependent (Burbach & Reimers-Hild, 2019; Ferdig, 2007). These researchers suggest the traditional view of change management, with its linear, top down, leader-driven approach to implementing new processes based on predictable outcomes, is no longer sufficient in this environment of interdependent, dynamic systems. These authors propose a new approach, a sustainability approach, to leadership.

Sustainability leaders understand the interdependence of systems in which everything is connected to everything else and no single action occurs in isolation (Ferdig, 2007). Unlike the traditional approach of giving top-down direction, sustainability leaders collaborate with others to develop and implement actions to address sustainability challenges. These leaders expect that actions will need to be adapted to meet changes in the environment. There is no predefined expectation of certainty or predictability (Ferdig, 2007).

Since Ferdig's call for rethinking leadership and change in 2007, global economies have become more complex and there has been a heightened awareness of environmental issues and the exploitation of resources. These factors have increased the interest in sustainability and sustainable development (Di Fabio & Peiró, 2018). This



increased interest has spawned new contributions to the field, broadening the concept of sustainability from its traditional perspective. One new area of research to meet today's challenges is the introduction of a psychological perspective into the study of sustainability (Di Fabio & Rosen, 2018). This research, which studied sustainability leadership, continued this trend of integrating a psychological component. The models utilized in this study incorporated the psychological measurements of ecospirituality, psychological capital (PsyCap), and environmental attitudes (EAs). The study explored how these psychological components influence one's human capital sustainability leadership (HCSL).

Sustainability researchers contend the complexity of today's sustainability challenges requires the incorporation of psychological perspectives in sustainability research. Schein (2017) acknowledges that social psychology has not been widely used to study corporate sustainability leadership. As this scholar notes, little is known about the deeper psychological motivations of sustainability leaders. By studying the relationship of ecospirituality and HCSL, this research incorporated social psychology into the study of sustainability leadership.

Gabel and Matkin (2016) suggest studying a sustainability leader's PsyCap could enhance the skill set of existing sustainability leaders as they face increasingly complex challenges. By utilizing PsyCap as a mediating variable, this study explained the relationship of ecospirituality and HCSL through the lens of social psychology, specifically the components of PsyCap (hope, efficacy, resilience, and optimism).

Additionally, Suganthi (2019) suggests that a person's environmental behavior can be explained by measuring ecospirituality. By utilizing ecospirituality as the

independent variable, this study examined the direct relationship between ecospirituality and one's HCSL.

### **Statement of the Problem**

Leading an organization sustainably is becoming increasingly complex. This complexity has resulted in the expansion of sustainability research beyond the study of manifest variables such as reduction in waste and resource efficiency. The study of latent variables such as attitudes, spirituality, and psychological perspectives has emerged in sustainability research. Current research has not yet explored the relationship between ecospirituality and HCSL or the impact of PsyCap and EAs on this relationship. This research contributed to the body of knowledge by examining the relationships between these latent variables and answering the following research questions.

### **Research Questions**

1. Does a sustainability leader's ecospirituality significantly impact one's human capital sustainability leadership capacity?
2. Does the level of an individual's psychological capital mediate the relationship between a sustainability leader's ecospirituality and one's human capital sustainability leadership capacity?
3. Does the level of a sustainability leader's environmental attitudes conditionally change all three paths of a mediation model by creating direct and indirect effects of an individual's ecospirituality on one's human capital sustainability leadership capacity in the presence of psychological capital?

### **Social Significance**

This research investigated the interconnection between an individual's views towards the planet and an individual's organizational leadership. Specifically, this

research proposed that individuals who believe in the sacredness of the environment will have a greater capacity of HCSL. This relationship had not yet been addressed by sustainability leadership research although much attention had been given to developing sustainability leadership models.

Determining the connection between ecospirituality and HCSL capacity is important to increase the awareness of the interdependence of people, planet, and profit as leaders face the challenge of maintaining economic growth with finite resources. Further, understanding of this interdependence will be critical in determining how to achieve the United Nations' sustainable development goals which extend to 2030 (United Nations, 2015). These goals address global climate change challenges and environmental degradation as well as inequality and human well-being (Di Fabio & Rosen, 2018). Rosen (2017) contends technical disciplines alone will not be sufficient to address these issues and suggests contributions will be needed from a broad range of fields and disciplines.

The inclusion of ecospirituality is an emerging field of sustainability research. Several scholars have suggested areas which need to be further studied. Lestar and Böhm (2020) suggest more research needs to be done to study what role spirituality plays during the transition towards a more sustainable world. Specifically, these authors pose the following question for future researchers: "How are sustainable practices held together...and what difference does ecospirituality make in the process" (Lestar & Böhm, 2020, p. 68). Suganthi (2019) suggests that a person's environmental behavior can be explained by measuring ecospirituality. Suganthi (2019) contends that the Final Scale for Ecospirituality can be used to research the relationship of ecospirituality with organizational-level variables such as corporate social responsibility which could help

individuals move toward a sustainable lifestyle. The research discussed here explored how ecospirituality impacts sustainable practices related to human capital within organizations. By utilizing ecospirituality as the independent variable, the study examined how ecospirituality directly impacts HCSL.

There is also support in the field to incorporate psychological perspectives into sustainability research (Gabel & Matkin, 2016; Schein, 2017). This research answered that call by examining how PsyCap influences the relationship between ecospirituality and HCSL. By utilizing PsyCap as a mediating variable, this study examined the relationship of ecospirituality and HCSL through the lens of social psychology, specifically the components of PsyCap (hope, efficacy, resilience, and optimism).

This chapter has provided an introduction to this study, the statement of the problem, the research questions explored in this study, and the social significance of this research project. The next chapter provides a literature review of the sustainability paradigms and the variables used in this study (ecospirituality, HCSL, PsyCap and EAs).

## **Chapter 2: Review of the Literature**

This literature review begins with an overview of sustainability paradigms. The paradigms are discussed in chronological order: conventional, contemporary, and regenerative. This is followed by a discussion of the contemporary sustainability and regenerative sustainability periods. The remaining sections of the literature review discusses the four inner sustainability dimensions included in this study: ecospirituality, HCSL, PsyCap, and EAs.

### **Sustainability Paradigms**

Sustainability paradigms have been evolving over time from conventional, to contemporary, and now to regenerative with each iteration including and transcending its predecessor (Gibbons, 2020b).

#### ***Conventional Sustainability***

Sustainability has been defined as conserving environmental resources for human benefit as early as the 17<sup>th</sup> century (Caradonna, 2016). More recently, this definition was articulated by the Brundtland Report (1987) which defended the right of future generations to enjoy the natural resources and environment as much as the current generation. This definition was refined at the United Nations Conference on Environment and Development in Rio de Janeiro in 1992 when the components of sustainable development were identified. These components are: economic development, social development, and environmental protection (United Nations, 1992).

In 1994, Elkington (2004) introduced the “triple bottom line” concept, a “win-win-win” strategy, to the field of sustainability. This concept included the company, its customers, and the environment. In 1995, the “triple bottom line” evolved into the 3P

formulation of people, planet, and profits. By 1999, the term “triple bottom line” began to be widely used (Elkington, 2004).

In 2005, The United Nations General Assembly reaffirmed the pillars presented in Rio de Janeiro and considered them as being interdependent and mutually reinforcing. Additionally, the General Assembly described three overarching objectives required for sustainable development: (1) eradication of poverty, (2) modifying the unsustainable patterns of production and consumption, and (3) monitoring economic and social development while concurrently protecting and managing the natural resource base (United Nations, 2005).

Although this conventional view is anthropocentric, separating humans from all other forms of life and envisioning environmental resources as being in service of human consumption, this view does recognize continued human existence is dependent on environmental resources (Gibbons, 2020b). The conventional focus is economic growth within the context of finite resources (Du Plessis, 2012). Du Plessis (2012) suggests the priorities of conventional sustainability include increased efficiency, mitigating damage to the environment, and the development and implementation of technological advances. Some scholars contend there is an underlying belief that almost everything is knowable (Miller et al., 2014). Examples of implemented conventional sustainability include utilizing more efficient technology, green building practices, and economic incentives (Du Plessis, 2012).

### ***Contemporary Sustainability***

Contemporary sustainability advanced conventional sustainability through the incorporation of sustainability science in the late 1990s by including concepts such as ecosystem viability, social-ecological systems, and social justice (Miller et al., 2014;

Wiek, 2015). During this time, Elkington's "triple bottom line" concept of people, planet, and profits began to be interpreted as the 3Es of economy, equity, and ecology (Di Fabio & Peiró, 2018).

Although contemporary sustainability is an improvement from conventional sustainability, it is still anthropocentric, focusing on the present and future wellbeing of humans by solving value-laden and locally specific complex problems (Gibbons, 2020b). This anthropocentric focus tends to result in a mechanistic analysis of fragmented parts of systems rather than transdisciplinary study of whole complex systems (González-Márquez & Toledo, 2020). The outcome of this limited analysis is the identification of symptoms rather than causes of unsustainability, resulting in continued support of unsustainable patterns which utilize finite environmental resources to sustain economic growth (Du Plessis, 2012; González-Márquez & Toledo, 2020).

Some scholars contend that the current transition of contemporary sustainability science from quantitative growth to qualitative development indicates the discipline could be maturing (Fang et al., 2018). Other scholars contend it is time to move away from the mechanistic worldview of contemporary sustainability and adopt regenerative sustainability, which has a holistic worldview that integrates all aspects of sustainability (Gibbons, 2020b; González-Márquez & Toledo, 2020).

### ***Regenerative Sustainability***

Regenerative sustainability not only encompasses conventional and contemporary sustainability, it transcends them by adopting a holistic worldview (Gibbons, 2020b). This approach is not anthropocentric, rather humans and the rest of life are viewed as one autopoietic system (Gibbons, 2020b). The goal of regenerative sustainability is to fully

integrate all flourishing living systems into the overall individual-to-global system (Gibbons, 2020b).

The premise of regenerative sustainability is that communities are constantly changing and the inhabitants of the community determine its sustainability (Gibbons, 2020a). To be sustainable, communities must develop capacities to regenerate rather than degenerate (Du Plessis & Brandon, 2015; Mang & Reed, 2012). These capacities include self-organization, adaptation, and decision making which supports whole-system health (Gibbons et al., 2020). Decision making in areas such as land use, governance, infrastructure, and food systems will impact whole-system health (Gibbons et al., 2020). While conventional and contemporary sustainability view the world as having problems for which solutions need to be found, regenerative sustainability sees the world as dynamic living systems which co-exist along a continuum of health and complexity (Gibbons, 2020b).

Further, regenerative sustainability transcends conventional and contemporary sustainability by intentionally integrating both the inner and outer sustainability necessary for achieving sustainable living systems (Gibbons, 2020b). Awareness is increasing in the sustainability field that lasting change in outer sustainability cannot be achieved without addressing inner sustainability, the outer reflects the inner (Gibbons, 2020b). Inner sustainability is not observable, it encompasses beliefs, thoughts, emotions, desires, identities, and spirituality (Gibbons, 2020b). Outer sustainability consists of the observable outcomes such as policies, economic markets, and ecosystems which result from inner sustainability aspects (Bejarano et al., 2019).

Outer sustainability is dependent on inner sustainability and deeper understanding of inner sustainability dimensions could promote lasting outer sustainability measures,



strategies, and interventions (Bejarano et al., 2019). Studies to better understand experiences and actions such as empathy, deep care, gratitude, and service can be assessed with social science methods such as questionnaires, surveys, and interviews (Gibbons, 2020b).

Emerging research could be an indication that the field is in the early stages of a paradigm shift from contemporary sustainability to regenerative sustainability. Di Fabio (2017) notes that new contributions to the field have expanded sustainability beyond the 3Es to include psychological issues about the quality of human life.

### **Sustainability Leadership**

The study of sustainability leadership emerged with the development of sustainability science. This section provides a chronological overview of the study of sustainability leadership. It begins with a discussion of sustainability leadership views during the contemporary sustainability period and is followed by an overview of the emerging trend in the regenerative sustainability period to incorporate psychological perspectives into the study of sustainability leadership.

#### ***The Contemporary Sustainability Period***

When contemporary sustainability became prevalent, academic research emerged in the study of sustainability leadership. Sustainability leadership models were created which primarily focused on the individual leader's capacities. One of these models, developed by Visser and Courtice (2011), suggests the way sustainability leaders use their individual set of skills, traits, styles, and knowledge is influenced by both external and internal factors. Their model defines ecological, economic, cultural, and community factors as being external influences while internal factors include organizational culture,

corporate structure, and leadership role. The focus of this model is how sustainability leaders respond to sustainability challenges and opportunities.

Another model, developed by Schwab (2011), identified sustainability leader competencies. This model suggests a sustainability leader's role evolves in stages, with the leader having a different role in each stage, requiring a unique set of competencies at each stage. This model suggests a sustainability leader's role shifts from utilizing a general list of traits and characteristics to a set of strategies for skills, knowledge, style and mission-criticality (Schwab, 2011).

These models focus on the people aspect of sustainability leadership, specifically aspects of individual leaders which are observable. Further, these models identify the skills, traits, styles, and knowledge of leaders who lead with a focus on maximizing the "triple bottom line". There is little, if any, discussion of unobservable inner sustainability aspects like environmental attitudes, ecospirituality, or psychological capital. A heightened awareness is emerging in the sustainability field that long-term change is not possible without addressing the aspects of inner sustainability (beliefs, emotions, identities, and spirituality) (Gibbons, 2020a).

### ***The Regenerative Sustainability Period***

Regenerative sustainability is an emerging view of sustainability which transcends previous sustainability goals and is based on a holistic worldview (Gibbons, 2020b). The underlying premise of regenerative sustainability is that lasting change starts with addressing the realms of inner sustainability (Gibbons, 2020b).

The emergence of regenerative sustainability is occurring at a time when the world is facing increasingly complex sustainability issues. Events such as extreme temperatures, severe drought conditions, depletion of water supplies, and a pandemic are

observable evidence that systemic change is needed for continued human existence. The world is in need of observable sustainability efforts to address all of these challenges. Du Plessis (2012) and Gibbons (2020a) contend the failure of previous sustainability efforts to produce systemic change is a result of ignoring the dimensions of inner sustainability.

To explore the aspects of inner sustainability, a psychological perspective has been introduced into the study of sustainability leadership. The contemporary sustainability period was dominated by the study of leader characteristics. Models of sustainability leadership were developed which addressed skills, knowledge, and competencies (Schwalb, 2011; Visser & Courtice, 2011). However, these models did not address inner sustainability aspects such as beliefs or spirituality. This could be due in part to a lack of measurement instruments available during the contemporary sustainability period.

The recent development of instruments to measure psychological perspectives related to sustainability leadership is further evidence that there is a shift in the field towards more exploration of the aspects of inner sustainability. Suganthi (2019) developed a scale to measure ecospirituality while Di Fabio and Peiró (2018) developed a HCSL scale. These instruments should contribute to the further study of inner sustainability.

Du Plessis (2012) and Gibbons (2020b) are not the only scholars to suggest aspects of inner sustainability should be further studied. Schein (2017) suggests little is known about the deeper psychological motivation of sustainability leaders. Additionally, Gabel and Matkin (2016) specifically call for studying how psychological capital (PsyCap) influences sustainability leaders and Suganthi (2019) contends ecospirituality influences an individual's environmental behavior.

## **Ecospirituality**

In this section, the evolution of the concept of ecospirituality is discussed. This is followed by a review of ecospirituality research in organizations which exists in the field and the perceived gaps in ecospirituality research. The last section presents the ecospirituality question and related hypothesis explored in this research.

### ***Convergent Evolution of Ecospirituality***

Ecospirituality as it exists today is the aftereffect of what could be considered a culture war. This author suggests ecospirituality has existed in some form since the first humans inhabited the planet. However, the discussion of ecospirituality here is limited to traditions, thoughts, and beliefs which have been documented in printed form. Effort has been made to present this chronologically to reveal the pattern of ecospirituality convergence, divergence and the renewed effort to converge all of humankind towards saving the planet.

Although not labelled ecospirituality, some cultures have practiced ecospirituality for generations. Mother Earth spirituality has been woven into every aspect of Native American life through traditions and stories passed from one generation to the next (McGaa, 1990). For Native Americans, killing Mother Earth is believed to be a sin (McGaa, 1990).

There are several examples of reverence for Mother Earth in Native American life. The Lakota Inikagapi or Inipi (sweat lodge) ceremony connects and aligns participants “with all things on and of the Earth...The leader...is the first to offer a prayer, acknowledging the creator, the Earth Mother, and the powers that live in the Four Directions” (Marshall III, 2001, p. 227-228). All parts of the sweat lodge ceremony

symbolize the connection of all things living and participation acknowledges the connection of self to all that is living (Marshall III, 2001).

Another example was Franklin Pierce, President of the United States in 1854, sending word to Chief Seattle of the Suquamish and Duwamish tribes that he wished to buy land (McGaa, 1990). Chief Seattle responded that his people held every part of the earth to be sacred (McGaa, 1990). He questioned how the sky or the warmth of the land could be bought or sold (McGaa, 1990). Further, he expressed that all peoples have the same God, that the earth was precious to God, and harming the earth would heap contempt on its Creator (McGaa, 1990). In his letter, Chief Seattle also expressed his vision: “Continue to contaminate your bed, and you will one night suffocate in your own waste” (McGaa, 1990, p. xii).

Across the land, there was a convergence of ecospirituality, Native Americans expressed respect for Mother Earth in their own way and many continue to do so today. On the East Coast, the Massachusetts tribe taught the Pilgrims about giving thanks annually to the Great Spirit for all they had been given (McGaa, 1990). This tradition has evolved into our modern-day Thanksgiving holiday. In the Great Plains, the Sioux were giving thanks with their Sun Dance ceremony (McGaa, 1990). In the Southwest, the Navajo and Hopi were giving thanks in their annual Corn Dance and in the Northeast Woodlands the Ojibway tribe held Wild Rice Thanksgivings (McGaa, 1990). These events were a sacred time, a time to give thanks to the Creator (McGaa, 1990). Through such ceremonies, Native Americans have looked upon Mother Earth as sacred (McGaa, 1990).

This convergence was followed by a period of divergence. While the Native Americans held onto their reverence for Mother Earth, Pilgrims who had migrated to the

country began travelling a divergent path. Fossil fuels were discovered as a cheap source of energy (Miller, 2010). This discovery was akin to winning the lottery, society went crazy with consumption, economic activity, and environmental destruction (Miller, 2010). Today, this period of pillage of the earth's fossil fuel resources could be coming to an end. It is believed the peak of oil production occurred in 2008 and peaks in natural gas and coal production are on the horizon as well (Miller, 2010).

The consequences, like climate change, for this consumption bonanza are now upon us. Discussions of climate change have become more prominent in the daily news. Hurricane season is starting earlier, high temperature records are being obliterated in the Northwest, and drought conditions are dropping water levels in reservoirs like Lake Mead by the day. If natural disasters are signals Mother Earth is breaking down, then addressing environmental issues is not optional at this point. Where we are now did not happen overnight. It has been years in the making. As environmental issues and sustainability science have become more prevalent, more focus has been placed on the study of psychological aspects, including ecospirituality, in the field of sustainability. Table 1 provides a chronological view of how the definition of ecospirituality has evolved over the last three decades.

**Table 1***Ecospirituality Definitions*


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Year	Ecospirituality has been defined as:
1991	a manifestation of “the existence of the continuous mutual process of human and environmental fields and the experience or awareness of that mutual process” (Malinski, 1991, p. 56).
1994	“...a recognition of a unity in which human consciousness exists as part of nature rather than split from it through philosophical dualism or religious transcendence” (Richard-Allerdyce, 1994, p.58).
2000	“a pattern that is both a process as well as a manifestation of the human field in relationship with the environmental field. This relationship is a continuous mutual process in service of spiritual connection between human beings and the environment” (Lincoln, 2000, p. 242).
2012 & 2014	part of deep ecology, which recognizes the inherent worth of all living beings (Aburrow, 2014; Drengson, 2012).
2017	helping people “recognize their relationship as human beings to all creation” (Bonfiglio, 2017, para. 4).
2019	“having a reverential attitude toward the environment in taking care of it while dwelling within its premises (Suganthi, 2019, p. 110).

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The early definitions focus on recognizing the existence of a connection between humankind and the environment (Lincoln, 2000; Malinski, 1991; Richard-Allerdyce, 1994). Over time, that definition evolved to recognizing the worth of all living things (Aburrow, 2014; Drengson, 2012). It further evolved to recognize humans as being a member of a larger creation (Bonfiglio, 2017). The most recent definition expresses reverence for the environment (Suganthi, 2019). In essence, these definitions appear to indicate the view of a broader segment of society is now beginning to converge with the Native American view of ecospirituality, to show reverence to the earth.

McGaa (1990) acknowledges the health of the environment is at risk. He contends a “spiritual fire that promotes a communal commitment to a worldwide environmental undertaking is needed” (McGaa, 1990, p. vii). McGaa’s belief is that through sharing of Native American traditions, all “two-leggeds” can learn to revere, respect, and protect Mother Earth.

### ***Review of Previous Research***

A review of ecospirituality research found just one study of ecospirituality in organizations. This study examined the relationship of ecospirituality to the implementation of corporate social responsibility practices and the relationship of ecospirituality to organizational performance (Suganthi, 2020). The results of this research concluded that ecospirituality has a positive relationship to both the implementation of corporate social responsibility practices and organizational performance (Suganthi, 2020).

Although ecospirituality (the concept of a connection to the environment) has not been widely studied, researchers have studied the impact of workplace spirituality (the concept of a connection to the workplace). Ashmos and Duchon (2000) define spirituality



at work as “recognition of an inner life that nourishes and is nourished by meaningful work that takes place in the context of community” (p. 139).

