Education for Sustainable Development in Irish Higher Education: Policy, Practices and Change in a Climate of (R)evolution

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This thesis is submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy.

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Dermot O'Donovan

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Abstract

As part of the global response to planetary emergencies, higher education institutions (HEI) are considered a pivotal enabler for the transition to new and sustainable societal, economic and ecological models. The aim of education for sustainable development is to embed sustainability into the teaching, learning and operations of HEIs. This thesis examines the implementation of the *National Strategy for Education for Sustainable Development in Ireland 2014-2020* (ESD Strategy) within a higher education (HE) context.

A meso-level analysis of the emerging ESD landscape, set against the recommendations of the ESD Strategy, is presented, and the perceived barriers and drivers are identified. The process of change unfolding within HEIs is viewed through the lens of theories of policy implementation staircase and steering. Furthermore, two emerging, ontologically polar theories of change, behavioural insights and social practice theory, are considered within the context of sustainability-centred change.

The research adopts a mixed qualitative methodology, examining the policy landscape, unpacking the ESD Strategy and carrying out in-depth semi-structured interviews with a range of stakeholders from within HEIs, government and non-government agencies (*n*=27). Adopting a critical realist perspective, data generated was analysed using *NVivo* software, applying both inductive and deductive approaches to thematic analysis to develop themes and subthemes.

A common thread across all institutions is participation on the *Green Campus Programme*, though the findings demonstrate a three-tiered level of engagement with ESD. Barriers identified by participants include coordination, communication, power and resources. Drivers that emerge include agency, financial steering mechanisms, accreditation bodies and societal pressures. The research unveils a low level of awareness of the ESD Strategy and little by way of progress in the development of strategies for teaching and learning for sustainability.

This critical enquiry highlights the potential of behavioural insights as a means of framing policy for the efficient management of campus resources and influencing individual pro-environmental behaviour by the implementation of *green nudges*. However, social practice theory is considered more applicable in providing a framework for the development of systemic, long-term changes to HEI structures that support current unsustainable practices. The development of a model based upon the concept of HEI practice architecture places an emphasis on *collaborative*, *policy*, *teaching and learning* and *campus architectures*. Finally, by analysing the elements of the practice of teaching and learning, the research suggests a method of reconceptualising this practice so that students and academics can better engage with the sustainability agenda.

Publications from the work:

Conference Proceedings

O'Donovan, D. 2020. 'Education for Sustainable Development in Irish Higher Education: Policy, Practice and Change'. Gunnar Jonsson, B., Lucey, F. *Education with Sustainability 2020.* Mid Sweden University, Sweden. August 13, 2020.

Elements of this research were presented at the following fora:

O'Donovan, D. 2017. 'Green Shoots in ESD in Higher Education: Success and challenges.' *3rd National Forum on Education for Sustainable Development.* Farmleigh House and Estate, Dublin, Ireland, November 15, 2017

O'Donovan, D. 2018. 'Education for Sustainable Development in HE in Ireland'. Logue-Collins, P. *Galway-Mayo Institute of Technology Research Cycle Conference*. Galway, Ireland. May 4, 2018

The author has also been invited by the Higher Education Authority to present the findings of this research at a national consultation forum for a new national strategy on education for sustainable development in December 2020.

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I am immensely grateful to my daughter, Féile who has inspired me with her own passion and love of the environment. I hope that in some small way, completing this thesis makes her proud and shows her the value of never giving up.

Lastly, I am forever indebted to my wife, Laura. There have been many ups and downs on this voyage, but a constant has been her love, support, patience, and encouragement. I dedicate this thesis to her.

List of Abbreviations

BIT	Behavioural Insights Team
DCCAE	Department of Communication, Climate Action and Environment
DES	Department of Education and Skills
EAUC	Environmental Association of Universities and Colleges
EPA	Environmental Protection Agency
ESD	Education for Sustainable Development
ESD Strategy	National Strategy for Education for Sustainable Development in Ireland 2014 - 2020
GCP	Green Campus Programme
HCI	Human Capital Initiative
HE	Higher Education
HEA	Higher Education Authority
HEC	Higher Education Commission
HEI	Higher Education Institution
IoT	Institute of Technology
IRC	Irish Research Council
IUA	Irish University Association
NTA	National Transport Authority
OECD	Organization for Economic Co-operation and Development
SD	Sustainable Development
SDG	Sustainable Development Goals
SEAI	Sustainable Energy Ireland
SFI	Science Foundation Ireland
SPF	System Performance Framework
THEA	Technological Higher Education Association
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organisation

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1. Introduction

This chapter provides an overview of the aims and objectives of the research and the research questions (RQ) that have guided the enquiry. The research design and theoretical framework are introduced, and the structure of the thesis is presented.