Workplace spirituality has been found to positively influence employee engagement (Kolodinsky et al., 2008; Milliman et al., 2018) and organizational citizenship behavior (Haldorai et al., 2019). Other researchers contend workplace spirituality can positively influence organizational performance (Ashmos & Duchon, 2000; Garcia-Zamor, 2003; Garg, 2020). Further, some researchers suggest organizations could implement voluntary spirituality programs to improve profits and success (Dehler & Welsh, 1994; Turner, 1999, as cited in Karakas, 2010).

### ***Perceived Gaps in the Literature***

The study of ecospirituality in organizations is emerging in the sustainability field. The increasingly complex environmental problems being faced globally are prioritizing the need to reconnect with nature and respect its ecosystem (Suganthi, 2020). This need to reconnect with nature is not new. For decades, authors have expressed mankind was in dire need of reconnecting with the ecosystem that sustains humankind (Clayton & Opatow, 2003; Davis et al., 2009; Leopold, 1949; Mayer & Frantz, 2004; Stern, 2000; Stern & Dietz, 1994). More recently, Suganthi (2020) suggested it is time to thoroughly examine the influence of a spiritual stance towards the environment from an organizational context.

As noted, there was only one study found which examined ecospirituality in an organizational context. The study examined ecospirituality as it relates to the overarching concept of corporate social responsibility that encompasses all stakeholders. Although there is a human aspect to corporate social responsibility, the study did not specifically focus on the organization’s HCSL. The research discussed here explored in more detail

how ecospirituality impacts a human dimension (HCSL) of corporate social responsibility and answered the call of Suganthi (2020) to study ecospirituality in an organizational context.

### ***Research Question and Hypothesis***

Does a sustainability leader's ecospirituality significantly impact one's human capital sustainability leadership capacity?

*H*<sub>1</sub>: The presence of ecospirituality will have a positive relationship on human capital sustainability leadership capacity.

### **Human Capital Sustainability Leadership (HCSL)**

HCSL was introduced by Di Fabio and Peiró (2018) and goes beyond the traditional definition of sustainable leadership. Specifically, they propose HCSL as a higher-order construct composed of sustainable, ethical, mindful, and servant leadership. They propose all of these constructs are required to support the sustainability of human capital and organizations. The components of HCSL are discussed here along with a review of previous HCSL research. This section concludes with a discussion of perceived gaps in previous HCSL research and the related research question explored in this study.

### ***Sustainable Leadership***

Hargreaves and Fink (2003) define sustainable leadership as a shared responsibility, leadership which cares for the surrounding community by not unduly depleting its human or financial resources. Their definition is based on seven principles of sustainable leadership which are discussed here in detail: create and preserve continuous learning, secure success over time, sustain the leadership of others, address issues of social justice, develop rather than deplete human and material resources, develop environmental diversity and capacity, and actively engage with the environment.

The first principle of sustainable leadership is to create and preserve continuous learning (Hargreaves & Fink, 2003). The authors emphasize that the learning must matter and be engaging both socially and emotionally. They contend it is the underlying learning which creates lasting improvements which is what matters. They caution that achievement results represent only temporary gains.

The second principle of sustainable leadership is to secure success over time (Hargreaves & Fink, 2003). The emphasis here is on leadership succession. The authors note that leadership succession planning is essential for continuity. They acknowledge that such planning can be challenging as one is planning for their own obsolescence. However, they maintain that sustainable leadership transcends beyond any individual. Rather, they suggest each leader's actions are connected not only to their predecessors but also to those they groom for succession.

The third principle of sustainable leadership is to sustain the leadership of others (Hargreaves & Fink, 2003). The authors suggest this goes beyond merely grooming a successor. Rather, this represents distributing leadership throughout the organization. They contend that the complexity of organizations prevents any one leader from being able to control every detail, making shared responsibility a necessity.

The fourth principle of sustainable leadership is to address the issues of social justice (Hargreaves & Fink, 2003). The authors suggest sustainable leadership should benefit all within the organization and the community. They maintain that sustainable leadership takes ownership of how the actions of the organization influence the local environment. They view sustainable leadership as an interconnected process, being responsible for how one's own actions impact the wider environment.

The fifth principle of sustainable leadership is to develop rather than deplete human and material resources (Hargreaves & Fink, 2003). The authors describe sustainable leadership as an environment which provides incentives to attract and retain talent, opportunities for growth, and time for leaders to groom their successors. These environments not only take care of their leaders but also encourage leaders to take care of themselves. As noted by the authors, sustainable leaders recognize emotional health is a scarce resource and understand pushing leaders to the point of emotional burnout can jeopardize sustainable organizational leadership.

The sixth principle of sustainable leadership is to develop environmental diversity and capacity (Hargreaves & Fink, 2003). The authors suggest sustainable leaders create an environment which encourages continuous improvement rather than standardization for everyone. These leaders provide opportunities for individuals to adapt to their complex environments by recognizing each individual's diverse experiences as resources. Experience sharing is encouraged during a process improvement evaluation.

The seventh principle of sustainable leadership is to actively engage with the environment (Hargreaves & Fink, 2003). This principle contends that sustainable leaders actively work to influence the environment which impacts them. The authors suggest sustainable leaders should be activists within their environment and strive to discourage forced standardization.

When developing their higher-order construct of HCSL, Di Fabio and Peiró (2018) incorporated the principles just described. They define the sustainable leadership component of HCSL as focusing “on both the use of vigilant decision-making processes and the development and sustainability of human resources by creating continuous

learning conditions that support and facilitate employees' personal and career growth" (p. 3).

### ***Ethical Leadership***

Several descriptions of ethical leadership can be found in the literature. Kanungo (2001) describes ethical leadership based on the three factors presented by Thomas Aquinas: motive of the actor, the behavior itself, and the social context in which the behavior takes place. Based on these factors, Kanungo (2001) suggests ethical leaders exhibit behaviors that benefit others and refrain from behaviors which could cause harm to others. Gallagher and Tschudin (2010) similarly describe ethical leadership as leadership which aspires to achieve good ends while at the same time contributing to the well-being of all life forms and the environment. They also acknowledge that merely aspiring to achieve good ends does not make someone an ethical leader, a leader's character must also be considered.

Brown et al. (2005) define ethical leadership as "the demonstration of normatively appropriate conduct through personal actions and interpersonal relationships, and the promotion of such conduct to followers through two-way communication, reinforcement, and decision-making" (p. 120). The authors provide further detail to the meaning of each component of their definition. The first component describes the authors' belief that leaders are perceived to be ethical and thereby gain credibility by exhibiting behaviors which are appropriate when considered in context (e.g., fairness, honesty, trustworthiness). The authors further describe two-way communication as meaning that ethical leaders discuss ethics with their followers and give followers a voice.

Reinforcement in their definition is clarified by the authors as implying that ethical leaders set ethical standards and hold their followers accountable for their behavior,

rewarding those who follow the standards and disciplining those who violate the standards. The last component of their definition, decision-making, is further described by the authors as meaning that ethical consequences are taken into consideration when ethical leaders make decisions and these leaders strive to make fair choices which can be emulated by others.

When developing their higher-order construct of HCSL, Di Fabio and Peiró (2018) combined elements of the descriptions above. They define the ethical leadership component of HCSL as follows: “ethical leadership aims to engender fair and just aims, empower an organization’s members, create consistency of actions with espoused values, use behavior to communicate or enforce ethical standards, fair decisions and rewards, kindness, compassion and concern for others” (p. 3).

### ***Mindful Leadership***

Leaders often practice routines which help them to maintain a level of balance (Thompson, 2018). Some look to exercise, others practice yoga or meditation, and others are making the practice of mindfulness more popular (Thompson, 2018). Dhiman (2008) notes that the practice of mindfulness has moved beyond health clinics and into government offices, law firms, and corporate boardrooms. Mindfulness is the ability to be aware of the body and the mind in the present moment (Dhiman, 2008). Thompson (2018) suggests mindfulness gives one the opportunity to pause in the present, to be calm, and reflect on the present situation.

George (2012) describes the practice of mindful leadership as having a sense of awareness and understanding of how you impact other people. In the moment, you are able to simultaneously observe and participate (George, 2012). Further, George (2012) contends that in the moment you are able to recognize the long-term impact of your

actions and this recognition keeps you from straying away from your values. George (2012) suggests that the benefits of practicing mindful leadership include helping one clarify what is important to them and gaining a deeper understanding of the world around them (George, 2012).

Tuleja (2014) describes mindfulness as a reflection tool which leaders can utilize to link knowledge, application, and action. This author suggests mindfulness can be used to develop the intercultural communication competence of global leaders. Through mindfulness, Tuleja (2014) suggests one can pay attention to subtle cues in cross-cultural circumstances, reflect on their own prior knowledge, and then attempt to discern the meaning of the events.

When developing their higher-order construct of HCSL, Di Fabio and Peiró (2018) emphasized the concept of awareness in the present as previously discussed. They define the mindful leadership component of HCSL as follows: “mindful leadership refers to a style based on paying attention to the present moment, and recognizing personal feelings and emotions and keeping them under control, especially under stress” (p. 3).

### ***Servant Leadership***

Robert Greenleaf coined the term servant leadership in his essay *The Servant as Leader* first published in 1970 (Van Dierendonck, 2011) and later republished in 2008 by The Greenleaf Center for Servant Leadership. Although Greenleaf did not provide a specific definition of servant leadership, he provided his vision of the servant-leader. Greenleaf’s description reads: “The servant-leader is a servant first... It begins with the natural feeling that one wants to serve, to serve first. Then conscious choice brings one to aspire to lead” (Greenleaf, 2008, p. 15).

When developing their higher-order construct of HCSL, Di Fabio and Peiró (2018) emphasized the development of followers. They define the servant leadership component of HCSL as considering “the growth of the followers for their personal interest (not for the interest of the organization or the leader), recognizing their needs and helping them on the basis of a moral responsibility towards them” (p. 3).

### ***Review of Previous Research***

This section provides a discussion of previous research related to HCSL. As the higher order construct of HCSL is just beginning to be explored, there is a brief review of HCSL research. This is followed by reviews of previous research of the components of HCSL (sustainable, ethical, mindful, and servant leadership).

**Human Capital Sustainability Leadership.** A review of the research found just one study related to HCSL. In this study the researchers conducted a principal component analysis to test the hypothesis that HCSL is formed by factors derived from ethical leadership, sustainable leadership, mindful leadership, and servant leadership (Candra & Sundiman, 2020). The results of the study supported this hypothesis. However, these authors suggest future research in this area should include participants from various regions rather than a single city.

**Sustainable Leadership.** Researchers have addressed the impact of sustainable leadership, a component of HCSL, from an organizational perspective. Avery and Bergsteiner (2018) contend BMW’s sustainable leadership approach contributes to its organizational resiliency. Organizational learning has also been found to be positively impacted by sustainable leadership (Iqbal, Ahmad, & Halim, 2020).

From an employee perspective, the effect of sustainable leadership on employee behaviors has been studied. Wang et al. (2021) found that followers were more



committed to participate in organizational activities when they perceived sustainable leadership was present which resulted in a positive effect on employees' work performance. Additionally, Wang et al. (2021) found sustainable leadership increased employee willingness to adopt creative work behaviors.

The relationship of employee perceptions and sustainable leadership has also been studied. Iqbal, Ahmad, Nasim et al. (2020) found a significant positive relationship between sustainable leadership and employees' perception of psychological safety. Further, when employees perceive they are empowered, sustainable performance has been found to be indirectly impacted by sustainable leadership (Iqbal, Ahmad & Halim, 2020).

Sustainable leadership has also been studied in the education sector. Cayak (2021) contends sustainable administrative practices of school principals have an impact on teachers' extrinsic satisfaction. Dalati et al. (2017) studied higher education institutions and found sustainable leadership had a positive effect on staff job satisfaction.

**Ethical Leadership.** Ethical leadership, another component of HCSL, has also been studied. Some researchers have argued ethical leadership behavior positively influences employee perception of an ethical organizational climate (Dickson et al., 2001; Grojean et al., 2004). Research by Neubert et al. (2009) and Shin (2012) supports this assertion while Neubert et al. (2009) found that ethical climate mediates the impact ethical leadership behavior has on employee perceptions.

Many studies have been conducted related to the impact of ethical leadership on employee behaviors. Several researchers have found ethical leadership to be positively related to employee citizenship behaviors (Avey et al., 2011; Avey et al., 2012; Kacmar et al., 2011; Lu, 2014; Mayer et al., 2009; Sharif & Scandura, 2014; Zhang et al., 2019).

Other researchers found ethical leadership to be positively related to increased employee commitment (Brown et al., 2005; Zhu et al., 2004), engagement (Den Hartog & Belschak, 2012; Piccolo et al., 2010), and innovative work behavior (Yidong & Xinxin, 2013). Ethical leadership was also found to decrease counterproductive behavior (Den Hartog & Belschak, 2012; Mayer et al., 2010; Schaubroeck et al., 2012).

The relationship between ethical leadership and employee perceptions has also been studied. Researchers have found ethical leadership to be positively linked to increased job satisfaction (Bedi et al., 2016; Ruiz-Palomino et al., 2011; Tu 2017), and psychological well-being (Bedi et al., 2016). Also, lower job insecurity was found to be related to ethical leadership (Loi et al., 2012).

Additionally, the relationship between employees and ethical leaders has also been studied. Several researchers contend there is a positive relationship between ethical leadership and employee trust in their leaders (Bedi et al., 2016; Wang et al., 2017; Zhu et al., 2004). Further, Brown and Treviño (2006) propose that ethical leaders are prepared to appropriately handle morally intense situations and be role models for their followers.

**Mindful Leadership.** Several studies have been conducted related to the impact of mindful leadership, another component of HCSL, in the workplace. In one study, Reb et al. (2014) found mindful leadership to be positively related to employee work-life balance and overall employee performance. In a second study, Reb et al. (2014) found employee job satisfaction, psychological need satisfaction, and organizational citizenship behaviors were positively related to mindful leadership. These studies were supported by additional research (Schuh et al., 2019). Schuh et al. (2019) concluded that the positive relationship between mindful leadership and employee performance was a result of the leader creating an environment of high procedural justice and low employee emotional

exhaustion. Reb et al. (2019) also found mindful leaders create environments with less employee stress.

Other researchers have found that mindful leadership has improved the quality of employee relationships at work and helped employees to connect to the organizational purpose (Levey & Levey, 2019). Reb et al. (2019) also studied work relationships and found mindful leaders develop higher-quality relationships with their followers. Further, Vreeling et al. (2019) found that mindful leader relationships with followers enabled leaders to more effectively empower and assist their employees since they had a better awareness of the employees' physical and mental states.

**Servant Leadership.** Research in servant leadership, another component of HCSL, has included studies of teams as well as individuals across many disciplines. Researchers contend team servant leaders develop positive climates (Walumbwa, Hartnell et al., 2010), care about each individual's personal needs at work (Mayer et al., 2008), build long-term relationships with team members (Liden et al., 2008), convey the importance of honesty and integrity (Russell & Stone, 2002), and enhance team member commitment to the organization (Liden et al., 2008). Studies of individuals have found servant leadership to be positively associated with employee creativity (Yoshida et al., 2014), engagement (Hunter et al., 2013), and job satisfaction (Chan & Mak, 2014; Newman et al., 2017).

Although these studies are primarily in business and leadership journals, servant leadership has also been studied in other disciplines such as nursing (Waterman, 2011), education (Cerit, 2009), and tourism (Ling et al., 2016). Further, research has expanded beyond the for-profit corporate sector to include not-for-profit (Parris & Peachey, 2013), public (Schwarz et al., 2016), and youth (Eva & Sendjaya, 2013) sectors.

### ***Perceived Gaps in the Literature***

The existing research in HCSL has been limited to specific geographical populations. Further, this research has been primarily conducted to validate the elements of HCSL (Candra & Sundiman, 2020; Di Fabio & Peiró, 2018). At this time, no research could be found which incorporates the impact of ecospirituality on HCSL. The current research provides evidence of the substance of HCSL but does not address any potential antecedents. This research contributes to the field by exploring ecospirituality as a potential antecedent of HCSL.

### ***Research Question and Hypothesis***

Does a sustainability leader's ecospirituality significantly impact one's human capital sustainability leadership capacity?

*H*<sub>1</sub>: The presence of ecospirituality will have a positive relationship on human capital sustainability leadership capacity.

### **Psychological Capital**

In this section, the dimension of PsyCap, utilized as the mediating variable in this research, is defined. This is followed by descriptions of the four aspects of PsyCap: self-efficacy, optimism, hope, and resiliency. The next two sections review previous PsyCap research relating to HCSL and perceived gaps in the existing literature. The final section presents the research question and hypothesis related to PsyCap explored in this research.

### ***Psychological Capital Defined***

PsyCap encompasses the four positive psychological capacities of self-efficacy, hope, optimism, and resiliency. Luthans, Youssef, and Avolio collectively describe PsyCap as:

PsyCap is an individual's positive psychological state of development and is characterized by: (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resiliency) to attain success. (Luthans et al., 2007, p. 3).

**Self-Efficacy.** The first capacity of PsyCap is self-efficacy, which can be defined as “an individual's conviction (or confidence) about his or her abilities to mobilize the motivation, cognitive resources, and courses of action needed to successfully execute a specific task within a given context” (Stajkovic & Luthans, 1998, p. 4). Individuals are motivated by their self-efficacy to utilize their strengths and acquired skills to overcome the obstacles encountered in pursuit of their goals (Luthans et al., 2007).

**Optimism.** The second capacity is optimism which Seligman (1998) describes as an approach which perceives defeat as being caused by external circumstances and a challenge to be overcome by working harder rather than giving up. PsyCap optimism has some flexibility and is not intended to be extreme (Luthans et al., 2007). Rather, PsyCap optimism suggests one should not internalize successes in an effort to gain complete control nor should one shirk responsibility by externalizing all failures.

**Hope.** The third capacity is hope, defined as “a positive motivational state that is based on an interactively derived sense of successful (1) agency (goal-directed energy) and (2) pathways (planning to meet goals)” (Snyder et al., 1991, p. 287). Luthans et al.

(2007) caution that hope should not be confused with wishful thinking. They contend that wishful thinking is an unsubstantiated positive attitude, an emotional high without any pathway.

**Resiliency.** The final capacity of PsyCap is resiliency, defined as the developable capacity “to rebound, to ‘bounce back’ from adversity, uncertainty, failure or even positive change, and increased responsibility” (Luthans, 2002, p. 702). PsyCap resiliency is not only the ability to face adversity and bounce back to one’s normal self but also viewing positive events as catalysts to push closer to reaching one’s full potential (Luthans et al., 2007).

### ***Review of Previous Research***

There was no existing research found which examines the study of HCSL and PsyCap concurrently. However, there has been some research combining individual dimensions of HCSL and PsyCap. Several researchers have found a positive relationship between the servant leadership dimension of HCSL and PsyCap (Coggins, 2012; Davis, 2018; Ice, 2016). Other researchers found the PsyCap dimension of self-efficacy did not moderate the relationship of the HCSL dimension of ethical leadership and work engagement (Wibawa & Takahashi, 2021).

Although aspects of PsyCap are present in sustainability leadership models (Schwalb, 2011; Visser & Courtice, 2011), there is scant evidence of PsyCap being examined in the sustainability field. This could be in part due to the study of psychological aspects only beginning to emerge in the sustainability field.

While PsyCap research in sustainability is emerging, numerous researchers have studied the effects of PsyCap on employee attitudes. Increased levels of job satisfaction and organizational commitment have been linked to high levels of individual PsyCap

(Abbas et al., 2012; Ali & Ali, 2014; Kaplan & Bickes, 2013; Kwok et al., 2015; Larson & Luthans, 2006; Luthans et al., 2007; Luthans, Norman et al., 2008; Ngo et al., 2014). Additionally, positive relationships have been found between individual PsyCap and perceived employability after being displaced (Chen & Lim, 2012), intrinsic motivation (Kim & Noh, 2016; Siu et al., 2014), and perceptions of empowerment (Avey et al., 2008).

The effects of PsyCap on employee behavior have also been studied. PsyCap has been found to be positively related to job performance (Abbas et al., 2012; Avey, Nimmicht et al., 2010; Liu, 2013; Luthans et al., 2005; Luthans et al., 2007; Luthans, Avey et al., 2008; Luthans, Norman et al., 2008; Nguyen & Nguyen, 2012; Rego et al., 2010; Venkatesh & Blaskovich, 2012; Walumbwa, Peterson et al., 2010), and organizational citizenship behavior (Avey, Luthans & Youssef, 2010; Gooty et al., 2009; Qadeer & Jaffery, 2014). Conversely, PsyCap has been found to negatively influence job search behavior (Avey et al., 2009), and absenteeism (Avey et al., 2006).

Other studies have extended the impacts of PsyCap beyond employee attitudes and behaviors. Employee job stress has been found to be lower in individuals with high levels of PsyCap (Abbas & Raja, 2015; Siu et al., 2015). Additional areas which have been researched include the effect of PsyCap on burnout (Wang et al., 2012), depression symptoms (Liu et al., 2012), and personal well-being (Avey, Luthans, Smith et al., 2010; Culbertson et al., 2010; Luthans et al., 2013).

### ***Perceived Gaps in the Literature***

The current literature does not contain any research of PsyCap to the higher-order construct of HCSL. This research contributes to the field by evaluating the impact of

psychological capital on all of the components of HCSL (sustainable, ethical, mindful, and servant leadership) simultaneously.

### ***Research Question and Hypothesis***

Does the level of an individual's psychological capital mediate the relationship between a sustainability leader's ecospirituality and their human capital sustainability leadership capacity?