1.1 Sustainability and Education

From a global perspective, and particularly since the *Paris Climate Change Agreement*, there is a consensus amongst the scientific community that the sustainability of our natural world has come to a critical point. There is a broad acceptance that the way in which we live, and the rate at which we consume limited natural resources is not sustainable and urgent action is required. Shove and Spurling (2013) argue that since the 1970s, ordinary ways of life have become increasingly resource intensive, to the extent that the level of consumption by western European countries has spiralled and is now three times that which the world can produce. Coupled with this is the culture of *pleonexia*, the concept of insatiable greed, that exists within both developed and developing countries (Berke, 2018). Sayer (2013) maintains that sustainability is a threat to this status quo, particularly within economies and societies dominated by capitalist economic models where growth and progress are interwoven in political and social spheres. This is a view endorsed by the *Global Footprint Network* and echoed by HSBC, one on the world's largest banks, which has provided stark warnings to business and governments about the perils of continuing on this trajectory (Berke, 2018). Reversing this trend, to bring the carbon footprint of 'normal practices' into a sustainable model will require a radical redefinition of those practices as well as changes to our values and thinking (Sayer, 2013).

In confronting these planetary emergencies, higher education (HE), positioned at the nexus of research and industry, learning and practice, and education and society, is strategically placed to make a significant contribution (Orr, 1992; Sterling & Scott, 2008; Tilbury, 1995). Since the launch of the United Nations' *Decade of Education for Sustainable Development* in 2004, the HE community has been given the responsibility to ensure that graduates have the necessary skills and competencies to meet present and future challenges and are prepared for the uncertainty climate change presents. For many higher education institutions (HEI), this requires a transition and reorientation of teaching and learning, research and campus operations towards sustainability-centred values. In response to this international call, in June 2014, the Department of Education and Skills published the *National Strategy for Education for Sustainable Development in Ireland 2014-20* (ESD Strategy). The objective of the ESD Strategy is to:

> ensure that education contributes to sustainable development by equipping learners with the relevant knowledge (the 'what'), the key dispositions and skills (the 'how') and the values (the

> 'why') that will motivate and empower them throughout their lives to become informed active citizens who take action for a more sustainable future. (DES, 2014, p. 3)

1.2 Rationale and Aims of the Research

Prior to undertaking this research, and as part of my doctoral programme in Higher Education Research at Lancaster University, I wrote two papers relating to education for sustainable development (ESD) within the context of HE in Ireland (O'Donovan, 2016, 2017). Both papers involved small-scale research projects relating to ESD terminology, policy and leadership. The findings of these papers pointed to an interpretation of ESD that was vague, contested and highly contextualised. Furthermore, it appeared that the ESD Strategy was having little influence on institutional priorities and curricular developments (O'Donovan, 2017). Both papers, however, unearthed rich evidence of significant activities and projects that were aligned with ESD.

By undertaking this research, I wanted to expand and deepen that analysis and examine the HE responses to the recommendations of the ESD Strategy in Ireland. Furthermore, by analysing the process of change, I wanted to identify the perceived drivers and barriers influencing HEIs' engagement with the sustainability agenda. Finally, I wished to examine how theory could be used to both unpack and make sense of the complexity of the institutional change process necessary for ESD to emerge and how it could potentially overcome some of the emerging challenges.

Finally, the process of carrying out interviews with sustainability leaders and policy makers was not only a means of generating data but provided an opportunity to engage stakeholders in the discourse.