*H<sub>2</sub>*: An individual's psychological capital mediates the relationship between one's ecospirituality and human capital sustainability leadership capacity.

### **Environmental Attitudes**

In this section, the dimension of environmental attitudes (EAs) is discussed. A brief discussion of the evolution of EAs is followed by a review of previous EAs research as it relates to HCSL as well as the areas in which EAs have been studied. The next section describes the perceived gaps in the literature and the last section presents the research question and hypothesis explored in this study.

### ***Evolution of Environmental Attitudes***

Some researchers have referred to EAs as "environmental concern" in the literature (Dunlap & Jones, 2002; Fransson & Gärling, 1999), whereas other researchers have differentiated the terms (Schultz et al., 2004; Schultz et al., 2005; Stern & Dietz, 1994). This varied approach to defining the terms has resulted in several proposed definitions for both terms. Table 2 provides examples of various definitions for environmental concern.



**Table 2***Environmental Concern Definitions*


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Environmental concern:

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is “the totality of ideas on the protection and control of and interference with the natural and artificial environment, as well as the behavioral dispositions connected with them” (Ester, 1981, as cited in Dunlap & Jones, 2002, p. 485).

“is related to egoistic, social-altruistic, and biospheric value orientations and also to beliefs about consequences of environmental changes for valued objects” (Stern & Dietz, 1994, p. 65).

“may refer to both a specific attitude directly determining intentions, or more broadly to a general attitude or value orientation” (Fransson & Gärling, 1999, p. 370).

is “the degree to which people are aware of problems regarding the environment and support efforts to solve them and/or indicate a willingness to contribute personally to their solution” (Dunlap & Jones, 2002, p. 485).

is “the affect (i.e., worry) associated with beliefs about environmental problems” (Schultz et al., 2004, p. 31; Schultz et al., 2005, p. 458)

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For psychological research, the term EAs appears to be more appropriate. Dunlap and Jones (2002) view environmental concern as having a cognitive expression and an affective expression. These authors contend the cognitive expression represents the beliefs and knowledge one has about an environmental problem and the affective expression as being a more restricted conceptualization of attitude. They refer to the indicators which influence the affective expression as environmental attitudes representing personal feelings or evaluations about environmental issues. Further, these authors suggest attitudes “constitute the major social-psychological expressions of environmental concern” (p. 497).

Other sources also support the term EAs as being appropriate. The psychological index term generally used is EAs (Gallagher, 2004). Additionally, some researchers have considered environmental concern to be a general attitude (Bamberg, 2003; Fransson & Gärling, 1999) or an effect of attitude (Schultz et al., 2004; Schultz et al., 2005). Table 3 provides examples of various definitions of environmental attitudes.

**Table 3***Environmental Attitudes Definitions*


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Environmental attitudes are:

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“an organization of beliefs, including an overall evaluation, liking and disliking for some aspects of the environment, the environment as a whole, or some object which has clear and direct effects on the environment, such as power plants” (Heberlein, 1981, as cited in Milfont, 2007).

constructed by people “on the basis of their expectations about how the attitude object (such as an environmental condition) affects the particular sets of people or things they value” (Stern & Dietz, 1994, p. 67).

“people’s orientations toward environmentally related objects, including environmental problems themselves and problem-solving actions, and divide environmental attitudes into three types: cognitive, affective, and evaluative environmental orientations” (Yin, 1999, p. 63).

“concern for environmental quality or ‘environmental concern’” (Dunlap & Jones, 2002, p. 483).

“the collection of beliefs, affect, and behavioral intentions a person holds regarding environmentally related activities or issues” (Schultz et al., 2004, p. 31; Schultz et al., 2005, p.458).

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For this research, the definition of EAs developed by Milfont and Duckitt (2010) is utilized. These researchers view EAs as a “crucial construct in environmental psychology” (Milfont & Duckitt, 2010, p. 80). They view EAs as a psychological tendency expressed based on the degree of favour or disfavour one has of the natural environment. They contend EAs consist of a set of twelve perceptions of the natural environment including enjoyment of nature, environmental fragility, and human utilization of nature.

### ***Review of Previous Research***

EAs have been linked in previous research to some of the specific dimensions of HCSL. For example, Daubert (2007) explored the relationship of EAs to servant leadership. The results of this study found a positive relationship between EAs and four of the five scales of servant leadership. The researcher noted that the absence of a positive relationship between EAs and persuasive mapping in this study may have been partially attributed to the level of maturity and education level of the participants.

The ethical leadership dimension of HCSL has also been linked to EAs research. Saleem et al. (2021) examined the relationship between ethical leadership and employee green behavior. As part of this study, the researchers examined the effects of leaders' pro-environmental attitudes. The results of their study found that pro-environmental attitudes strengthened the indirect impact of ethical leadership on employee green behavior.

The potential antecedents of EAs have been studied by some researchers. Voski (2020) studied the impact of the overview effect phenomenon (seeing the Earth from space) on astronauts and found the experience has the ability to elevate environmental awareness and consciousness to a new level. A majority of participants experienced a post-spaceflight elevation of EAs strong enough to prompt behavioral changes (Voski,

2020). McCunn and Gifford (2012) studied employees working in office buildings with green design and found this environment did not have a positive effect on employee EAs. Diamantopoulos et al. (2003) found positive EAs to be stronger for females (versus males) and families with more children (versus fewer children). Diamantopoulos et al. (2003) also contends EAs are positively related to education and social class. Concerns for environmental quality increase as people become more educated and move into higher social classes (Diamantopoulos et al., 2003).

Recent studies have expanded the study of EAs. Pintassilgo et al. (2021) studied the impact of EAs on behavioural intention. This study found that although bird watchers had strong concern for the environment, this concern did not predict a willingness to pay for environmental quality improvements (Pintassilgo et al., 2021). Janakiraman et al. (2021) studied how educational methods could influence youth EAs. This study found utilizing gaming techniques had a more significant influence on youth than traditional education methods (lectures) and concluded games could be an effective pedagogical tool in youth environmental studies (Janakiraman et al., 2021).

### ***Perceived Gaps in the Literature***

EAs impact has been linked to some individual aspects of HCSL in stand-alone research. Daubert (2007) studied the relationship of EAs to servant leadership while Saleem et al. (2021) link EAs to ethical leadership. The current literature does not contain any research of EAs to the higher-order construct of HCSL. This research contributes to the field by evaluating the impact of EAs on all of the components of HCSL (sustainable, ethical, mindful, and servant leadership) simultaneously.

### ***Research Question and Hypothesis***

Does the level of a sustainability leader's environmental attitudes conditionally change all three paths of a mediation model by creating direct and indirect effects of an individual's ecospirituality on one's human capital sustainability leadership capacity in the presence of psychological capital?

*H<sub>3</sub>*: A sustainability leader's environmental attitudes significantly moderate all three paths of the mediation model in changing the direct and indirect effects of ecospirituality on human capital sustainability leadership in the presence of psychological capital, such that environmental attitudes strengthen these relationships.

## Operational Definition of Terms

### *Sustainability Paradigms*

**Table 4**

#### *Definition of Terms-Sustainability Paradigms*

Term	Definition
Conventional Sustainability	The conventional focus is economic growth within the context of finite resources (Du Plessis, 2012).
Contemporary Sustainability	Contemporary sustainability advanced conventional sustainability through the incorporation of sustainability science in the late 1990s by including concepts such as ecosystem viability, social-ecological systems, and social justice (Miller et al., 2014; Wiek, 2015).
Regenerative Sustainability	Regenerative sustainability not only encompasses conventional and contemporary sustainability, it transcends them by adopting a holistic worldview (Gibbons, 2020b).
Sustainability Leader	Sustainability leaders are defined as anyone “who takes responsibility for understanding and acting upon complex sustainability challenges” (Ferdig, 2007, p. 32).

*Ecospirituality***Table 5***Definition of Terms-Ecospirituality*

Term	Definition
Ecospirituality	Ecospirituality has been defined as “having a reverential attitude toward the environment in taking care of it while dwelling within its premises” (Suganthi, 2019, p. 110).
Dwelling	Dwelling “deals with thinking, reflecting on the things of the universe, belonging to it, taking stock of the universe, concentrating and becoming aware, seeking meaning and purpose of our presence in this universe” (Suganthi, 2019, p. 117).
Caring	Caring “deals with how we care for the environment, nurture it, being aware of nature and conscious of the changes happening by engaging in and participating with the environment to find meaning and richness in life” (Suganthi, 2019, p. 117).
Revering	Revering “deals with deep respect for living in this universe, having a sense of awe, being grateful to participate, feeling honored to participate, take action, promote greenness” (Suganthi, 2019, p. 117).
Experiencing	Experiencing “deals with the sense of wonder in seeing this universe, feeling the preciousness of the universe, and taking pleasure in seeing the beauty of life in this universe” (Suganthi, 2019, p. 117).



## *Human Capital Sustainability Leadership*

**Table 6**

### *Definition of Terms-Human Capital Sustainability Leadership*

Term	Definition
Human Capital Sustainability Leadership (HCSL)	HCSL is a higher-order construct composed of sustainable, ethical, mindful, and servant leadership (Di Fabio and Peiró, 2018).
Sustainable Leadership	Di Fabio and Peiró (2018) define the sustainable leadership component of HCSL as focusing “on both the use of vigilant decision-making processes and the development and sustainability of human resources by creating continuous learning conditions that support and facilitate employees’ personal and career growth” (p. 3).
Ethical Leadership	Di Fabio and Peiró (2018) define the ethical leadership component of HCSL as follows: “ethical leadership aims to engender fair and just aims, empower an organization’s members, create consistency of actions with espoused values, use behavior to communicate or enforce ethical standards, fair decisions and rewards, kindness, compassion and concern for others” (p. 3).
Mindful Leadership	Di Fabio and Peiró (2018) define the mindful leadership component of HCSL as follows: “mindful leadership refers to a style based on paying attention to the present moment, and recognizing personal feelings and emotions and keeping them under control, especially under stress” (p. 3).
Servant Leadership	Di Fabio and Peiró (2018) define the servant leadership component of HCSL as considering “the growth of the followers for their personal interest (not for the interest of the organization or the leader), recognizing their needs and helping them on the basis of a moral responsibility towards them” (p. 3).

***Psychological Capital***

**Table 7**

*Definition of Terms-Psychological Capital*

Term	Definition
Psychological Capital (PsyCap)	PsyCap encompasses the four positive psychological capacities of self-efficacy, hope, optimism, and resiliency (Luthans et al., 2007).
Self-Efficacy	The first capacity of PsyCap is self-efficacy, which can be defined as “an individual’s conviction (or confidence) about his or her abilities to mobilize the motivation, cognitive resources, and courses of action needed to successfully execute a specific task within a given context” (Stajkovic & Luthans, 1998, p. 4).
Optimism	The second capacity of PsyCap is optimism which Seligman (1998) describes as an approach which perceives defeat being caused by external circumstances and a challenge to be overcome by working harder rather than giving up.
Hope	The third capacity of PsyCap is hope, defined as “a positive motivational state that is based on an interactively derived sense of successful (1) agency (goal-directed energy) and (2) pathways (planning to meet goals)” (Snyder et al., 1991, p. 287).
Resiliency	The final capacity of PsyCap is resiliency, defined as the developable capacity “to rebound, to ‘bounce back’ from adversity, uncertainty, failure or even positive change, and increased responsibility” (Luthans, 2002, p. 702).

## *Environmental Attitudes*

**Table 8**

### *Definition of Terms-Environmental Attitudes*

Term	Definition
Environmental Attitudes (EAs)	Milfont and Duckitt (2010) view EAs as a psychological tendency expressed based on the degree of favour or disfavour one has of the natural environment.
Enjoyment of Nature	“Belief that enjoying time in nature is pleasant and preferred to spending time in urban areas” (Milfont & Duckitt, 2010, p. 89).
Support for Interventionist Conservation Policies	“Support for conservation policies regulating industry and the use of raw materials, and subsidizing and supporting alternative eco-friendly energy sources and practices” (Milfont & Duckitt, 2010, p. 89).
Environmental Movement Activism	“Personal readiness to actively support or get involved in organized action for environmental protection” (Milfont & Duckitt, 2010, p. 89).
Conservation Motivated by Anthropocentric Concern	“Support for conservation policies and protection of the environment motivated by anthropocentric concern for human welfare and gratification” (Milfont & Duckitt, 2010, p. 90).
Confidence in Science and Technology	“Belief that human ingenuity, especially science and technology, can and will solve all environmental current problems and avert or repair future damage or harm to the environment” (Milfont & Duckitt, 2010, p. 90).
Environmental Fragility	“Belief that the environment is fragile and easily damaged by human activity, and that serious damage from human activity is occurring and could soon have catastrophic consequences for both nature and humans” (Milfont & Duckitt, 2010, p. 90).
Altering Nature	“Belief that humans should and do have the right to change or alter nature and remake the environment as they wish to satisfy human goals and objectives” (Milfont & Duckitt, 2010, p. 90).
Personal Conservation Behavior	“Taking care to conserve resources and protect the environment in personal everyday behavior” (Milfont & Duckitt, 2010, p. 90).
Human Dominance Over Nature	“Belief that nature exists primarily for human use” (Milfont & Duckitt, 2010, p. 90).
Human Utilization of Nature	“Belief that economic growth and development should have priority rather than environmental protection” (Milfont & Duckitt, 2010, p. 90).
Ecocentric Concern	“A nostalgic concern and sense of emotional loss over environmental damage and loss” (Milfont & Duckitt, 2010, p. 90).
Support for Population Growth Policies	“Support for policies regulating the population growth and concern about overpopulation” (Milfont & Duckitt, 2010, p. 90).

This chapter has provided a literature review of the sustainability paradigms as well as the variables used in this study (ecospirituality, human capital sustainability leadership, psychological capital, and environmental attitudes). The next chapter discusses the methodology used in this research.

### **Chapter 3: Methodology**

This chapter describes the research methodology utilized in this study. The research questions, hypotheses, and design are discussed along with the threats to validity, the variables, and the variable relationships. This chapter also discusses the measurement instruments used in the study and the study participants. Lastly, the data analysis and data collection procedures are discussed.

#### **Research Questions and Hypotheses**

The first research question addressed by this study was:

- Does a sustainability leader's ecospirituality significantly impact one's human capital sustainability leadership capacity?

The following hypothesis was used to answer this research question:

- $H_1$ : The presence of ecospirituality will have a positive relationship on human capital sustainability leadership capacity.

This study also addressed the research question:

- Does the level of an individual's psychological capital mediate the relationship between a sustainability leader's ecospirituality and one's human capital sustainability leadership capacity?

The following hypothesis was used to answer this research question:

- $H_2$ : An individual's psychological capital mediates the relationship between one's ecospirituality and human capital sustainability leadership capacity.

Additionally, this study addressed the research question:

- Does the level of a sustainability leader's environmental attitudes conditionally change all three paths of a mediation model by creating direct and indirect effects of an individual's ecospirituality on one's human capital sustainability leadership capacity in the presence of psychological capital?

The following hypothesis was used to provide data for answering this research question:

- H<sub>3</sub>: A sustainability leader's environmental attitudes significantly moderate all three paths of the mediation model in changing the direct and indirect effects of ecospirituality on human capital sustainability leadership in the presence of psychological capital, such that environmental attitudes strengthen these relationships.

### **Research Design**

The survey results from this study were analysed using a conditional process model. Hayes (2017) defines a conditional process model as a model which includes both a mediation and a moderation component. Conditional process analysis is used in research when the goal is to explore the boundary conditions and test the contingent nature of processes to determine whether mediation is moderated (Hayes, 2018).

Although moderated mediation and mediated moderation models are both options, moderated mediation is the preferred choice (Hayes, 2017). The focus of moderated mediation is directed at estimating the indirect effect (mediation) and the variance of that effect as a function of the moderator (Hayes, 2017). In contrast, mediated moderation explores the interaction of the independent variable (X) and the moderator (W) as a

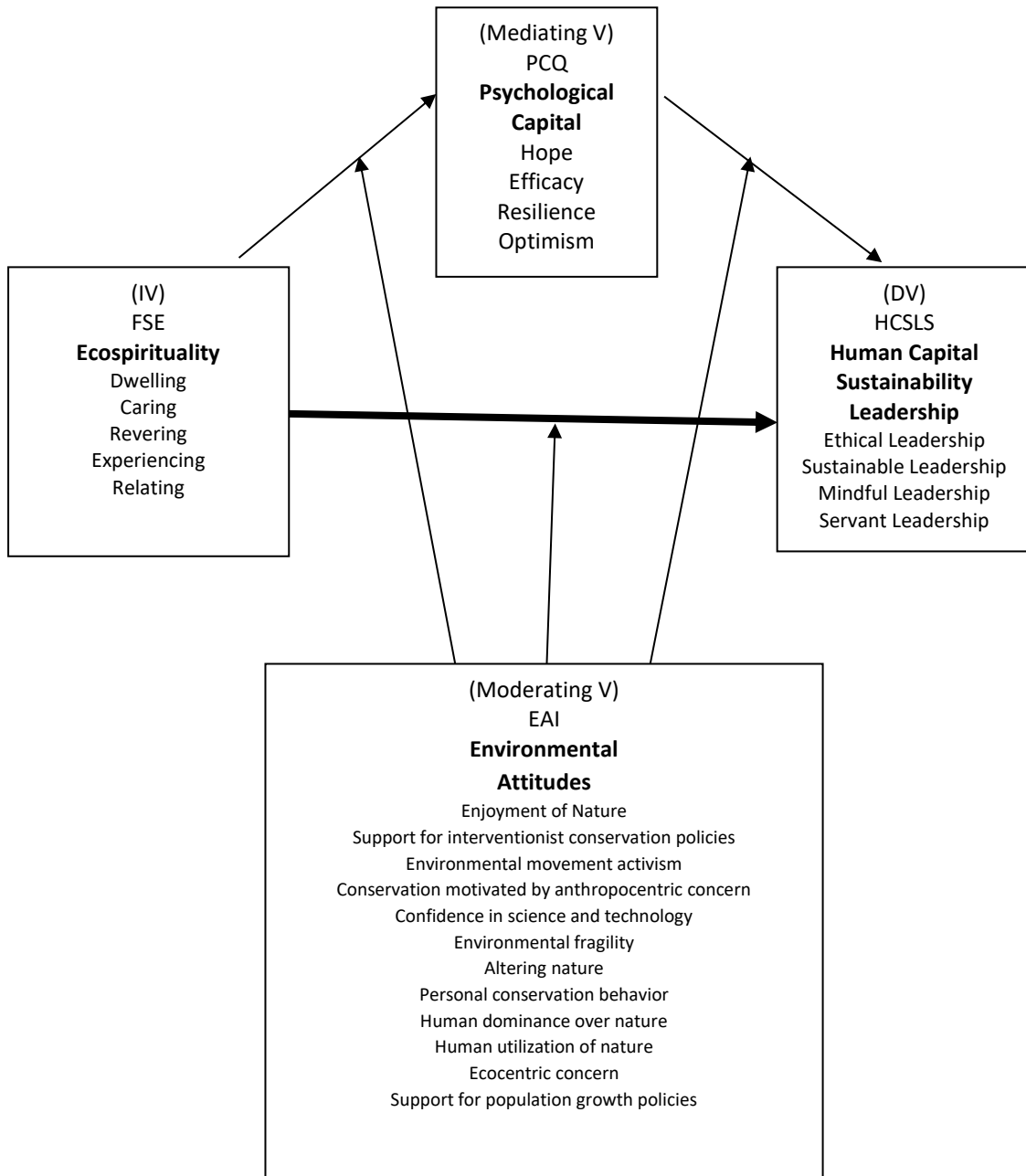
causal agent (XW) impacting the dependent variable through the mediating variable (Hayes, 2017). Hayes (2017) contends mediated moderation is meaningless since XW serves no function other than to allow the independent variable's effect on the dependent variable to be contingent on the moderator, XW does not measure anything or have any substantive interpretation. Further, Hayes (2017) contends that models which include a mediation component are likely contingent (moderated) by different contexts or circumstances.

To determine if a moderated mediation effect exists, the presence of mediation also needs to be determined. This research project examined the relationship between ecospirituality as the independent variable and HCSL as the dependent variable. PsyCap was introduced as a mediating variable to examine if PsyCap enhanced the relationship between ecospirituality and HCSL. Lastly, EAs were introduced as a moderating variable to examine if EAs moderated all three paths of the mediation model in changing the direct and indirect effects of ecospirituality on HCSL in the presence of PsyCap.

Hayes (2017) has developed numerous moderation mediation models to be used with the PROCESS macro. The graphical presentation of the research model presented in Figure 1 illustrates PROCESS Model 59 (Hayes, 2017) which was utilized in this research. Other researchers have also used Model 59 in moderated mediation studies (He et al., 2021; Hughes, 2019; Makara-Studzińska et al., 2021; Su et al., 2021; Wang et al., 2018).

**Figure 1**

*Research Design*





## **Threats to Validity**

Four types of survey error (coverage, sampling, nonresponse, and measurement) have been identified which could undermine the quality of survey information collected (Groves, 1979 as cited in Dillman et al., 2009). This section discusses these types of errors and the potential threat to this research.

### ***Coverage Error***

A coverage error occurs when “not all members of the population have a known, nonzero chance of being included in the sample for the survey and when those who are excluded are different from those who are included on measures of interest” (Dillman et al., 2009, p. 17).

Utilizing Ferdig’s (2007) definition of a sustainability leader as anyone “who takes responsibility for understanding and acting upon complex sustainability challenges” (p. 32), the entire target population for this research is dynamic. Environmental crises are happening on a daily basis, causing attitudinal changes, and prompting individuals to become sustainability leaders according to Ferdig (2007). Thus, the actual population at any given time is unknown.

This research could have coverage bias. Sustainability leaders are present across the world. It would not be monetarily feasible to collect survey data from leaders in every country. This research is limited to sustainability leaders in four countries (Denmark, Sweden, Norway, and the United Kingdom) which have been proactive in addressing climate change. The potential exists that the views of these leaders do not align with the views of the majority of sustainability leaders across the world.

### ***Sampling Error***

Sampling error refers to “the extent to which the precision of the survey estimates is limited because not every person in the population is sampled” (Dillman et al., 2009, p. 17). There exists a degree of sampling error in all surveys (Dillman et al., 2009). The group of leaders recruited in this study is a subset of the entire target population of which there is an unknown quantity.

Dillman et al. (2009) notes that “among large populations there is virtually no difference in the completed sample size needed for a given level of precision” (p. 58). A sample size of 1,024 is sufficient to obtain an estimate within  $\pm 3$  percentage points in a population of 25,000 and the same results can be achieved with a sample size of 1,067 in a population of over 300 million (Dillman et al., 2009).

Fraenkel and Wallen (2009) suggest a sample size should be greater than 30 for correlational studies. They contend a sample size of 30 or more will give results that are meaningful. The intent of this research was to obtain completed surveys which far exceeded this minimum.

Multiple sampling methods were utilized in this research to obtain participants and reduce sampling error. First, the social media platform LinkedIn was utilized to solicit participants which resulted in no usable completed surveys. Second, a third party vendor was utilized to obtain direct contact information for sustainability leaders around the world. Leaders in the United States were solicited for participation with a response rate of less than 4% (5 of 130).

Third, chief sustainability officers in the top four countries on the 2022 Climate Change Performance Index (Denmark, Sweden, Norway, and United Kingdom) were sent personalized invitations to participate. The overall survey response rate was 14.17% (17

of 120). Lastly, individuals in those four countries with the title of head of sustainability or sustainability manager were sent personalized invitations to participate. The overall response rate was 19.08% (25 of 131). The total completed surveys from these four countries (42) were the basis of analysis in this research.

To minimize sampling error, this research obtained completed surveys from a diverse population. This would include diversity in ethnicity, geographical location, and age group.

### ***Nonresponse Error***

A nonresponse error occurs when “the people selected for the survey who do not respond are different from those who do respond in a way that is important to the study” (Dillman et al., 2009, p. 17). The research is at risk for nonresponse error if too few solicited members choose not to participate. A low response rate could result in bias.

This research could have nonresponse error. The target population for this research was sustainability leaders, which by definition requires a leadership role. In this research, having a leadership role is defined by job title. The job titles surveyed in this research were chief sustainability officer, head of sustainability, and sustainability manager. The response rates for executives tends to be considerably lower than response rates for consumer and employee populations (Cycyota & Harrison, 2006). These authors discovered a declining executive response rate over the 12-year period they studied. Further, they projected that the average executive response rate would decline to 27% by 2010 and continue to decrease to less than 5% by 2050. However, they did find that surveys which were targeted to the right person in an organization and about a topic of interest had higher response rates.

To minimize nonresponse error, this research targeted those in organizations which would be in positions directly impacted by HCSL and organizational sustainability goals. Further, personalized invitations were utilized to encourage participation in this study. Those who did not complete the survey within the first week were sent personalized reminder notices.

### ***Measurement Error***

A measurement error occurs when “a respondent’s answer is inaccurate or imprecise” (Dillman et al., 2009, p. 18). This survey was self-administered so there is a risk participants may misunderstand survey questions, resulting in measurement error. To limit measurement error, survey instruments which have been found to be reliable and have construct validity were utilized.

### **Variables**

This section begins by defining each of the variables (ecospirituality, HCSL, PsyCap, and EAs) and the basis for their use. This is followed by an overview of the relationships between variables and a graphical presentation of the variable relationships. Additionally, a detailed description of the variable relationships is presented.

### ***Ecospirituality***

Ecospirituality has been defined as “having a reverential attitude toward the environment in taking care of it while dwelling within its premises” (Suganthi, 2019, p. 110). The constructs of ecospirituality are: dwelling, caring, revering, and experiencing (Suganthi, 2019).

In this research, ecospirituality was utilized as the independent variable. The intent of utilizing ecospirituality as the independent variable was to explore the connection between reverence for the earth and reverence for people. The caring

component of ecospirituality and the sustainability leadership dimension of HCSL have similar underlying concepts. Ecospirituality refers to nurturing the environment while HCSL promotes the development rather than the exhaustion of human resources. Each suggests taking care of a pillar of the triple bottom line. The pillar of the planet's health is the focus of ecospirituality and the people pillar is the focus of HCSL.

### ***Human Capital Sustainability Leadership***

HCSL is a higher-order construct composed of sustainable, ethical, mindful, and servant leadership (Di Fabio and Peiró, 2018).

In this research, HCSL was utilized as the dependent variable. Few research studies exist which examine the sustainability of human resources. This is an emerging field of study. As the dependent variable, the intent was to explore the influence of ecospirituality, PsyCap, and EAs on organizational leaders.

### ***Psychological Capital***

PsyCap encompasses the four positive psychological capacities of self-efficacy, hope, optimism, and resiliency (Luthans et al., 2007).

PsyCap was utilized as a mediating variable in this research. This answers the call of our previously published work (Gabel and Matkin, 2016) to incorporate PsyCap into sustainability leadership research. The intent was to discover how PsyCap might influence the relationship between ecospirituality and HCSL.

### ***Environmental Attitudes***

Milfont and Duckitt (2010) view EAs as a psychological tendency expressed based on the degree of favour or disfavour one has of the natural environment. The constructs included in EAs are: enjoyment of nature, support for interventionist conservation policies, environmental movement activism, conservation motivated by

anthropocentric concern, confidence in science and technology, environmental fragility, altering nature, personal conservation behaviour, human dominance over nature, human utilization of nature, ecocentric concern, and support for population growth policies (Milfont & Duckitt, 2010).

The moderating variable in this research was EAs. Moderation measures the circumstances in which relationships exist. This research sought to understand the relationship which exists between ecospirituality and HCSL. By utilizing EAs as the moderator, the intent was to determine if EAs need to be present in order for ecospirituality to influence HCSL.

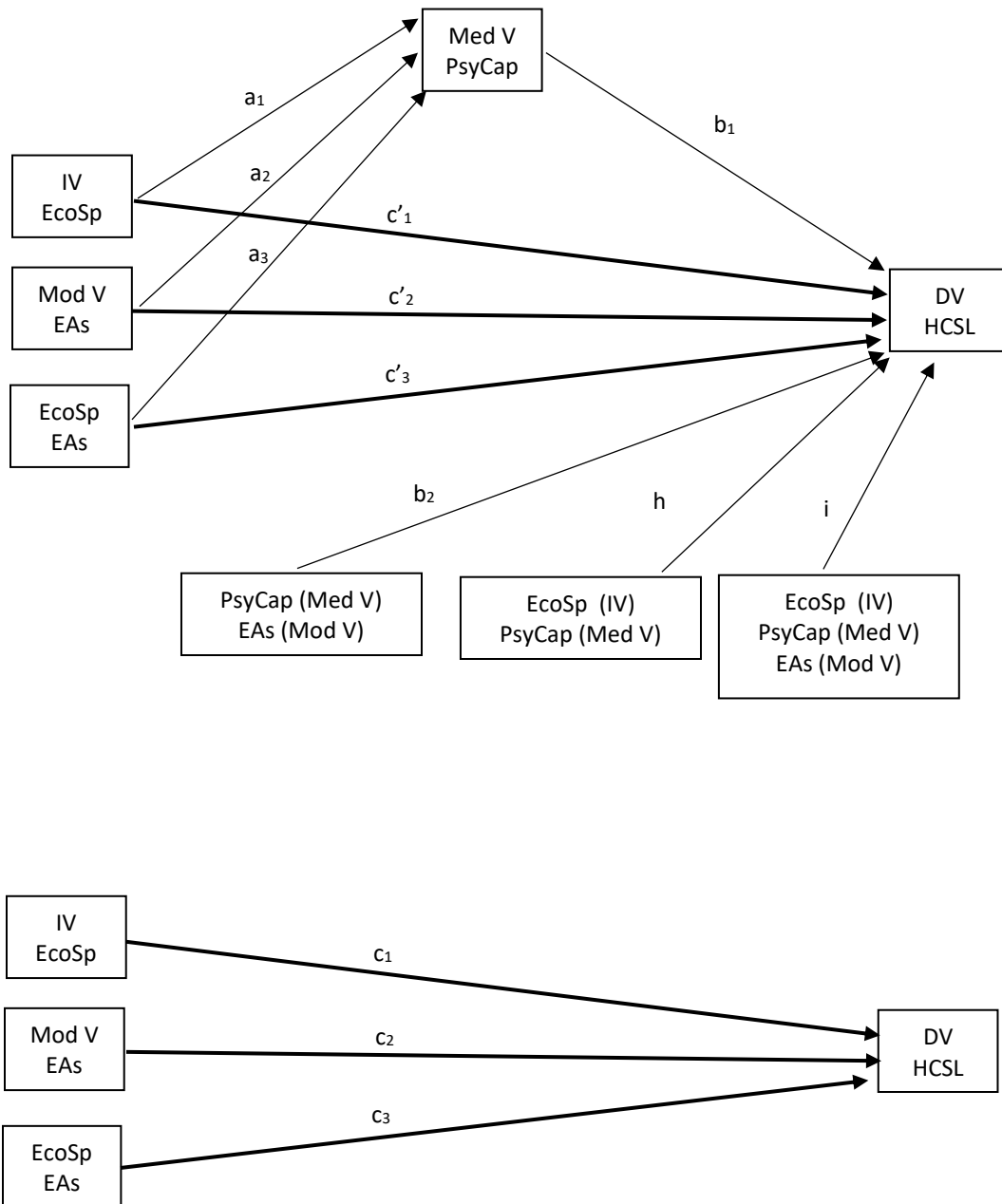
### ***Variable Relationship Overview***

The study of the interconnection between an individual's views towards the planet and an individual's organizational leadership described above were presented graphically utilizing the variables of ecospirituality, HCSL, PsyCap and EA:

- Ecospirituality was the independent variable with a direct relationship to the dependent variable of HCSL.
- PsyCap was introduced as a mediating variable to study how ecospirituality is related to HCSL.
- EAs was introduced as a moderating variable to study the strength of the relationships between ecospirituality, PsyCap, and HCSL.

Figure 2 provides a graphical presentation of the relationships between these variables. Ecospirituality was hypothesized as having direct relationships to PsyCap and HCSL. PsyCap was hypothesized as having a mediating relationship between ecospirituality and HCSL. EAs was hypothesized as having a moderating impact on all of

these relationships. Each relationship is identified in Figure 2 by a path label. A detailed description of each path is presented in Table 9.

**Figure 2***Graphical Presentation of Variable Relationships*

Note: EcoSp is ecospirituality, EAs is environmental attitudes, HCSL is human capital sustainability leadership, PsyCap is psychological capital, IV is independent variable, DV is dependent variable, Mod V is moderating variable and Med V is mediating variable.



**Table 9***Variable Relationships Defined*

Path	Description
$c'_1$	The effect of ecospirituality on HCSL in the presence PsyCap and EA
$c'_2$	The effect of EAs on HCSL in the presence of ecospirituality and PsyCap
$c'_3$	The effect of the interaction between EAs and ecospirituality on HCSL in the presence of PsyCap
$a_1$	The effect of ecospirituality on PsyCap
$a_2$	The effect of EAs on PsyCap
$a_3$	The effect of the interaction between EAs and ecospirituality on PsyCap
$b_1$	The effect of PsyCap on HCSL
$b_2$	The effect of the interaction between EAs and PsyCap on HCSL
$c_1$	The effect of ecospirituality on HCSL
$c_2$	The effect of EAs on HCSL
$c_3$	The effect of the interaction between EAs and ecospirituality on HCSL
$h$	The effect of the interaction between ecospirituality and PsyCap on HCSL
$i$	The effect of the three-way interaction between ecospirituality, PsyCap, and EAs on HCSL

## Measures

Four measurement instruments were used to evaluate the variables in this study. This section begins with the demographic profile of the research participants in Table 10 and is followed by descriptions of the four measurement instruments. The first instrument described is the Final Ecospirituality Scale which measures ecospirituality, the independent variable. This is followed by a discussion of the Human Capital Sustainability Leadership Scale which measures the dependent variable, HCSL. The third instrument is the Psychological Capital Questionnaire, the scale for measuring the mediating variable of PsyCap. The last instrument is the Environmental Attitudes Inventory which measured EAs, the moderating variable.

### *Demographic Profile of Research Participants*

**Table 10**

#### *Demographic Profile*

	Number	Percentage
<b>Gender</b>		
Female	28	66.7
Male	14	33.3
<b>Age - Female</b>		
30 and Under	3	10.7
31-39	7	25.0
40-49	10	35.7
50-59	8	28.6
60 and Over	0	0.0
<b>Age – Male</b>		
30 and Under	2	14.3
31-39	4	28.6
40-49	3	21.4
50-59	4	28.6
60 and Over	1	7.1

### ***Final Scale for Ecospirituality***

This section describes the Final Scale for Ecospirituality (FSE) which was used in this research. The discussion begins with the statement of purpose for using this scale, followed by an overview of the development of the measure. An overview of the scales is then provided. The final components of this section are a discussion of potential bias in the measure, a summary of the reliability and validity of the measure, and a summary of the appropriateness of using this measure.

**Statement of Purpose.** Researchers are now considering spirituality as an important dimension in determining the value of the natural environment (Suganthi, 2019). Van Schalkwyk (2011) acknowledged there was much work to do to study individual's ecospirituality and to support the mobilization of those who practice ecospirituality in their efforts to restore the earth's ecology. To answer Van Schalkwyk's (2011) call for increased research of ecospirituality, the FSE, recently published by Suganthi (2019), was used in this research to evaluate the dimension of individual ecospirituality. Utilizing this measure broadens the understanding of how an individual's ecospirituality influences one's HCSL.

A research review found just one sustainability study which utilized this scale (Suganthi, 2020). Suganthi presented a mediation model and a moderated mediation model in this study. The mediation model hypotheses addressed the direct influence of ecospirituality on corporate social responsibility (CSR), organizational performance (PERF), and employee pro-environmental behavior (PEB) as well as the mediating impact of CSR on the relationships between ecospirituality and PERF and ecospirituality and PEB. The moderated mediation model introduced income as a moderating influence on the relationships presented in the mediation model.

The scale was utilized to evaluate ecospirituality for this study. The three hypotheses addressing the direct relationship of ecospirituality with CSR, PERF, and PEB are presented here. The first direct relationship hypothesis was H<sub>1</sub> which states: “The presence of ecospirituality will have a positive relationship on the implementation of CSR practices” (Suganthi, 2020, p. 3). The second direct relationship hypothesis was H<sub>3</sub> which states: “The presence of ecospirituality will have a positive relationship on the organization’s performance” (Suganthi, 2020, p.4). The third direct relationship hypothesis was H<sub>5</sub> which states: “The presence of ecospirituality will have a positive relationship on the employees’ PEB at work” (Suganthi, 2020, p. 4). The results of the research indicate that all three of these hypotheses were supported (Suganthi, 2020).

**Development of the Measure.** Ecospirituality has gained more attention recently as the global environmental issues being faced today have increased awareness for the need to respect the environment. Although there is increased awareness, Suganthi (2019) found that the spiritual aspect of an individual’s relationship with the environment was not being measured by any existing environmental attitude scales or connectedness to nature scales.

Although ecospirituality had not been heavily researched, there had been studies in related disciplines. Several researchers conducted studies related to connectedness to nature. Some examples include: Shultz’s (2001) study of the inclusion of nature in self; Clayton and Opatow’s (2003) study of environmental identity; Perkins’ (2010) research of love and care for nature; and Silvas’ (2013) study of emotional connection to nature. Restall and Conrad (2015) identified 18 scales to measure aspects of connectedness to nature.

There has also been research conducted related to the importance of respecting nature for healthy living (Delaney & Barrere, 2009; Lincoln, 2000). Additionally, research has been conducted to address the ecological aspect of spirituality from a human health perspective (Delaney, 2005). Several spirituality scales have been developed which link spirituality with health outcomes, but none of these scales include environmental aspects (Suganthi, 2019).

Three deficiencies in the field necessitated the development of a new scale. First, no spiritual component between self and nature had been established (Pasca et al., 2017). Second, no scales existed to measure reverential respect for nature which is needed to migrate from an anthropocentric to ecocentric perspective in all relationships with nature (Hofstra & Huisingh, 2014). Third, the ability of the existing connectedness to nature scale to explain variance was limited (Mayer & Frantz, 2004), indicating some components related to nature could be missing in this scale. A new scale was needed to address these deficiencies and measure individual ecospirituality.

The lack of a measurement scale could have been due in part to the many ways ecospirituality had been defined. Prior to starting work on the development of a scale, Suganthi needed to define ecospirituality. Suganthi (2019) defined ecospirituality as “having a reverential attitude toward the environment in taking care of it while dwelling within its premises” (p. 110). Based on this definition the Final Scale for Ecospirituality (FSE) was developed.

To measure ecospirituality, Suganthi (2019) initially chose 30 items to define ecospirituality based on the literature review. Ten experts were chosen to participate in two rounds of Delphi study to ascertain content validity (Suganthi, 2019). The ten experts chosen consisted of: four academics in environmental engineering with at least 15 years’

experience, three manufacturing workers with over 10 years' experience, and three pollution control board policy makers with over 10 years' experience. These experts reviewed the 30 items and used a scale of 1-7 to indicate their level of agreement with the item. Standard deviation and interquartile ranges were calculated for both rounds. Items in which standard deviation and interquartile ranges increased from the first to second round were removed, leaving a final scale of 22 items (Suganthi, 2019).

**Scales.** This section provides a detailed explanation of the five dimensions included in the Final Scale for Ecospirituality (FSE). The first two sections discuss the dimensions of dwelling and caring. The following two sections discuss the dimensions of revering and experiencing. The final section addresses the dimension of relating. The complete FSE is included in Appendix A. The dimensions as described by Suganthi (2019) are:

***Dwelling.*** The five items in this dimension relate to awareness. This dimension deals with thinking and reflecting on belonging to the universe, of being aware and seeking the purpose of our presence in the universe.

Sample items in the dwelling dimension section of the FSE include:

- “I concentrate by thinking, reflecting on the things of this earth” (p. 122).
- “I concentrate and become aware that I am of this universe” (p. 122).

***Caring.*** The five items in this dimension relate to humankind's relationship with the environment. This dimension deals with how we engage and participate with the environment, how we care for and nurture it.

Sample items in the caring dimension section of the FSE include:

- “I am conscious of the changes that happen to the environment” (p. 122).
- “I engage and participate with the environment to find meaning and richness in life” (p. 122).

**Revering.** The four items in this dimension relate to respect of the universe. This dimension deals with feelings of gratefulness and honor to participate in life in this universe.

Sample items in the revering dimension section of the FSE include:

- “I have great respect for living on this earth” (p. 122).
- “I have a sense of awe in participating in any action to safeguard the planet” (p. 122).

**Experiencing.** The three items in this dimension relate to humankind’s perception of the universe. This dimension deals with understanding the preciousness and beauty of life in this universe.

Sample items in the revering dimension section of the FSE include:

- “I perceive a sense of wonder, seeing the complexity of this universe” (p. 122).
- “I feel this universe is precious” (p. 122).

**Relating.** The three items in this dimension relate to being a part of the universe. This dimension deals with humankind’s relationship with the universe.

Sample items in the revering dimension section of the FSE include:

- “I feel a sense of mystery in being a part of this universe” (p. 122).
- “I have an organic relationship with this universe” (p. 122).

**Potential Bias in the Measure.** The study from which the ecospirituality scale was developed had limitations which could have created bias in the results (Suganthi, 2019). Suganthi (2019) notes three specific limitations which could have resulted in biased results. First, the samples of respondents from various industries were not of equal size. Second, respondents were not categorized based on job description (supervisor, manager, etc.). Third, there was no consideration of obtaining a uniform proportion of respondents based on work experience.

**Reliability and Validity.** After a pilot test of 30 employees, the questionnaire was distributed to 1,000 employees (Suganthi, 2019). To test the reliability of the scale, the responses were analysed to determine Cronbach's alpha. The scale was found to be reliable as the reliability for the 22 items was 0.953, well above the threshold of 0.7 (Hair et al., 2010).

The requirement for convergent validity is that items included in each dimension must determine a high proportion of variance (Suganthi, 2019). In the development of this scale, convergent validity was checked using two different methods. First, convergent validity was evaluated using the parameters set forth by Anderson and Gerbing (1998). These authors contend convergent validity exists if the standardized loading of the items is greater than 0.5 and is statistically significant ( $p < .0001$ ). An analysis of the factor loadings found all of the items to be in a range from .68 to .92, indicating the constructs had captured a high proportion of the variance and convergent validity was present (Suganthi, 2019). The second method used average variance extracted (AVE) to test convergent validity for the five dimensions. Convergent validity exists when AVE is 0.5 or above for the dimensions (Hair et al., 2010). The analysis of



the results found the AVE range of the dimensions to be from 0.569 to 0.734, indicating the presence of convergent validity (Suganthi, 2019).

Discriminant validity, which measures the distinctiveness of each dimension in a model and whether each dimension is measuring different concepts (Hair et al., 2010) was also tested. To determine discriminant validity, the correlation of the dimensions is determined and if the correlation is below 0.9, this indicates the possibility of cross loading between items is small (Kline, 2005). It was found that none of the correlations were near 0.9 (Suganthi, 2019). Additionally, the square root of AVE is compared to the correlation values to check discriminant validity. If the square root of AVE is lower than the dimension correlation values, this implies that a great proportion of the variance of the items assigned to a specific dimension are accounted for by that dimension (Fornell & Larcker, 1981). Thus, the analysis indicates the presence of strong discriminant validity (Suganthi, 2019).