1.3 Sustainability Terminology

In researching ESD literature, it is evident that the term ESD and, in particular, sustainable development (SD) are complex and contested concepts and defined differently by various interest groups and stakeholders (Bebbington, 2007; Broadbent et al., 2010; Hopkinson et al., 2008). For the purpose of this research, the definition of SD adopted is that provided within *Our Common Future*:

> Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Brundtland et al., 1987, p. 18)

The definition of ESD is that put forward by the UNECE, which is consistent with the definition used within the ESD Strategy:

> Education for Sustainable Development develops and strengthens the capacity of individuals, groups, communities, organizations and countries to make judgements and choices in favour of sustainable development. It can promote a shift in people's mind-sets and in so doing enable them to make our world safer, healthier and more prosperous,

> thereby improving the quality of life. Education for sustainable development can provide critical reflection and greater awareness and empowerment so that new visions and concepts can be explored, and new methods and tools developed. (UNECE, 2005, p. 1)

For the purpose of this study, ESD is understood therefore, to encompasses social, environmental and economic sustainability. Throughout this thesis, the term *sustainability* is at times used interchangeably with the term *ESD*.

1.4 Research Questions

The research enquiry was guided by the following RQs:

1. What changes aligned with goals of the ESD Strategy are evident within HE in the emerging ESD landscape?
    1.1. What are the perceived barriers to and drivers of ESD-centred change within HEIs?
    1.2. What external drivers are evident and how are they influencing HEI's engagement with the ESD Strategy?
2. What is the value of theories of social practice and behavioural insights (nudging) for facilitating the transition towards more sustainably focused institutions?

RQ 1 allowed me to determine and formulate a meso-level analysis of how HEIs are responding to the aims of the ESD Strategy. This RQ was framed by the recommendations of the ESD Strategy specific to HE, thereby providing a policy trajectory approach to this stage of the enquiry. The sub-questions (RQ 1.1, 1.2), identifying the perceived barriers and drivers of ESD, required an analysis of the internal and external HEI environments, introducing the voices and lived experiences of research participants. The responses to these RQs were reconceptualised using theories of implementation staircase (Reynolds & Saunders, 1987) and steering (Broadbent et al., 2010), thus casting a light on the ESD Strategy implementation gap, the difference between policy objectives and practices on the ground.

RQ 2 considered the value of two, what might be perceived as, ontologically polar theories, in the context of HE change for sustainability. Behavioural insights or nudging (Thaler & Sunstein, 2009) is a branch of behavioural science, which focuses on influencing individual behaviour choices in the pursuit of significant societal change. Conversely, social practice theory (Reckwitz, 2002; Shove et al., 2012; Trowler et al., 2013) seeks to change the structures which underpin everyday practices in order to bring about longer-term systemic societal change.

These RQs, supporting a critical qualitative approach (Denzin, 2017), guided the research design and methodology adopted outlined in the next section.

1.5 Research Design

The research design (Figure 1.1) involved a mixed methods qualitative approach targeting 3 distinct groups of participants (n=27) from which to generate data (Figure 1.2). Before commencing the data generation phase of the research, the literature relevant to the research field was reviewed and analysed, focusing predominantly on literature published between 2000 and 2018. The HE-specific recommendations from the ESD Strategy were used to frame interview questions and generate data from Participant Group 1. This data was analysed using NVivo software to develop themes, enriched by the insights, lived experiences and perspectives of participants. In order to further inform the research and gain insights from those within the external policy environment, participants from specific government departments, agencies and NGOs were also interviewed (Participant Group 2).
To address RQ 2, experts in the field of behavioural insights in Ireland and the UK were interviewed to provide me with an understanding of the current situation in this emerging field. In addition, several proponents of social practice theory influenced the theoretical framework, including the writings of Paul Trowler, Elizabeth Shove and David Nicolini.

The interviews with research participants were conducted between April 2018 and March 2020. The research, like all enquiries, reflects and captures a certain moment in time. It is acknowledged that research, thinking and practices within this field are moving at a rapid pace.