Suganthi (2020) tested the validity and reliability of the ecospirituality latent variable in a second study. The AVE was used to test convergent validity. The AVE for ecospirituality was 0.717, well above the minimum requirement of 0.5, indicating convergent validity. Strong composite reliability (CR) was found to exist ( $CR > 0.7$ ) with ecospirituality having a CR of 0.927. Additionally, the results indicated the presence of discriminant validity (Suganthi, 2020).

**Summary of Evidence of Appropriateness.** Researchers such as Van Schalkwyk (2011) acknowledge much needs to be done to better understand ecospirituality. The FSE appears to be the first (and only to date) instrument developed to measure individual ecospirituality. In this research, it was an appropriate measure to evaluate the impact of ecospirituality on HCSL.

### ***Human Capital Sustainability Leadership Scale***

This section describes the Human Capital Sustainability Leadership Scale (HCSLS) used in this research. The discussion begins with the statement of purpose for using this scale, followed by an overview of the development of the measure. An overview of the scales is then provided. The final components of this section are a discussion of potential bias in the measure, a summary of the reliability and validity of the measure, and a summary of the appropriateness of using the measure.

**Statement of Purpose.** The HCSLS was selected for use in this research as it was the only scale found which addressed the human resource aspect of sustainability leadership. The recent pandemic and its lingering consequences, along with increasingly devastating climate events, are threats to the quality of employee wellbeing. To be sustainable, an organization must continue to be profitable while effectively managing all of its resources for the long-term. These resources include the human resources (employees), as well as any natural resources, tangible (plant) assets, and intangible (patents, trademarks) assets.

**Development of the Measure.** Exploratory factor analysis (EFA) with 207 leaders in health and care organizations was used to examine the factor structure of the HCSLS (Di Fabio & Peiró, 2018). The EFA (using principal axis factoring with Promax rotation) resulted in a factor structure with four dimensions. The factor loadings for the four items in each of these dimensions ranged from 0.42 to 0.94. The ethical leadership dimension factor loadings ranged from 0.58 to 0.94, sustainable leadership dimension factor loadings ranged from 0.66 to 0.82, mindful leadership factor loadings ranged from 0.50 to 0.69, and servant leadership factor loadings ranged from 0.42 to 0.85. Collectively, the four dimensions explained 66.71% of the variance. Confirmatory factor

analysis (CFA) was then conducted with a different sample of 274 leaders from public and private organizations (Di Fabio & Peiró, 2018).

**Scales.** The HCSL instrument contains four scales, each with four items. This section provides a brief overview of the content of each leadership subscale: ethical, sustainable, mindful, and servant as presented by Di Fabio and Peiró (2018):

***Ethical Leadership.*** The items in this section relate to acting ethically in your work. Sample items in this section include:

- “I keep my promise to my collaborators” (p. 9).
- “I make decisions in an ethical manner” (p. 9).

***Sustainable Leadership.*** The items in this section relate to maintaining human resources. Sample items in this section include:

- “I leave out the superfluous by focusing the resources on the crucial aspects of work” (p. 9).
- “I develop, rather than exhaust, the human resources that work with me” (p. 9).

***Mindful Leadership.*** The items in this section relate to being aware of the value of your human capital. Sample items in this section include:

- “I recognize the value of my self-control to my employees, even in stressful situations” (p. 9).
- “I am aware of the strengths and limitations of my collaborators” (p. 9).

***Servant Leadership.*** The items in this section relate to supporting your human capital. Sample items in this section include:

- “I commit myself so my collaborators have all the information to work to the best” (p. 9).
- “I actively promote a positive group climate at work” (p. 9).

**Potential Bias in the Measure.** This scale is subject to selection bias. All of the participants were from the same region. Future research could include participants from a variety of organizations and countries.

**Reliability and Validity.** To test the reliability of the scale, the responses were analysed to determine Cronbach’s alpha. The scale was found to be reliable as the reliability for the 16 items was 0.94, well above the threshold of 0.7 (Hair et al., 2010). Additionally, Cronbach alpha values were calculated for each of the subscales. Individually, the subscales were also above the 0.7 threshold with ethical leadership being 0.80, mindful leadership being 0.83, and both sustainable leadership and servant leadership being 0.86 (Di Fabio & Peiró, 2018).

Construct validity was tested by computing the ratio between the  $X^2$  value and degrees of freedom ( $X^2/df$ ), the comparative fit index (CFI), the non-normed fit index (NNFI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Residual (SRMR) (Di Fabio & Peiró, 2018). The  $X^2/df$  computed was 2.85, between the range of 1 to 3 which indicates good quality (Di Fabio & Peiró, 2018). Bentler (1990) contends CFI and NNFI values greater than 0.90 indicate good adequacy of the model. The values computed for this study were 0.93 and 0.91, respectively (Di Fabio & Peiró, 2018). Hu and Bentler (1999) suggest RMSEA and SRMR values less than 0.08 indicate relatively good fit. The values for RMSEA and SRMR in this study were 0.08 and 0.05, respectively (Di Fabio & Peiró, 2018).

**Summary of Evidence of Appropriateness.** Di Fabio and Peiró (2018)

developed an instrument to measure the higher-order construct of HCSL. This instrument includes four types of leadership: ethical, sustainable, mindful, and servant. This approach allows the specific constructs to be measured individually while at the same time measuring the core construct. The entire scale is presented in Appendix B.

***Psychological Capital Questionnaire***

This section described the Psychological Capital Questionnaire (PCQ) which was used in this research to measure PsyCap. The discussion begins with the statement of purpose for using this scale, followed by an overview of the development of the measure. An overview of the scales is then provided. The final components of this section are a discussion of potential bias in the measure, discussion of the measure's ability to be standardized, a summary of the reliability and validity of the measure, and a summary of the appropriateness of using the measure.

**Statement of Purpose.** Today's sustainability challenges are becoming increasingly complex. Researchers have contended that psychological perspectives should be incorporated into sustainability leadership research (Gabel & Matkin, 2016; Schein, 2017). Schein (2017) notes little is known about the psychological motivations of sustainability leaders while Gabel and Matkin (2016) suggest the skill set of sustainability leaders could be enhanced by studying PsyCap. The PCQ is "acknowledged as the standard measure for PsyCap" (Dawkins et al, 2013, p. 362). The PCQ (24-items) was utilized in this research to evaluate PsyCap, the mediating variable.

Although the addition of psychological perspectives is emerging in the study of sustainability leaders, numerous researchers have utilized the PCQ to study employee attitudes. PCQ has been used in studies related to levels of job satisfaction and

organizational commitment (Abbas et al., 2012; Ali & Ali, 2014; Kaplan & Bickes, 2013; Luthans, Norman et al., 2008), perceived employability after being displaced (Chen & Lim, 2012), and perceptions of empowerment (Avey et al., 2008).

The PCQ has also been utilized in research related to employee behavior. PCQ was used to study job performance (Abbas et al., 2012; Luthans, Avey et al., 2008; Luthans, Norman et al., 2008; Rego et al., 2010; Venkatesh & Blaskovich, 2012; Walumbwa, Peterson et al., 2010), organizational citizenship behavior (Avey, Luthans & Youssef, 2010; Gooty et al., 2009; Qadeer & Jaffery, 2014), job search behavior (Avey et al., 2009), and absenteeism (Avey et al., 2006).

Other studies have examined the impacts of PsyCap beyond employee attitudes and behaviors. The PCQ has also been utilized in research of PsyCap and employee job stress (Abbas & Raja, 2015), burnout (Wang et al., 2012), depression symptoms (Liu et al., 2012), and personal well-being (Avey, Luthans, Smith et al., 2010; Luthans et al., 2013).

Both the PCQ Short and PCQ have been utilized in previous research. The PCQ Short (12-items) has been used in multiple countries and industries such as mining in China (Luthans, Avey et al., 2008), consulting in Pakistan (Qadeer & Jaffery, 2014) and cross sectional industry studies in both Pakistan (Abbas et al., 2012) and the United States (Luthans et al., 2013).

The PCQ (24-items) has been utilized in several countries and industries as well. Specific industry uses include tourism in Pakistan (Kaplan & Bickes, 2013), civil servants in Portugal (Rego et al., 2010), higher education in the United States (Gooty et al., 2009), engineering in the United States (Avey et al., 2006), high-technology manufacturing in the United States (Luthans, Norman et al., 2008), and health care in

both China (Wang et al., 2012) and Pakistan (Ali & Ali, 2014). The measure has also been utilized in cross sectional industry studies in China (Liu et al., 2012), Pakistan (Abbas & Raja, 2015) and the United States (Avey et al., 2008; Avey et al., 2009; Avey, Luthans, Smith et al., 2010; Venkatesh & Blaskovich, 2012).

Additionally, modified versions of the PCQ have been used in research. Chen & Lim (2012) altered the wording of the PCQ to adapt it to unemployed persons rather than employed persons for their research in Hong Kong. A 19-item version was used by Walumbwa, Peterson et al. (2010) to study leader and follower PsyCap in police officers in the United States.

**Development of the Measure.** Luthans and Youssef (2004) developed the concept of positive organizational behavior (POB) to further the existing positive psychology movement. POB introduced measurable psychological capacities which could be developed and managed to improve performance (Luthans & Youssef, 2004). These POB psychological capacities included: self-efficacy, hope, optimism, and resiliency. Collectively, these capacities are referred to as psychological capital or PsyCap (Luthans et al., 2007). The instrument these researchers developed to measure PsyCap is the Psychological Capital Questionnaire (PCQ).

Luthans et al. (2007) developed the 24-item PCQ based on previously published measures. They drew from Parker (1998) for efficacy measurement, Snyder et al. (1996) for hope measurement, Scheier and Carver (1985) for optimism measurement and Wagnild and Young (1993) for resilience measurement.

To develop the PCQ, two studies were conducted to analyse how the individual capacities and PsyCap (the higher-order collective construct) predicted work performance and satisfaction (Luthans et al., 2007). Confirmatory factor analysis of both studies

supported the overall PsyCap measure. Due to copyright restrictions, neither the PCQ in its entirety nor sample selections from each category can be included in this document. .

**Scales.** The PCQ has four scales related to self-efficacy, optimism, hope, and resiliency. The first two parts of this section describe self-efficacy and optimism. The last two parts of this section address the hope and resiliency scales.

***Self-Efficacy.*** Items in this scale relate to “an individual’s conviction (or confidence) about his or her abilities to mobilize the motivation, cognitive resources, and courses of action needed to successfully execute a specific task within a given context” (Stajkovic & Luthans, 1998. p. 4).

***Optimism.*** Seligman (1998) describes optimism as an approach which perceives defeat as being caused by external circumstances and a challenge to be overcome by working harder rather than giving up.

***Hope.*** Items in this scale relate to “a positive motivational state that is based on an interactively derived sense of successful (1) agency (goal-directed energy) and (2) pathways (planning to meet goals)” (Snyder et al., 1991, p. 287).

***Resiliency.*** The items in this scale relate to the capacity “to rebound, to ‘bounce back’ from adversity, uncertainty, failure or even positive change, and increased responsibility” (Luthans, 2002, p. 702).

**Potential Bias in the Measure.** The internal reliability for the PCQ has shown consistency across studies (Dawkins et al., 2013). However, “the internal consistency reliability for optimism... and resilience... tends to be lower than self-efficacy and hope” (Dawkins et al., 2013, p. 53). Researchers argue that the use of reversed-scored items in scales, similar to items in the optimism scale, cause the positively and negatively worded items to load onto two separate factors (Chang & McBride, 1996 in Dawkins et al.,



2013). It is contended this two-factor structure is the result of method bias (Scheier & Carver, 1985 in Dawkins et al., 2013, p. 53). Thus, a potential method bias exists in the optimism scale of the PCQ.

**Standardization.** The PCQ has been utilized in multiple countries including China, Pakistan, and the United States. Additionally, in each of these countries the PCQ has been used in studies which included a cross section of industries.

**Reliability and Validity.** To test the reliability of the scale, the responses were analysed to determine Cronbach's alpha (Luthans et al., 2007). Overall PsyCap was found to be reliable as the Cronbach alphas for each of the four samples were .88, .89, .89 and .89, well above the threshold of 0.7 (Hair et al., 2010). Additionally, each sample's Cronbach alpha values were calculated for the individual measures (hope, resilience, self-efficacy, and optimism). Individually, only two values were below the 0.7 threshold with the second sample of the optimism scale being .69 and the third sample of the resilience scale being .66.

Luthans et al. (2007) also examined the discriminant, convergent, and criterion validity of the PCQ. The researchers found low correlations, suggesting empirical distinction between PsyCap and core self-evaluations and the presence of discriminant validity. To test convergent validity, nine bivariate relationships were examined of which six demonstrated significant relationships, providing evidence for convergence. Additionally, the researchers found criterion validity for PsyCap with job satisfaction.

Although the PCQ has been used in numerous research studies, the measure has received some criticism. In one study, Little et al. (2007) found construct, discriminant, and incremental validity were not well supported when structural equation modelling was utilized. These researchers also have concern with the measure's construct validity as all

measures had low composite reliability and low average variance explained (AVE) results. Further, the results of their study did not support discriminant validity between optimism and hope (Little et al., 2007).

A second study by Little et al. (2007) supported the findings that hope and optimism lacked discriminant validity. However, this study had higher composite reliability and AVE results. Overall, these results did not void the doubts concerning the construct validity in the first study (Little et al., 2007).

**Summary of Evidence of Appropriateness.** Although a more recent version of the PCQ has been developed, the Implicit Psychological Capital Questionnaire (I-PCQ) (Harms et al., 2018), the PCQ (24-item) is the appropriate measure for this study. As noted by Harms et al. (2018) “the I-PCQ is best used to supplement assessments of PsyCap rather than to replace the original self-report PCQ measure” (p. 560). Additionally, researchers argue implicit measures are valuable in measuring unique psychological processes not already captured by self-report measures (Back et al., 2009). Further, Uhlmann et al. (2012) contends that adapting implicit measures across cultures presents unique challenges in maintaining consistency in meaning and interpretation. As the assessment for this study was distributed via the internet, the population which completed this study represented multiple countries and a cross section of industries, making the PCQ (24-item version) a good fit for this study.

### ***Environmental Attitudes Inventory***

This section describes the Environmental Attitudes Inventory (EAI) instrument used in this research. The discussion begins with the statement of purpose for using this instrument, followed by an overview of its development. A discussion of the instrument’s scales is then provided. The final components of this section are discussions of: potential

bias in the instrument, a summary of the reliability and validity of the instrument, and a summary of the appropriateness of using the instrument.

**Statement of Purpose.** Early measurement of EAs was primarily done using the New Environmental Paradigm (NEP) scale (Dunlap & Van Liere, 1978) or the revised New Ecological Paradigm (revised NEP) scale (Dunlap et al., 2000). Although these scales have been extensively used, it has been questioned if the scales account for the multiple dimensions of EAs (Amburgey & Thoman, 2011). To measure the multidimensional structure of EAs, Milfont and Duckitt (2010) developed the EAI as an alternative to the NEP scales and other EAs measures. The EAI was used in this research as it measures both first-order and higher-order factors of EAs.

The EAI has various versions which have been used in different areas of EAs research. The 120-item measure was used to study university students' change in EAs from the beginning to the end of an upcycling course (Flowers et al., 2018). Barbaro et al. (2015) used the 72-item measure to evaluate EAs as a mediator to the relationship between the need for cognition and pro-environment choice. The 36-item measure was used by O'Callaghan et al. (2012) to explore the influence of sustainable housing occupants' EAs on energy and water consumption. Lange and Dewitte (2021) used the 24-item measure in their pro-environmental behavior study. A modified 12-item measure was used by Ernst et al. (2017) to study how student leaders' EAs impacted environmental action.

Additionally, individual scales have been utilized in research. Delhomme and Gheorghiu (2016) utilized the environmental fragility (scale 6) and personal conservation behaviour (scale 8) scales to study the EAs of carpoolers and non-carpoolers in France. Hoffarth and Hodson (2016) utilized the human dominance over nature (scale 9) and

human utilization of nature (scale 10) scales to study the impact of left-wing and right-wing perceptions of environmentalists on political polarization of climate change issues. Pavalache-Ilie and Unianu (2012) utilized all scales except the enjoyment of nature scale (scale 1) in their study of the relationship between pro-environmental attitudes and locus of control.

**Development of the Measure.** The EAI was developed as the first measure to assess the overall multidimensional structure of EAs (Milfont & Duckitt, 2010). EAs researchers first applied the three-component attitude model to EAs suggesting that EAs were comprised of cognitive, affective, and behavioural components (Schultz et al., 2004; Yin, 1999). Contemporary theorists began to contend that these three components were not components of EAs, but rather were bases from which attitudes are derived (Fabrigar et al., 2005). Albarracín et al. (2005) argued “affect, beliefs, and behaviors are seen as interacting with attitudes rather than being their parts” (p. 5).

Further, Albarracín et al. (2005) contended that attitudes can both “be inferred from and have an influence on beliefs, affect, and overt behavior” (p. 5). Based on this framework, Milfont and Duckitt (2010) contend the structure of EAs is both horizontal and vertical. The first-order factors form the horizontal structure of EAs and the higher-order factors form the vertical structure (Milfont & Duckitt, 2010).

Two higher-order factors, preservation and utilization, were suggested in many studies (Milfont & Duckitt, 2004; Milfont & Gouveia, 2006; Wiseman & Bogner, 2003). Preservation relates to the spiritual orientation aspect of people-environment relations (Stokols, 1990) while utilization relates to EAs being driven by moral/altruistic values versus utilitarian values (Kaiser & Scheuthle, 2003). Milfont and Duckitt (2010) describe preservation as “the general belief that priority should be given to preserving nature and

the diversity of natural species in its original natural state, and protecting it from human use and alteration” (p. 81). Utilization, in contrast, is described by Milfont and Duckitt (2010) as “the general belief that it is right, appropriate and necessary for nature and all natural phenomena and species to be used and altered for human objectives” (p. 81).

Based on these findings, Milfont and Duckitt (2010) contend EAs are a multidimensional construct with a hierarchical structure which is not currently being addressed by any current measurement instrument. To address the gap in EAs research, Milfont and Duckitt (2010) created the EAI to capture both the vertical and horizontal structure of EAs.

In the first stage of the EAI development, factor analysis was applied to 99 items selected from previous measures of EAs including the NEP Scale (Dunlap et al., 2000), Ecocentric and Anthropocentric Environmental Attitude Scales (Thompson & Barton, 1994), Ecological World View Scale (Blaikie, 1992 as cited in Milfont & Duckitt, 2010), and the Environmental Perception Scale (ENV) (Bogner & Wiseman, 1999). The result of this analysis was 10 first-order factors and one second-order factor (Milfont & Duckitt, 2010). One factor, external control/effective commitment, had items which appeared to comprise two different subsets. This factor was expanded into two scales to explore the existence of two distinct dimensions (Milfont & Duckitt, 2010). Since there were no items to address the issue of population growth (Bandura, 2002), Milfont and Duckitt (2010) added an additional scale to address this issue. In all, Milfont and Duckitt (2010) identified twelve EAs dimensions.

The second stage of development produced a 200-item pool to adequately cover all 12 expected scales (Milfont & Duckitt, 2010). In the third stage, content validation was performed by a group of four social psychologists selected by the researchers. Of the

pool, 193 items were selected to be included in the EAI. The EAI was administered to two different groups of students with each group having a unique version. From these results, the best 120 EAI items (10 per scale) were selected based on psychometric criteria (Milfont & Duckitt, 2010). Additionally, the researchers developed a short version of the scale by selecting six balanced items from each of the 12 scales based on their high factor ratings in the previous studies.

Multiple versions of the EAI exist with all versions including the 12 scales. Milfont and Duckitt (2010) created three versions of the scale. Their versions include the full version of 120 items (10 items per scale), a “short” version which consists of 72 items (6 items per scale) and a “brief” version which consists of 24 items (2 items per scale). Other researchers have adapted and modified these scales in research studies. Sutton and Gyuris (2015) tested a 36-item version modification of Milfont and Duckitt’s (2010) 72-item version while Moussaoui et al. (2016, as cited in Domingues & Goncalves, 2020) created a 12-item version.

**Scales.** The EAI measures an individual’s beliefs across 12 dimensions. The complete EAI is presented in Appendix C. The 12 scales as described by Milfont and Duckitt (2010) are:

***Scale 1: Enjoyment of nature.***

- “Belief that enjoying time in nature is pleasant and preferred to spending time in urban areas, versus belief that enjoying time in nature is dull, boring and not enjoyable, and not preferred over spending time in urban areas” (p. 89).

- Sample items in this scale include:
  - “Being out in nature is a great stress reducer for me” (p. 91).
  - “I have a sense of well-being in the silence of nature” (p. 91).

***Scale 2: Support for interventionist conservation policies.***

- “Support for conservation policies regulating industry and the use of raw materials, and subsidising and supporting alternative eco-friendly energy sources and practices, versus opposition to such measures and policies” (p. 89).
- Sample items in this scale include:
  - “People in developed societies are going to have to adopt a more conserving life-style in the future” (p. 91).
  - “Controls should be placed on industry to protect the environment from pollution, even if it means things will cost more” (p. 91).

***Scale 3: Environmental movement activism.***

- “Personal readiness to actively support or get involved in organized action for environmental protection, versus disinterest in or refusal to support or get involved in organized action for environmental protection” (p. 89).

- Sample items in this scale include:
  - “Environmental protection costs a lot of money. I am prepared to help out in the fund-raising effort” (p. 91).
  - “I would like to support an environmental organization” (p. 91).

***Scale 4: Conservation motivated by anthropocentric concern.***

- “Support for conservation policies and protection for the environment motivated by anthropocentric concern to human welfare and gratification, versus support for such policies motivated by concern for nature and the environment as having value in themselves” (p. 90).
- Sample items in this scale include:
  - “Nature is important because of what it can contribute to the pleasure and welfare of humans” (p. 91).
  - “The thing that concerns me most about deforestation is that there will not be enough lumber for future generations” (p. 91).

***Scale 5: Confidence in science and technology.***

- “Belief that human ingenuity, especially science and technology, can and will solve all environmental current problems and avert or repair future damage or harm to the environment, versus belief that human



ingenuity, especially science and technology, cannot solve all environmental problems” (p. 90).

- Sample items in this scale include:
  - “Humans will eventually learn how to solve all environmental problems” (p. 91).
  - “Modern science will solve our environmental problems” (p. 91).

***Scale 6: Environmental fragility.***

- “Belief that the environment is fragile and easily damaged by human activity, and that serious damage from human activity is occurring and could soon have catastrophic consequences for both nature and humans, versus belief that nature and the environment are robust and not easily damaged in any irreparable manner, and that no damage from human activity that is serious or irreparable is occurring or is likely” (p. 90).
- Sample items in this scale include:
  - “If things continue on their present course, we will soon experience a major ecological catastrophe” (p. 91).
  - “When humans interfere with nature it often produces disastrous consequences” (p. 91).

***Scale 7: Altering nature.***

- “Belief that humans should and do have the right to change or alter nature and remake the environment as they wish to satisfy human goals and objectives, versus belief that nature and the natural environment should be preserved in its original and pristine state and should not be altered in any way by human activity or intervention” (p. 90).
- Sample items in this scale include:
  - “I’d much prefer a garden that is well groomed and ordered to a wild and natural one” (p. 92).
  - “When nature is uncomfortable and inconvenient for humans we have every right to change and remake it to suit ourselves” (p. 92).

***Scale 8: Personal conservation behaviour.***

- “Taking care to conserve resources and protect the environment in personal everyday behaviour, versus lack of interest in or desire to take care of resources and conserve in one’s everyday behaviour” (p. 90).
- Sample items in this scale include:
  - “I always switch the light off when I don’t need it anymore” (p. 92).
  - “Whenever possible, I try to save natural resources” (p. 92).

***Scale 9: Human dominance over nature.***

- “Belief that nature exists primarily for human use, versus belief that humans and nature have the same rights” (p. 90).
- Sample items in this scale include:
  - “Humans were meant to rule over the rest of nature” (p. 92).
  - “Plants and animals exist primarily to be used by humans” (p. 92).

***Scale 10: Human utilization of nature.***

- “Belief that economic growth and development should have priority rather than environmental protection, versus belief that environmental protection should have priority rather than economic growth and development” (p. 90).
- Sample items in this scale include:
  - “Protecting peoples’ jobs is more important than protecting the environment” (p. 92).
  - “The question of the environment is secondary to economic growth” (p. 92).

***Scale 11: Eco-centric concern.***

- “A nostalgic concern and sense of emotional loss over environmental damage and loss, versus absence of any concern or regret over environmental damage” (p. 90).
- Sample items in this scale include:
  - “Nature is valuable for its own sake” (p. 92).
  - “Despite our special abilities humans are still subject to the laws of nature” (p. 92).

***Scale 12: Support for population growth strategies.***

- “Support for policies regulating the population growth and concern about overpopulation, versus lack of any support for such policies and concern” (p. 90).
- Sample items in this scale include:
  - “Our government should educate people concerning the importance of having two children or less” (p. 92).
  - “We would be better off if we dramatically reduced the number of people on the Earth” (p. 92).

**Potential Bias in the Measure.** Two of the studies were administered via the internet and one study was administered to college students (Milfont & Duckitt, 2010). Thus, bias could exist for those less educated or without any access to the internet. The studies did have participants from over fifty countries ranging in age from 19-64, indicating diversity of participants across nationality and age.

**Standardization.** Based on their three studies, Milfont and Duckitt (2010) contend the EAI to be culture-general and fully balanced. One study, a web-based survey, included participants from over fifty countries (Milfont & Duckitt, 2010). The other two studies were conducted in single countries, New Zealand and Brazil (Milfont & Duckitt, 2010).

**Reliability and Validity.** Milfont and Duckitt's (2010) results indicate all EAI scales have substantial internal consistency and homogeneity. The researchers' results also supported validity and test-retest reliability for two versions of the EAI: the complete version of 120 items (10 items per dimension) and a short version of 72 items (6 items per dimension).

**Summary of Evidence of Appropriateness.** The EAI was appropriate for this study as this measure has been successfully administered via the internet across a diverse population. Further, validity and reliability have not been compromised across cultures. Since this research was conducted via the internet, soliciting participants from a multi-cultural population, the EAI was an appropriate measure in this study.

## **Participants**

### ***Sampling***

For purposes of this research, the method of selecting participants was convenience sampling. Creswell (2008) describes convenience sampling as a process used by researchers to select participants when the participants are available and willing to participate. In this research, the participants were sustainability leaders from Denmark, Sweden, Norway and the United Kingdom. Participation in this study was voluntary.

### ***Population***

Traditional sustainability leadership focuses on the triple bottom line approach of being socially and environmentally responsible while also maintaining economic viability (Henriques et al., 2007). This approach implicitly indicates that sustainability leaders are in leadership positions. Ferdig (2007) expands the definition of a sustainability leader by suggesting that anyone “who takes responsibility for understanding and acting upon complex sustainability challenges qualifies as a ‘sustainability leader’” (p. 32). Ferdig (2007) further contends that a formal leadership position is not required to be considered a sustainability leader. Rather, sustainability leaders are defined by their actions which lead to outcomes that support healthy social, economic, and environmental systems.

Although Ferdig (2007) broadens the definition of a sustainability leader based on actions rather than job title, the focus of this research was on individual job titles for two reasons. First, Ferdig’s (2007) definition does not provide any unique identifying characteristics to determine members of the target population. Certainly, there are a large number of individuals who take sustainable actions. However, most of these actions will never be published nor will specific individuals be identified. Additionally, there are endless sustainable actions which individuals can take to promote healthy environmental systems. Based on this definition, then, anyone who drives an electric vehicle or regularly recycles household trash would be considered a sustainability leader. Thus, determining the target population would not be possible.

Second, a primary focus of this research was the people component of the triple bottom line. This research explored how inner sustainability, which is not observable, impacts a leader’s ability to lead people sustainably. Thus, it was important to limit the

population to those who are responsible for the well-being of others (outside of a family unit).

### *Characteristics of the Participants*

This research collected data from sustainability leaders from multiple countries who held top sustainability positions in their organizations (chief sustainability officer, head of sustainability, and sustainability manager). As noted earlier, several methods were utilized to solicit participants for this research.

Ultimately, the participants in this study were from the top four countries listed on the 2022 Climate Change Performance Index. The top category, Very High (the first three ranking positions), included no countries as the results of the ranking process indicated no country is doing enough to prevent dangerous climate change. The countries chosen for recruitment were the top four in the next ranking level, High. These countries include: 4. Denmark, 5. Sweden, 6. Norway and 7. United Kingdom. These four countries were chosen as they are countries in which English is commonly used in business. English is not widely spoken in the eighth-ranked country, Morocco. An English-speaking country, 55. United States, in the lowest ranking level, Very Low, was also selected for this study. Selecting countries from both the highest and lowest levels of the index should contribute to the diversity of participants.

### **Data Analysis**

Data was analysed using the Statistical Package for the Social Sciences (SPSS) software. The research here was based on a moderated mediation model. The complexity of the model required an analysis tool designed to accommodate mediation and moderation. The macro program PROCESS was developed by Andrew Hayes to modify

programs like SPSS to compute regression analysis in models with mediators and moderators.

PROCESS has the capacity to do all of the required regression analysis for several different models which combine moderation and mediation (Hayes, 2018). The required inputs into PROCESS included: identification of variables in the model, the PROCESS model number being estimated, and the role of each variable in the model (Hayes, 2018). The model presented in Figure 1 was utilized in this research (PROCESS Model 59).

The software estimated conditional and unconditional direct and indirect effects (Hayes, 2018). For direct effects, PROCESS generated standard errors, p-values, and confidence intervals. Additionally, bootstrap confidence intervals were provided for conditional indirect effects (Hayes, 2018).

### ***Research Questions and Hypotheses***

**Research Question One and Hypothesis.** The first research question addressed by this study was:

- Does a sustainability leader's ecospirituality significantly impact one's human capital sustainability leadership capacity?

The following hypothesis was used to provide data for answering this research question:

- H<sub>1</sub>: The presence of ecospirituality will have a positive relationship on human capital sustainability leadership capacity.



**Research Question Two and Hypothesis.** The second question addressed by this study was:

- Does the level of an individual's psychological capital mediate the relationship between a sustainability leader's ecospirituality and one's human capital sustainability leadership capacity?

The following hypothesis was used to provide data for answering this research question:

- H<sub>2</sub>: An individual's psychological capital mediates the relationship between one's ecospirituality and human capital sustainability leadership capacity.

**Research Question Three and Hypothesis.** The third research question addressed by this study was:

- Does the level of a sustainability leader's environmental attitudes conditionally change all three paths of a mediation model by creating direct and indirect effects of an individual's ecospirituality on one's human capital sustainability leadership capacity in the presence of psychological capital?

The following hypothesis was used to provide data for answering this research question:

- A sustainability leader's environmental attitudes significantly moderate all three paths of the mediation model in changing the direct and indirect effects of ecospirituality on human capital sustainability leadership in the presence of psychological capital, such that environmental attitudes strengthen these relationships.

### ***Data Analysis Validity***

Regression analysis was used to determine the impact of ecospirituality on HCSL. This answered the question of whether or not one's ecospirituality impacts their HCSL capacity.

To test the mediation of the research design, the Hayes (2018) PROCESS macro, Model 4 for SPSS was used. This test explored the mediation impact of perceived PsyCap (mediator variable) on the relationship between ecospirituality and HCSL. Using ordinary least squares (OLS) regression,  $a_1$ ,  $b_1$ , and  $c'_1$  were computed along with standard regression statistics such as  $R^2$  for each of the equations (Hayes, 2018). Additionally, a section of output was created for the direct and indirect effects of ecospirituality (independent variable). Output for the total effect of ecospirituality on HCSL (relationship  $c_1$ ) was also provided (Hayes, 2018).

To test the moderated mediation of the research design, the Hayes (2018) PROCESS macro, Model 59 for SPSS was used. This tested whether EAs (moderator variable) moderated the effect of ecospirituality (independent variable) through perceived PsyCap (mediator variable) on HCSL (dependent variable). Additionally, the model tested the moderating impact of EAs on both the direct effect of ecospirituality on HCSL and the indirect effect of ecospirituality on HCSL through perceived PsyCap (Hayes, 2018).

### **Delimitations**

The solicitation of participants in this study was a limitation. All participants in this research were from the top four countries listed on the 2022 Climate Change Performance Index. The low response rate of 16.73% (42 of 251) from this population can be viewed as a limitation. However, Meterko et al. (2015) found response rate does

not necessarily predict nonresponse bias. These authors contend low response-rate surveys should be considered on their merit as they may accurately represent attitudes of the population. Further, they contend results should not be considered uninformative because the response rate is low.

Another limitation of this study was the use of two relatively new instruments. The Final Scale for Ecospirituality and Human Capital Sustainability Leadership Scale have not been extensively used in prior research. As noted in the detailed discussion of these instruments, some bias could be present. Additionally, the standardization capacity of these instruments is unclear as so few studies have utilized these measures.

### **Data Collection Procedures**

The first attempt to recruit participants utilized the LinkedIn platform. Members of the Sustainability Professionals group were recruited via the message board on the home page. An invitation directed to persons in positions of leadership was posted with a link to the Qualtrics survey which included all four measurement instruments. Initially, a handful of inquiries were received concerning the survey from persons who were either consultants not working full-time in an organization or employees working in organizations but not in supervisory roles. It appeared that those who frequented the social media site and read the message board were likely not going to be the individual members who were working in sustainability leadership positions in organizations. This attempt did not produce any usable completed surveys.

The second approach to recruiting potential candidates for this research was to individually invite individuals who are chief sustainability officers in organizations located in the United States. Contact information was obtained for 150 individuals holding this position. Each was sent an invitation to participate in the research with a link

to the Qualtrics survey. The information was obtained from a third-party service and was not completely up-to-date as 20 invitations were returned as undeliverable. In the first week, the response rate to these invitations was less than 2% and climbed to 3.85% (5 responses) after sending out reminder notices. The low number of completed surveys dictated taking another approach.

The third approach was to target sustainability leaders in countries which rank in the High category of the 2022 Climate Change Performance Index. The top category, Very High (the first three ranking positions), included no countries as the results of the ranking process indicated no country is doing enough to prevent dangerous climate change. Once again, a third-party service was utilized to obtain contact information for individuals in these countries. Personalized invitations were sent to chief sustainability officers in Denmark, Sweden, Norway and the United Kingdom. Overall, the survey completion rate was 14.17% (17 of 120), with Denmark having a completion rate of 26.92% (7 of 26), Sweden 12.50% (5 of 40), the United Kingdom 12.00% (3 of 25) and Norway 6.90% (2 of 29).

Data was still limited so a fourth attempt was made to recruit participants. Individual invitations were once again sent to Denmark, Sweden, Norway and the United Kingdom. This set of survey invitations was sent to individuals in head of sustainability or sustainability manager positions. Overall, the completion rate was 19.08% (25 of 131) with Denmark having a completion rate of 20.00% (4 of 20), Sweden 20.00% (9 of 45), the United Kingdom 23.40% (11 of 47) and Norway 5.26% (1 of 19).

Chapter 3 has discussed the methodology used in this research to collect the data for this study. The research questions, hypotheses, and design were discussed along with the threats to validity, the variables, and the variable relationships. This chapter also

discussed the measurement instruments used in the study and the study participants.

Lastly, the data analysis and data collection procedures were discussed. The next chapter discusses the findings of this study based on the data collected from Denmark, Sweden, Norway, and the United Kingdom.

## Chapter 4: Findings

This chapter begins with the descriptive statistics of all variables in Table 11 and the correlation matrix in Table 12. This is followed by a discussion of the findings related to each of the three research questions and their related hypothesis. After the analysis of the hypothesis, additional probing of the ecospirituality variable was completed. These results, along with regression analysis of HCSL on PsyCap and HCSL on EAs, are presented in the additional findings section.

### Descriptive Statistics of All Variables

**Table 11**

*Descriptive Statistics*

	Mean	Standard Deviation
<b>Independent Variable</b>		
Ecospirituality	98.9524	9.73541
<b>Dependent Variable</b>		
Human Capital Sustainability Leadership	81.2857	6.85845
<b>Mediating Variable</b>		
Psychological Capital	111.9524	10.72483
<b>Moderating Variable</b>		
Environmental Attitudes	123.4286	5.68757

## Correlation Matrix of All Variables

**Table 12**

*Correlation Matrix*

Variable	EcoSp	HCLS	PsyCap	EAs
EcoSp	1.000			
HCSL	.523*	1.000		
PsyCap	.099	.570*	1.000	
EAs	.011	-.017	-.069	1.000

\*Correlation is significant at the 0.01 level (2-tailed).

Note: EcoSp: Ecospirituality, HCLS: Human Capital Sustainability Leadership, PsyCap: Psychological Capital, EAs: Environmental Attitudes

## Research Questions and Hypotheses

### *Research Question One and Hypothesis*

The first research question addressed by this study was:

- Does a sustainability leader's ecospirituality significantly impact one's human capital sustainability leadership capacity?

The following hypothesis was used to provide data for answering this research question:

- H<sub>1</sub>: The presence of ecospirituality will have a positive relationship on human capital sustainability leadership capacity.

**Findings.** The hypothesis tested if ecospirituality has a significant impact on HCSL. The results indicated ecospirituality does have a significant impact on HCSL.

The dependent variable of HCSL was regressed on the independent variable of ecospirituality to test H<sub>1</sub>. Ecospirituality significantly predicted HCSL,  $F(1,40) = 15.027$ ,  $p < .001$ , which indicates that ecospirituality can play a significant role in determining HCSL ( $\beta = .368$ ,  $p < .001$ ). Further, the  $R^2 = .273$ , indicating that 27.3% of the variance in HCSL can be predicted from the ecospirituality variable. Thus, it can be concluded that ecospirituality is positively related to HCSL and H<sub>1</sub> is supported. A summary of the results are presented in Table 13.

**Table 13**

*Human Capital Sustainability Leadership Regressed on Ecospirituality*

Hypothesis	Regression Weights	Beta Coefficient	R <sup>2</sup>	F	p-value	Hypothesis Supported
H <sub>1</sub>	EcoSp → HCSL	.368	.273	15.027	<.001	YES

Note:  $p < .05$ , EcoSp: Ecospirituality, HCSL: Human Capital Sustainability Leadership

***Research Question Two and Hypothesis***

The second question addressed by this study was:

- Does the level of an individual's psychological capital mediate the relationship between a sustainability leader's ecospirituality and one's human capital sustainability leadership capacity?



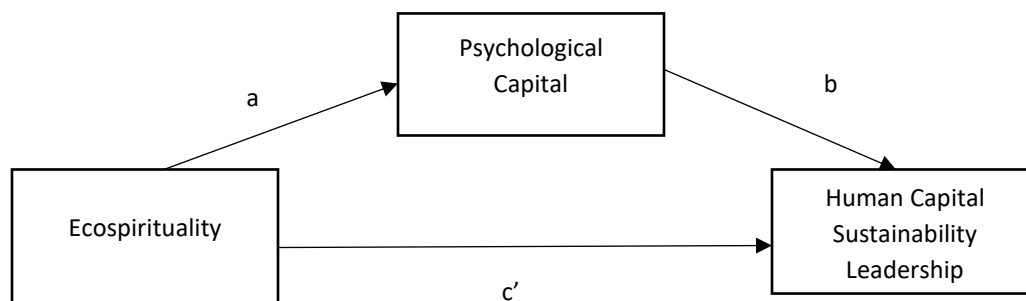
The following hypothesis was used to provide data for answering this research question:

- H<sub>2</sub>: An individual's psychological capital mediates the relationship between one's ecospirituality and human capital sustainability leadership capacity.

**Findings.** The study assessed the mediating role of PsyCap on the relationship between ecospirituality and HCSL using Hayes Model 4. For mediation models, Hayes (2018) notes that mediation cannot be presumed when the confidence interval includes zero. Thus, the results indicated that PsyCap did not mediate the relationship between ecospirituality and HCSL. Figure 3 provides a graphical presentation of Model 4, identifying the paths tested in this model. Table 14 provides a summary of the statistical results.

### Figure 3

*Hayes Mediation Model 4*



**Table 14***Psychological Capital Mediation Results*

Path	p	$\beta$	95% CI		Significant
			LL	UL	
a	.5327	.1091	-.2412	.4594	NO
b	.0000	.3348	.1943	.4753	YES
c'	.0001	.3316	.1769	.4864	YES
a * b	.0004	.0365	-.0752	.1480	NO

Note. CI = Confidence interval; LL = lower limit; UL = upper limit.

The results revealed the relationship between ecospirituality and PsyCap (path a in Figure 3) was not significant ( $p = .5327$  and a confidence interval range which includes zero). The relationship between PsyCap and HCSL (path b in Figure 3) was found to be significant ( $p = .0000$  and the confidence interval does not include zero). The direct effect of ecospirituality on HCSL in the presence of PsyCap (path c' in Figure 3) was also found to be significant ( $p = .0001$  and the confidence interval does not include zero). Lastly, the results revealed the indirect effect of ecospirituality on HCSL (paths a \* b, in Figure 3) was not significant ( $p = .0004$  and the confidence interval includes zero). When the complete mediation path (a \* b) is not significant, then mediation is not present. Thus, it can be concluded that  $H_2$  is not supported.

### ***Research Question Three and Hypothesis***

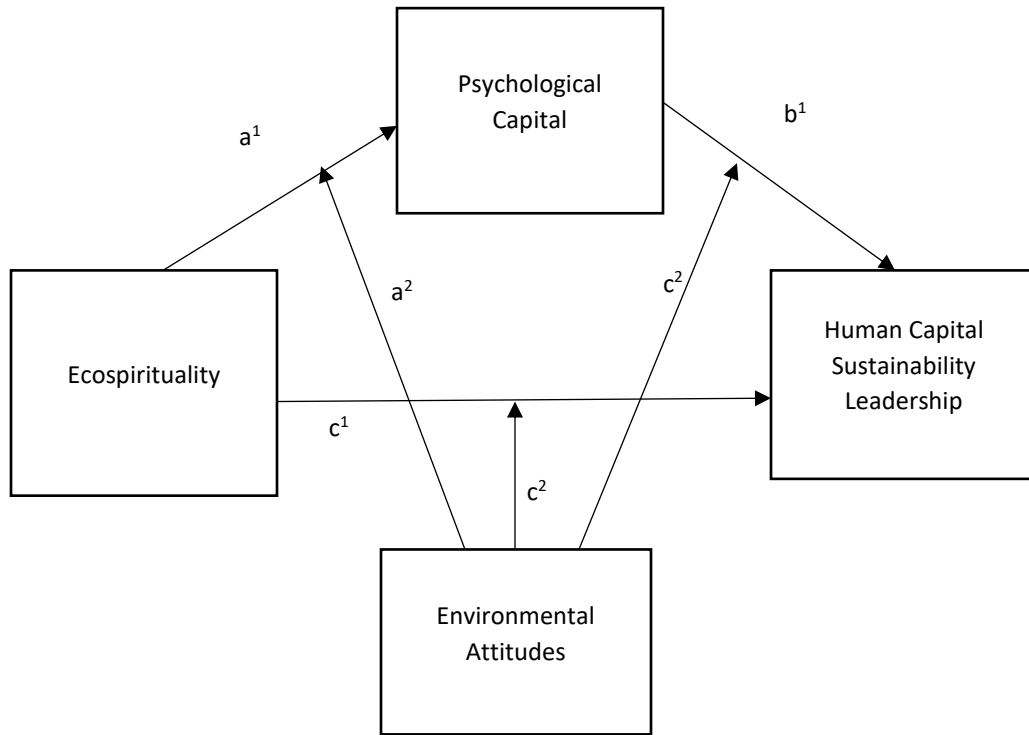
The third research question addressed by this study was:

- Does the level of a sustainability leader's environmental attitudes conditionally change all three paths of the mediation model by creating direct and indirect effects of an individual's ecospirituality on one's human capital sustainability leadership in the presence of psychological capital?

The following hypothesis was used to provide data for answering this research question:

- H<sub>3</sub>: A sustainability leader's environmental attitudes significantly moderate all three paths of the mediation model in changing the direct and indirect effects of ecospirituality on human capital sustainability leadership in the presence of psychological capital, such that environmental attitudes strengthen the relationships.

**Findings.** The study assessed the moderating role of EAs on the relationship between ecospirituality and HCSL in the presence of a mediator, PsyCap. These relationships were evaluated utilizing the Hayes Model 59 shown in Figure 4. The significance of the results were determined by analysing the p and t values of each path as well as the lower limit and upper level confidence intervals of each path. Significant paths are determined by p-values < .05, absolute t values > 1.96 and a confidence interval level range (LLCI/ULCI) which does not include zero (Pedhazur, 1997). A summary of the results is presented in Table 15.

**Figure 4***Hayes Moderated Mediation Model 59*

**Table 15***Environmental Attitudes Moderated Mediation Results*

Path	p	t	95% CI		Significant
			LL	UL	
a <sup>1</sup>	.8243	.2235	-6.9101	8.6254	NO
a <sup>2</sup>	.8795	.1526	-5.9397	6.9081	NO
a <sup>1</sup> * a <sup>2</sup>	.8464	-.1951	-.0703	.0579	NO
b <sup>1</sup>	.2914	1.0708	-1.9448	6.2954	NO
c <sup>1</sup>	.5165	.6552	-2.3227	4.5397	NO
c <sup>2</sup>	.3128	1.0237	-2.3164	7.0379	NO
c <sup>1</sup> * c <sup>2</sup>	.6450	-.4647	-.0348	.0218	NO
b <sup>1</sup> * c <sup>2</sup>	.3706	-.9068	-.0481	.0184	NO

Note. CI = Confidence interval; LL = lower limit; UL = upper limit.

The impact of ecospirituality on PsyCap (path  $a^1$ ) was not significant ( $p = .8243$ ,  $t = .2235$ , LLCI/ULCI range = -6.9101 to 8.6254). The impact of EAs on PsyCap (path  $a^2$ ) was not significant ( $p = .8795$ ,  $t = .1526$ , LLCI/ULCI range = -5.9397 to 6.9081). The impact of ecospirituality on PsyCap moderated by EAs (paths  $a^1 * a^2$ ) is not significant ( $p = .8464$ ,  $t = -.1951$ , LLCI/ULCI range = -.0703 to .0579).

The impact of PsyCap on HCSL (path  $b^1$ ) was not significant ( $p = .2914$ ,  $t = 1.0708$ , LLCI/ULCI range = -1.9448 to 6.2954). The impact of ecospirituality on HCSL (path  $c^1$ ) was not significant ( $p = .5165$ ,  $t = .6552$ , LLCI/ULCI range = -2.3227 to 4.5397). The impact of EAs on HCSL (path  $c^2$ ) was not significant ( $p = .3128$ ,  $t = 1.0237$ , LLCI/ULCI range = -2.3164 to 7.0379).

Lastly, the impacts of ecospirituality and PsyCap in the presence of the moderator, EAs, were not significant. The results of the interaction between ecospirituality and EAs (paths  $c^1 * c^2$ ) were  $p = .6450$ ,  $t = -.4647$ , and a LLCI/ULCI range of -.0348 to .0218. The results of the interaction between PsyCap and EAs (paths  $b^1 * c^2$ ) were  $p = .3706$ ,  $t = -.9068$ , and a LLCI/ULCI range of -.0481 to .0184.

There were no significant relationships in this model. EAs do not moderate the relationships between ecospirituality, PsyCap, and HCSL. Thus, it can be concluded that  $H_3$  is not supported.

### **Additional Findings**

#### ***Influence of Gender and Age on Ecospirituality***

The hypothesis test of the impact of ecospirituality on HCSL was probed to determine if gender or age impacted this relationship. The dependent variable of HCSL was regressed on the independent variable of ecospirituality by gender and age group. These findings are presented in Table 16.

**Table 16***Human Capital Sustainability Leadership Regressed on Ecospirituality by Gender*

Gender	Age	R <sup>2</sup>	p	t	Significant
Female	All	.406	<.001	4.212	YES
	30 and Under	.519	.488	-1.039	NO
	31-39	.716	.016	3.548	YES
	40-49	.131	.304	1.098	NO
	50 and Over	.842	.001	5.651	YES
Male	All	.094	.285	1.119	NO
	30 and Under	N/A	N/A	N/A	N/A
	31-39	.179	.577	.661	NO
	40-49	.953	.140	4.486	NO
	50 and Over	.263	.377	1.034	NO

Ecospirituality significantly predicted HCSL by gender. Overall, the results were significant for females ( $p < .001$ ) but not for males ( $p = .285$ ). This indicates that ecospirituality can play a significant role in determining HCSL in females. The  $R^2 = .406$  for this group indicates that 40.6% of the variance in female HCSL can be predicted from the ecospirituality variable. Thus, it can be concluded that female ecospirituality is positively related to HCSL.

Additionally, the results of probing female ecospirituality by age found that ecospirituality is not a significant predictor of HCSL in all age groups. Ecospirituality

was found to be a significant predictor of HCSL in age groups 31-39 ( $p = .016$ ,  $R^2 = .716$ ) and 50 and Over ( $p = .001$ ,  $R^2 = .842$ ). In the younger group, 71.65% of the variance in HCSL can be predicted from the ecospirituality variable. In the older group the percentage of influence is even higher at 84.2%.

### ***HCSL Regression on Psychological Capital***

The dependent variable of HCSL was regressed on PsyCap as an independent variable. PsyCap significantly predicted HCSL,  $F(1,40) = 19.270$ ,  $p < .001$ , which indicates that PsyCap can play a significant role in determining HCSL ( $\beta = .365$ ,  $p < .001$ ). Further,  $R^2 = .325$ , indicating that 32.5% of the variance in HCSL can be predicted from the PsyCap variable. Table 17 shows the summary of these findings.

**Table 17**

#### *Human Capital Sustainability Leadership Regressed on Psychological Capital*

Regression Weights	$\beta$	$R^2$	F	p	Significant
PsyCap→HCSL	.365	.325	19.270	<.001	YES

Note. PsyCap: Psychological Capital, HCSL: Human Capital Sustainability Leadership.

### ***HCSL Regression on Environmental Attitudes***

The dependent variable of HCSL was regressed on EAs as an independent variable. EAs did not significantly predict HCSL,  $F(1,40) = .012$ ,  $p = .915$ , which indicates that EAs do not play a significant role in determining HCSL ( $\beta = -.012$ ). Further,  $R^2 = .000$ , indicating that 0.0% of the variance in HCSL can be predicted from the EAs variable. A summary of these findings are presented in Table 18.



**Table 18**

*Human Capital Sustainability Leadership Regressed on Environmental Attitudes*

Regression Weights	$\beta$	$R^2$	F	p	Significant
EAs→HCSL	-.020	.000	.012	.915	NO

Note. EAs: Environmental Attitudes, HCSL: Human Capital Sustainability Leadership.

### Summary of Findings

As presented in Figure 5, HCSL is directly influenced by the variables of psychological capital and ecospirituality. Conversely, environmental attitudes do not directly influence HCSL.

### Figure 5

*Summary of Findings – Direct Relationships*

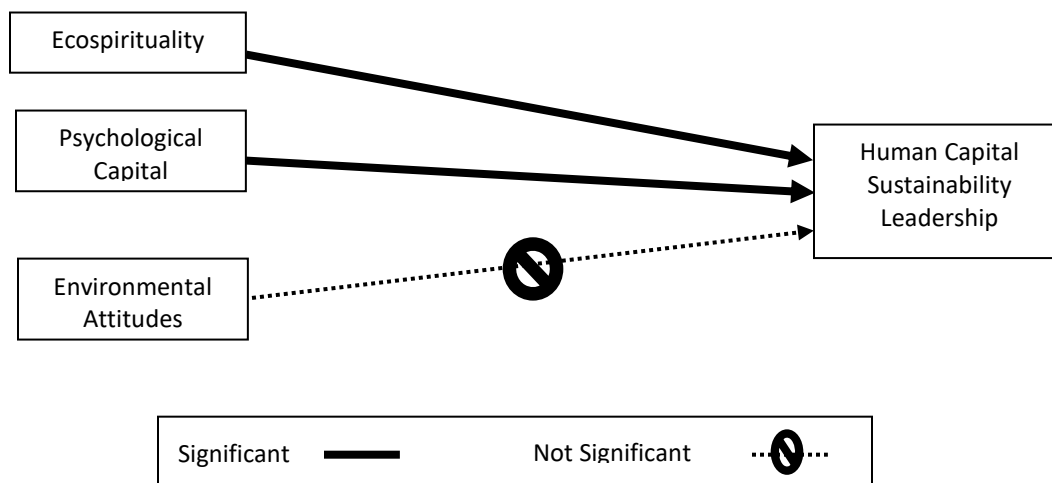
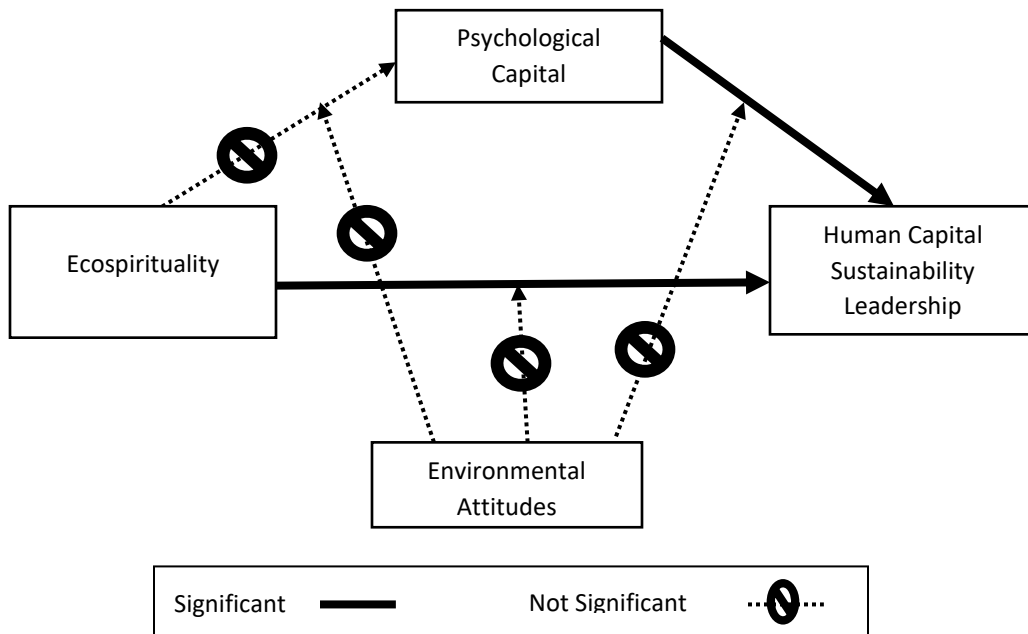


Figure 6 provides a summary of the mediation and moderation findings. The full path of psychological capital mediation (ecospirituality-psychological capital-human capital sustainability leadership) is not significant. Additionally, none of the environmental attitude moderation paths are significant.

**Figure 6**

*Summary of Findings – Mediation and Moderation Relationships*



This chapter has provided a summary of the results found in this study related to the research questions and hypotheses. The results of the probe of the H<sub>1</sub> findings related to potential age and gender influences on ecospirituality were also presented. Additionally, the findings of regression results utilizing PsyCap and EAs as independent variables were also presented. The next chapter provides further discussion of these results, suggestions for future research, and this researcher's final thoughts.

## **Chapter 5: Discussion**

The purpose of this moderated mediation study was three-fold. First, this study examined the direct impact of sustainability leader ecospirituality on one's HCSL capacity. Second, the mediating impact of sustainability leader PsyCap on this relationship was examined. Third, the moderating impact of sustainability leader EAs on all three paths of the mediation model was explored.

This chapter provides a summary of the study results along with a discussion of the connection between these results and prior research, the contributions of this study to the field of sustainability and implications for practice. Limitations of the study and recommendations for future research are also addressed. This chapter concludes with the researcher's reflections.

### **Connecting Results to Prior Research**

This section begins with a discussion of the results related to the direct impact of ecospirituality on HCSL. This is followed by the results of the mediation analysis of PsyCap and the moderation analysis of EAs. This section concludes with a discussion of additional patterns discovered during this study.

#### ***Direct Relationship of Ecospirituality***

This study examined the direct relationship between sustainability leader ecospirituality and one's HCSL. The results indicated ecospirituality significantly predicted HCSL, which suggests that ecospirituality can play a significant role in determining HCSL capacity. Additionally, the results found that 27.3% of the variance in HCSL could be predicted from the ecospirituality variable.

Although no previous studies have examined this specific relationship, the results of this study do support previous research linking ecospirituality to specific dimensions

of HCSL. Suganthi (2020) examined the role of ecospirituality in organizations and found ecospirituality predicted corporate social responsibility, which Marques (2020) contends is a manifestation of mindful leadership. Further, Kunz (2020) found evidence which indicates corporate social responsibility fosters sustainable human resource management strategies and practices.

The connection of ecospirituality to sustainable human resource management practices through corporate social responsibility suggests that ecospirituality specifically impacts the HCSL component of sustainable leadership. As noted earlier, sustainable leadership was defined as an environment which provides incentives to attract and retain talent (Hargreaves & Fink, 2003). Attracting and retaining talent is also an emphasis of sustainable human resource management (Kunz, 2020).

These results suggest that leaders who have reverence for the natural environment will create working environments which are more attractive and have less employee turnover. Members in these groups often perceive their leader as being open-minded, interested in each of them as individuals, compassionate, resilient, and able to remain calm in the most stressful situations. This type of leader typically exhibits mindful leadership characteristics and creates a high-performing team environment which motivates all members to do their best on a daily basis.

### ***Mediating Impact of Psychological Capital***

This study also examined the mediating role of PsyCap on the relationship between ecospirituality and HCSL using Hayes Model 4. The results revealed the relationship between ecospirituality and PsyCap was not significant while the relationship between PsyCap and HCSL was found to be significant. The direct effect of ecospirituality on HCSL in the presence of PsyCap was also found to be significant.

Lastly, the results revealed the indirect effect of ecospirituality on HCSL was not significant. Thus, it can be concluded that PsyCap does not mediate the relationship between ecospirituality and HCSL.

Although PsyCap has not been previously utilized as a mediator of the relationship between ecospirituality and HCSL, PsyCap has been utilized as a mediator in environmental research. The results of this study contradict the results of this previous research. Walton and Austin (2011) found significant mediation results of self-efficacy in environmental behavior research while Hamann and Reese (2020) found that self-efficacy predicts pro-environmental behavior.

Additionally, PsyCap has been utilized in leadership studies with conflicting results. Gom et al. (2021) found that PsyCap does not act as a mediator between transformational leadership and turnover intention. Conversely, Febita and Desiana (2021) concluded that PsyCap mediates the relationship between transformational leadership and innovative work behavior. Thus, the results of this study appear to conflict with previous environmental research but may align with some results found in previous leadership research. For example, a positive relationship has been found between the servant leadership dimension of HCSL and PsyCap (Coggins, 2012; Davis, 2018; Ice, 2016).

***Moderating Impact of Environmental Attitudes***

Further, this study assessed the moderating role of EAs on the relationship between ecospirituality and HCSL in the presence of a mediator, PsyCap. These relationships were evaluated utilizing Hayes Model 59. The results found that EAs did not significantly moderate the direct relationships between ecospirituality and PsyCap, PsyCap and HCSL, or ecospirituality and HCSL. Additionally, EAs did not significantly

moderate any of the indirect relationships between these variables. Thus, it can be concluded that EAs do not moderate the relationship between ecospirituality and HCSL. In essence, the relationship between ecospirituality and HCSL is not influenced by the presence of EAs or lack of EAs.

These results could be due in part to the conflicting results discovered in previous EAs research. Kormos and Gifford (2014) contend there is a weak correlation between attitudes and behavior. Other authors contend there is a gap between attitudes and behaviors in the environmental context (Kollmuss & Agyeman, 2002; Soutter et al., 2020). Conversely, some studies support a predictive role of EAs when explaining environment-related behavior (Bamberg & Möser, 2007; Gifford & Nilsson, 2014).

Another explanation of these results could be the use of the Environmental Attitudes Inventory (EAI) as the measurement instrument. Somerwill and Wehn (2022) note that the EAI is the most comprehensive method of measurement currently available in the field. However, they do suggest the length of the instrument might not justify the resources required to implement it or the added value achieved from using such an in-depth scale.

Additionally, one study participant provided feedback concerning the extreme choices in the EAI section of the survey. This participant felt the questions forced a binary choice. The example provided in the feedback was the choice between keeping rivers and lakes clean rather than being places for people to enjoy water sports. This person suggests that these two extremes are not mutually exclusive and contends that both can be achieved simultaneously. This participant indicated that this caused personal conflict when deciding how to answer the survey question. This feedback does raise a concern that technological advancements may have resulted in some of the questions on

the EAI not being applicable as written to how humans interact with the environment today. One can only speculate if other participants felt the same way and how this might have impacted the results.

### ***Additional Findings***

**Influence of Gender and Age on Ecospirituality.** The hypothesis test of the impact of ecospirituality on HCSL was probed to determine if gender or age impacted this relationship. The dependent variable of HCSL was regressed on the independent variable of ecospirituality by gender and age group.

Ecospirituality was found to significantly impact HCSL in females but was not a significant influence for males. This indicates that ecospirituality can play a significant role in determining HCSL capacity in females but may not be an effective predictor in males. Additionally, the results of probing female ecospirituality by age found that ecospirituality is not a significant predictor of HCSL capacity in all age groups. Ecospirituality was only found to be a significant predictor of HCSL capacity in the “31-39” and “50 and Over” age groups.

The female connection to ecospirituality coincides with previous research that spirituality is embraced more by women than men (Houtman & Aupers, 2008). Additionally, women have been found to be significantly more concerned about the environment than men (Diamantopoulos, 2003; Tanner, 1999). Although these studies did not specifically address ecospirituality, collectively, they do support the findings in this study that ecospirituality tends to have a stronger influence in females.

With respect to age, the results of this study partially contradict results found in studies of spirituality evolution over time. The results of this study found the youngest group to have low ecospirituality which is supported by Brown et al. (2013). However,

the lack of continued ecospirituality significance across increasingly older age groups (ecospirituality was not significant for those in their 40s) is inconsistent with previous research. Prior longitudinal studies have found spirituality levels increase over the life span (Wink & Dillon, 2002, 2008). Additionally, many spiritual development theories expect individual spirituality, making meaning out of one's lived experiences, to increase as one gets older (Mattes, 2005; Piedmont, 1999).

Further research is needed to confirm that indeed ecospirituality is more prevalent in females as was found in this study. Additionally, the studies found related to age and spirituality are not recent. More current research is needed to understand if the results found in the previous research is still valid or if Generation X (currently in their 40s) has some attributes which impact spirituality levels in general. Also, longitudinal research is needed to determine if ecospirituality mirrors spirituality development theories and increases over time.

**Regression on Psychological Capital.** The dependent variable of HCSL was regressed on the PsyCap as an independent variable. The results indicate PsyCap significantly predicted HCSL which indicates that PsyCap can play a significant role in determining HCSL.

Although this is the first study in which the influence of PsyCap on HCSL has been explored, these results are consistent with findings in other leadership studies. For example, Prasath and Bhat (2022) contend PsyCap is a strong predictor of servant leadership and PsyCap was found to be significant in transformational leadership (Toor & Ofori, 2010).

**Regression on Environmental Attitudes.** The dependent variable of HCSL was also regressed on EAs as an independent variable. EAs did not significantly predict



HCSL which indicates that EAs do not play a significant role in determining HCSL. This result could be expected as only a few studies have found a significant link between EAs and behavior (Chen & Tung, 2014; Jang et al., 2015). Predictably, this result is consistent with previous research which indicates that EAs do not always translate to people's behavior (Gifford & Chen, 2017; Gifford & Sussman, 2012; Kollmuss & Agyeman, 2020). To date, there is not a full understanding of the underlying cause of this environmental attitude-behavior gap even though it has been studied (Gifford & Chen, 2017; Gifford & Sussman, 2012; Kollmuss & Agyeman, 2020).

### **Contributions to the Field**

This study contributes to the existing sustainability leadership literature. HCSL is an emerging topic in the sustainability field. This study shows that one's ecospirituality has a significant impact on one's HCSL capacity. Also, additional findings in this study indicate that PsyCap also significantly impacts one's HCSL capacity. These relationships had not yet been studied.

Further, the results of this study indicated EAs do not have a significant impact on HCSL. This confirms the environmental attitude-behavior gap and provides insight that this gap may be present in the both the environment and people pillars of the triple bottom line.

### **Implications for Practice**

This section discusses how the results of this study can influence sustainable work environments in organizations. These sustainable work environments are dependent not only on hiring competent individuals but also on the availability of competent applicants. This section also includes a discussion of how higher education institutions could prepare individuals who are willing and able to fill sustainability-related positions.

### *Implications for Organizations*

The pandemic has intensified the competition for employee talent. Numerous businesses were not able to sustain the impact of the pandemic and no longer exist. Many of those that did survive now face unprecedented staffing shortages. To compensate for this lack of talent, businesses have been forced to reduce hours of operation or limit services. Creating an environment which not only attracts talented employees, but also promotes the retention of this talent, will be crucial to the sustainability of business operations.

The results of this research suggest that reverence for the natural environment (ecospirituality) can enhance the creation of a sustainable work environment that both attracts and retains human talent. These results support the social justice principle of sustainable leadership (Hargreaves & Fink, 2003), a dimension of HCSL. These authors view sustainable leadership as an interconnected process, where one is responsible for the impact of their actions on the wider environment.

This study found ecospirituality enhances HCSL, which has been linked to promoting more productive and enjoyable work environments. Khalil et al. (2021) suggests that HCSL positively predicts job satisfaction and work engagement. These authors contend HCSL is a trigger for knowledge sharing behavior among employees which motivates employees and lowers job anxiety.

Also, these results are aligned with the worldview of spirituality on sustainability. Hedlund-de Witt (2011) found that a transition is in process from focussing on self in isolation to self in relation. This author contends individuals have become more aware of their ecological footprints as a result of the current environmental crisis. Additional

findings by Hedlund-de Witt (2011) include the trend of replacing material fulfilment with spiritual fulfilment and an increased awareness of the interconnectedness of all living beings.

Human capital sustainability is a primary concern of organizational survival, exhibiting reverence for environmental sustainability (ecospirituality) appears to enhance the capacity (HCSL) for retaining this human capital. Creating a culture of environmental concern could include more visible elements such as a comprehensive internal recycling program, the use of recycled products in daily operations, and activities to celebrate Earth Day. However, the underlying corporate strategy also needs to be congruent with these visible elements. Having a recycling program is a positive step, but if inefficient corporate policies result in unnecessary waste, this can be perceived merely as greenwashing.

In summary, the results of this research suggest that organizations could rise above their competition in attracting and retaining employee talent through the creation of a culture which incorporates reverence to the natural environment and adoption of HCSL qualities. HCSL behaviors can provide long-term benefits and sustain the human resources of the organization.

### ***Implications for Higher Education***

Many believe higher education will play a key role in shaping sustainable socio-ecological systems in the future (Lotz-Sisitka et al., 2015; Rieckmann, 2017; Wals et al., 2015). Today's higher education institutions are tasked with preparing individuals to fill jobs across a variety of fields, including sustainability. Probst (2022) contends that higher education will need to evolve in order to provide a meaningful contribution to sustainable development.

The focus of this study was an individual's inner sustainability. As previously noted, inner sustainability is not observable, it encompasses beliefs, thoughts, emotions, desires, identities, and spirituality (Gibbons, 2020b). These dimensions transcend the expectations of higher education which include knowledge and skills compatible with sustainability which can be readily taught and assessed (Shephard, 2022).

Some suggest that sustainability education should adopt a competency approach and educate "for" sustainability rather than "about" sustainability, an approach which fosters the ability to engage in sustainability activity if those being educated are willing to participate (Shephard, 2022). In this context, sustainability competencies "comprise the entirety of individual dispositions comprising knowledge, skills, motives, and attitudes, necessary to solve sustainability-related problems and advancing sustainable development in a range of different contexts, including private, social, and institutional" (Brundiers et. al., 2021, p. 17).

Probst (2022) acknowledges that evidence is present in existing literature that higher education effectively builds knowledge and skills but such results are not present for competencies or behavioral aspects. One could conclude that in its current form, higher education is not performing well in a competency-based approach.

Going forward, it will be important for higher education to continue to building knowledge and skills in graduates. However, knowledge and skill may not be sufficient to navigate the complexity of sustainability issues. Future higher education educators may not only need to have achieved adequate academic credentials to teach sustainability but may also need to show evidence of being sustainability role models. This concept is supported by research which suggests that instructors who are sustainability role models facilitate the learning process (Brandt et al., 2021).

The future is uncertain and continuous change means the field of sustainability has no educational end. Those in the field will need abilities like critical thinking, problem-solving, and systems thinking. Additionally, in this interrelated global environment, intrapersonal and interpersonal skills will be essential. Ultimately, higher education institutions will be tasked with not only teaching graduates what they should know but also educating their graduates to be deep and independent thinkers.

### **Limitations of the Study**

#### ***Measures***

The limited utilization in prior research of two measures in this study could be viewed as a limitation. This is the first research study in which the Final Scale for Ecospirituality has been used. Although ecospirituality has been discussed in previous research, this is the first scale developed to measure this latent variable.

The other scale with limited utilization is the Human Capital Sustainability Leadership Scale. Since its development, the English version of this measure has not been used in research until this study. However, a version of this scale was used in one study in Malaysia.

#### ***Participant Population***

This study was limited to individual leaders in positions at the top of their organizations (chief sustainability officer, head of sustainability, and sustainability manager). Additionally, these leaders are from the four highest-ranked countries on the 2022 Climate Change Performance Index (Denmark, Sweden, Norway, and the United Kingdom).

The low response rate of 16.73% (42 of 251) from this population can be viewed as a limitation. However, Meterko et al. (2015) found response rate does not necessarily

predict nonresponse bias. These authors contend low response-rate surveys should be considered on their merit as they may accurately represent attitudes of the population. Further, they contend results should not be considered uninformative because the response rate is low.

The participants in this study are a small subset of the population of sustainability leaders in the world. They represent the countries which are most proactive in addressing climate change, a major challenge for sustainability leaders. Additional research is needed to determine if the results of this study are consistent with sustainability leaders in countries ranked in other levels of the index (Medium, Low, and Very Low).

### **Recommendations for Future Research**

The consequences of human action on the environment are reflected in more extreme weather patterns becoming the norm rather than the exception. Extreme heat, prolonged drought, devastation from super hurricanes and other weather-related events are impacting human well-being. The well-being of individual human capital not only in the work place (i.e. HCSL), but also as a member of society, is essential for continued human existence.

Society is facing an urgent need to engage in actions which will reduce the consequences of climate change. Understanding sustainability leader's inner sustainability dimensions of ecospirituality, HCSL, PsyCap and EAs is an important foundation from which to conduct experimental research and develop strategic interventions. This study is a starting point from which to further explore the dimensions of inner sustainability.

Results of this study indicate that ecospirituality does influence HCSL. However, this sample included four countries which have been recognized as being proactive in

addressing climate change. One can only speculate what country-level factors may have influenced this relationship. Future research on the relationships between ecospirituality, HCSL, PsyCap, and EAs across a broader spectrum of countries could provide insight into the country-level contexts that impact these relationships. Specifically, future research can explore how country-level factors such as greenhouse gas emissions, renewable energy utilization, and climate policy influence individual's ecospirituality. Understanding how these country-level factors influence individual ecospirituality would provide a valuable contribution to the sustainability field.

Additionally, the countries included in this study are considered the leaders in addressing climate change issues (High ranking on the 2022 Climate Change Performance Index). Future research which includes sustainability leaders in countries from all levels in the rankings (High, Medium, Low, and Very Low) could provide insight into the variances in inner sustainability dimensions across cultures. A deeper understanding of inner sustainability differences could lead to increased collaboration, creativity, and innovation in addressing the global crisis of climate change.

### **Questions for Future Research**

The results of this study indicate that ecospirituality is significant to HCSL.

Potential questions to answer in future research include:

- How do the results of this study of sustainability leaders in countries with a high proactive sustainability ranking compare to sustainability leader views in countries which have lower sustainability rankings?
- How do these results of top-level sustainability leaders compare to other sustainability leaders which are not in the top positions in their organizations?

Also, ecospirituality appeared to differ based on gender (significant in females but not in males) and age. Further research into the dimensions of ecospirituality could answer the following questions:

- What dimensions of ecospirituality (dwelling, caring, revering, experiencing, relating) are dominant in females compared to males?
- What dimensions of ecospirituality (dwelling, caring, revering, experiencing, relating) are dominant by age group in females?

Although the direct impact of PsyCap as an independent variable was not a focus of this study, it does appear that PsyCap does significantly influence HCSL. Potential research questions which could be answered include:

- Does PsyCap have a significant impact on HCSL?
- Is there a dominant dimension of PsyCap (self-efficacy, optimism, hope, or resiliency) that is most prevalent in sustainability leaders?

### **Researcher's Reflections**

My expectation when I began this study was that sustainability leaders would support this work and be eager to contribute to the study. As noted earlier, four distinct requests were made to potential survey participants during this research process with varying degrees of success. It was disappointing to see such low participation in this study.

The early disappointment began to dissipate and swing towards encouragement as more international sustainability leaders left messages indicating they believed the work I was doing was important. Some examples include:



- From Denmark:
  - “Very interesting study you are conducting. I have submitted my answers to the sustainability leadership survey.”
  - “Thank you for reaching out to us and to me personally. It sounds very interesting to research the importance and impact of *inner sustainability* to the systematic change of society. I have completed the survey and wish you all the best with the research going forward!”
  - “Thank you so much for reaching out and the interest you put forward in having me participate in your survey! Your research sounds very interesting and relevant!”
- From Norway:
  - “Very interesting and relevant topic! Of course I can take your survey.”
- From Sweden:
  - “Thank you for your email and survey. I will be answering the survey as I think it is a very interesting angle you are tackling.”
  - “Very interesting and I filled in the survey. Is there a way to sign up so I can get to see the result when you are done with the work?”
- From the United Kingdom:
  - “Thanks for reaching out – I really appreciate that you have thought of me. I’ve completed the survey, and would love to be

kept in the know when your thesis is complete. I'd love to read it if possible?"

- "Completed and happy to help"
- "All done, good luck! I'd be interested in your conclusions."

Although this leg of the journey has taken several years, there was never an expectation that it would not be completed. As with most journeys, there were many mountains to climb and numerous obstacles to overcome. Once this leg is complete, I will continue to travel the road to a more sustainable future for all living beings on this planet. Today, this road appears to be the one less travelled, but every set of footprints leaves a trail for another to follow. It is hoped that this work will provide a trail for more to follow and participate in the quest for a sustainable future for all.

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## Appendix A

### Final Scale for Ecospirituality (FSE)

Scoring Scale: 1-Strongly Disagree, 2-Disagree, 3-Somewhat Disagree, 4-Somewhat Agree, 5-Agree, 6-Strongly Agree

#### Dwelling

DWE1: I belong to this universe

DWE2: I take stock of the planet earth

DWE3: I concentrate by thinking, reflecting on the things of this earth

DWE4: I concentrate and become aware that I am of this universe

DWE5: I seek meaning and purpose by my presence on this earth

#### Caring

CAR1: I am aware of the environment

CAR2: I nurture the environment

CAR3: I take care of the environment

CAR4: I am conscious of the changes that happen to the environment

CAR5: I engage and participate with the environment to find meaning and richness in life

#### Revering

REV1: I have a sense of awe in participating in any action to safeguard the planet

REV2: I have great respect for living on this earth

REV3: I feel grateful while participating in any activity to promote greenness

REV4: I feel honoured to participate in any proactive action taken for the environment

#### Experiencing

EXP1: I perceive a sense of wonder, seeing the complexity of this universe

EXP2: I feel this universe is precious

EXP3: It gives me great pleasure to see the beauty of life in this universe

## Relating

REL1: I have an organic relationship with this universe

REL2: I feel a sense of mystery in being a part of this universe

REL3: To be a human living in this world, I hold myself as an enigma

## **Appendix B**

### **Human Capital Sustainability Leadership Scale**

Scoring Scale: 1-Strongly Disagree, 2-Disagree, 3-Somewhat Disagree, 4-Somewhat Agree, 5-Agree, 6-Strongly Agree

#### **Ethical Leadership**

1. Being correct is important when we perform a task or a job.
2. I act by giving an example of doing tasks in an ethically correct manner.
3. I keep my promise to my collaborators.
4. I make decisions in an ethical manner.

#### **Sustainable Leadership**

5. I create sustainable learning conditions that I take care to preserve.
6. I develop, rather than exhaust, the human resources that work with me.
7. I support my collaborators in their personal/career growth.
8. I leave out the superfluous by focusing the resources on the crucial aspects of work.

#### **Mindful Leadership**

9. I put myself in the shoes of my collaborators when they are doing tasks.
10. I anticipate the requests of my collaborators.
11. I am aware of the strengths and the limitations of my collaborators.
12. I recognize the value of my self-control to my employees, even in stressful situations.

#### **Servant Leadership**

13. In general, I show interest in the professional and personal lives of my collaborators.
14. I encourage my collaborators when I realize that they encounter difficulties.
15. I commit myself so my collaborators have all the information to work to the best.
16. I actively promote a positive group climate at work.

## Appendix C

### Environmental Attitudes Inventory

Scoring Scale: 1-Strongly Disagree, 2-Disagree, 3-Somewhat Disagree, 4-Somewhat Agree, 5-Agree, 6-Strongly Agree

#### *Scale 1: Enjoyment of nature*

1. I am not the kind of person who loves spending time in wild, untamed wilderness areas [r]
2. I really like going on trips into the countryside, for example, to forests or fields
3. I find it very boring being out in wilderness areas [r]
4. Sometimes when I am unhappy, I find comfort in nature
5. Being out in nature is a great stress reducer for me
6. I would rather spend my weekend in the city than in wilderness areas [r]
7. I enjoy spending time in natural settings just for the sake of being in nature
8. I have a sense of well-being in the silence of nature
9. I find it more interesting in a shopping mall than out in the forest looking at trees and birds [r]
10. I think spending time in nature is boring [r]

#### *Scale 2: Support for interventionist conservation policies*

1. Industry should be required to use recycled materials even when this costs more than making the same products from new materials.
2. Governments should control the rate at which raw materials are used to ensure that they last as long as possible
3. Controls should be placed on industry to protect the environment from pollution, even if it means things will cost more
4. People in developed societies are going to have to adopt a more conserving lifestyle in the future
5. The government should give generous financial support to research related to the development of alternative energy sources, such as solar energy



6. I don't think people in developed societies are going to have to adopt a more conserving lifestyle in the future [r]
7. Industries should be able to use raw materials rather than recycled ones if this leads to lower prices and costs, even if it means the raw materials will eventually be used up [r]
8. It is wrong for governments to try and compel business and industry to put conservation before producing goods in the most efficient and cost effective manner [r]
9. I am completely opposed to measures that would force industry to use recycled materials if this would make products more expensive [r]
10. I am opposed to governments controlling and regulating the way raw materials are used to try and make them last longer [r]

*Scale 3: Environmental movement activism*

1. If I ever get extra income I will donate some money to an environmental organization
2. I would like to join and actively participate in an environmentalist group
3. I don't think I would help to raise funds for environmental protection [r]
4. I would NOT get involved in an environmentalist organization [r]
5. Environmental protection costs a lot of money. I am prepared to help out in a fund-raising effort
6. I would not want to donate money to support an environmentalist cause [r]
7. I would NOT go out of my way to help recycling campaigns [r]
8. I often try to persuade others that the environment is important
9. I would like to support an environmental organization
10. I would never try to persuade others that environmental protection is important [r]

*Scale 4: Conservation motivated by anthropocentric concern*

1. One of the best things about recycling is that it saves money
2. The worst thing about the loss of the rain forest is that it will restrict the development of new medicines

3. One of the most important reasons to keep lakes and rivers clean is so that people have a place to enjoy water sports
4. Nature is important because of what it can contribute to the pleasure and welfare of humans
5. The thing that concerns me most about deforestation is that there will not be enough lumber for future generations
6. We should protect the environment for the well-being of plants and animals rather than for the welfare of humans [r]
7. Human happiness and human reproduction are less important than a healthy planet [r]
8. Conservation is important even if it lowers peoples' standard of living [r]
9. We need to keep rivers and lakes clean to protect the environment, and NOT as places for people to enjoy water sports [r]
10. We should protect the environment even if it means peoples' welfare will suffer [r]

*Scale 5: Confidence in science and technology*

1. Most environmental problems can be solved by applying more and better technology
2. Science and technology will eventually solve our problems with pollution, overpopulation and diminishing resources
3. Science and technology do as much environmental harm as good
4. Modern science will NOT be able to solve our environmental problems [r]
5. We cannot keep counting on science and technology to solve our environmental problems [r]
6. Humans will eventually learn how to solve all environmental problems
7. The belief that advances in science and technology can solve our environmental problems is completely wrong and misguided [r]
8. Humans will eventually learn enough about how nature works to control it
9. Science and technology cannot solve the grave threats to our environment [r]
10. Modern science will solve our environmental problems

*Scale 6: Environmental threat*

1. If things continue on their present course, we will soon experience a major ecological catastrophe
2. The earth is like a spaceship with very limited room and resources
3. The balance of nature is very delicate and easily upset
4. When humans interfere with nature, it often produces disastrous consequences
5. Humans are severely abusing the environment
6. The idea that we will experience a major ecological catastrophe if things continue on their present course is misguided nonsense [r]
7. I cannot see any real environmental problems being created by rapid economic growth. It only creates benefits [r]
8. The idea that the balance of nature is terribly delicate and easily upset is much too pessimistic [r]
9. I do not believe that the environment has been severely abused by humans [r]
10. People who say that the unrelenting exploitation of nature has driven us to the brink of ecological collapse are wrong [r]

*Scale 7: Altering nature*

1. Grass and weeds growing between paving stones may be untidy but are natural and should be left alone [r]
2. The idea that natural areas should be maintained exactly as they are is silly, wasteful, and wrong.
3. I'd prefer a garden that is wild and natural to a well-groomed and ordered one [r]
4. Human beings should not tamper with nature even when nature is uncomfortable and inconvenient for us [r]
5. Turning new unused land over to cultivation and agricultural development should be stopped [r]
6. I'd much prefer a garden that is well-groomed and ordered to a wild and natural one
7. When nature is uncomfortable and inconvenient for humans, we have every right to change and remake it to suit ourselves

8. Turning new unused land over to cultivation and agricultural development is positive and should be supported
9. Grass and weeds growing between pavement stones really looks untidy
10. I oppose any removal of wilderness areas no matter how economically beneficial their development may be [r]

*Scale 8: Personal conservation behavior*

1. I could not be bothered to save water or other natural resources [r]
2. I make sure that during the winter the heating system in my room is not switched on too high
3. In my daily life, I'm just not interested in trying to conserve water and/or power [r]
4. Whenever possible, I take a shorter shower in order to conserve water
5. I always switch the light off when I don't need it on any more
6. I drive whenever it suits me, even if it does pollute the atmosphere [r]
7. In my daily life, I try to find ways to conserve water or power
8. I am NOT the kind of person who makes efforts to conserve natural resources [r]
9. Whenever possible, I try to save natural resources
10. Even if public transportation was more efficient than it is, I would prefer to drive my car [r]

*Scale 9: Human dominance over nature*

1. Humans were meant to rule over the rest of nature
2. Human beings were created or evolved to dominate the rest of nature
3. Plants and animals have as much right as humans to exist [r]
4. Plants and animals exist primarily to be used by humans
5. Humans are as much a part of the ecosystem as other animals [r]
6. Humans are no more important than any other living things[r]
7. Nature exists primarily for human use
8. Nature in all its forms and manifestations should be controlled by humans

9. I DO NOT believe humans were created or evolved to dominate the rest of nature [r]
10. Humans are no more important than any other species [r]

*Scale 10: Human utilization of nature*

1. It is all right for humans to use nature as a resource for economic purposes
2. Protecting peoples' jobs is more important than protecting the environment
3. Humans do NOT have the right to damage the environment just to get greater economic growth [r]
4. People have been giving far too little attention to how human progress has been damaging the environment [r]
5. Protecting the environment is more important than protecting economic growth [r]
6. We should no longer use nature as a resource for economic purposes [r]
7. Protecting the environment is more important than protecting peoples' jobs [r]
8. In order to protect the environment, we need economic growth
9. The question of the environment is secondary to economic growth
10. The benefits of modern consumer products are more important than the pollution that results from their production and use

*Scale 11: Eco-centric concern*

1. The idea that nature is valuable for its own sake is naïve and wrong [r]
2. It makes me sad to see natural environments destroyed
3. Nature is valuable for its own sake
4. One of the worst things about overpopulation is that many natural areas are getting destroyed
5. I do not believe protecting the environment is an important issue [r]
6. Despite our special abilities, humans are still subject to the laws of nature
7. It makes me sad to see forests cleared for agriculture
8. It does NOT make me sad to see natural environments destroyed [r]
9. I do not believe nature is valuable for its own sake [r]
10. I don't get upset at the idea of forests being cleared for agriculture [r]

*Scale 12: Support for population growth policies*

1. We should strive for the goal of “zero population growth”
2. The idea that we should control population growth is wrong [r]
3. Families should be encouraged to limit themselves to two children or less
4. A married couple should have as many children as they wish, as long as they can adequately provide for them [r]
5. Our government should educate people concerning the importance of having two children or less
6. We should never put limits on the number of children a couple can have [r]
7. People who say overpopulation is a problem are completely incorrect [r]
8. The world would be better off if the population stopped growing
9. We would be better off if we dramatically reduced the number of people on Earth
10. The government has no right to require married couples to limit the number of children they can have [r]