	Research Questions **Critical Inquiry**	**How?** **Methods employed**	**Why?** **What is the reality and how can it be made better**	**Applied Theory**	**Philosophical Position**
Outcomes of policy / Changes emerging / Policy barriers and drivers (meso/micro-level)	1. What changes aligned with goals of the ESD Strategy are evident within HE in the emerging ESD landscape? _____ 1.1 What are the perceived barriers to and drivers of ESD-centred change within HEIs? _____ 1.2 What external drivers are evident and how are they influencing HEI's engagement with the ESD Strategy?	Analyse the ESD Strategy for its relevance to HE Interview those in positions with knowledge of / championing sustainabilty activities within HEIs in Ireland. (Participant Group 1; *n*=17*).* Summarise findings as they realte to action areas within the ESD Strategy. Deductive approach to thematic analysis. _____ Draw themes from these interviews using NVivo sofware. Inductive approach to thematic analysis. _____ In-depth interviews with those in related policy areas and Green Campus Programme (Participant Group 2; *n*= 5*)*. Deductive analysis to identify relevant steering media and mechanisms.	Find out what common responses are emerging from HEIs with respect to: - Actions - Emerging practices - Barriers - Drivers - Changes to structures and behaviours _____ Provide an insight into the lived expereinces of those in HEIs _____ To understand the ESD Strategy implementation and how ESD is being driven by external steering mechanisms. Examine the implmentation gap	Use policy implementation staircase / steering theories to analyse the change process	**Critical realism:** Accommodates perceived polarities of positivsim (behavioural insights) and realtvism (social practice) within the research design. Acknolwedges the role of external forcees and policy within HE change and the various interpretations and contextualised implemnetations of ESD within each institution. Knolwedge is seen as emergient and changing rapidly.
Theories of change	2. What is the value of theories of social practice and behavioural insights (nudging) for facilitating the transition towards more sustainably focused institutions?	Review of literature and interviews with people with expertise in behavioural insights and international exemplar (Participant Group *n*=5)	To explore novel solutions to support the transition toward more sustainable practices and behaviour within HEIs	Social Practice - Behavioural Insights	

Figure 1.1: Research design

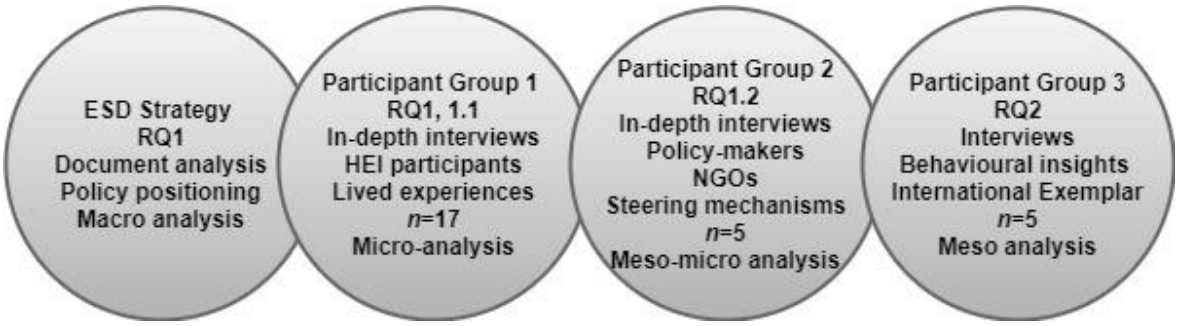

Figure 1.2: Research participant groups and data generations sources

1.6 Philosophical Positioning

The philosophical position adopted for this enquiry is aligned with *critical realism,* which borrows from a realist ontological perspective and a constructivist epistemology (Bhaskar, 2013; Huckle, 2004). Situated between the poles of realism and relativism, critical realism accepts that agency strongly influences social structures, but equally recognises the external forces that shape and limit that reality (Huckle, 2004). This provided the basis for a middle range approach to the research, allowing me to move between the theoretical and empirical as necessary, recognising the interconnectivity and interdependency of both realms (Broadbent et al., 2010). This is evident within the research design where the ESD Strategy was unpacked and its relevance to HE determined, while at the same time providing scope to accommodate the highly contextualised lived reality on the ground and consider the various institutional structures that shape that reality.

Adopting a critical realist perspective also enabled me to develop a research design that critically analyse, not just the emerging HEI practices, but equally the HE structures from which unsustainable practices emerge and the neo-liberalist approaches to HE management that accommodate the slow process of change within some institutions. Furthermore, it supported the adoption of what might be considered two ontologically polar theories of change, that of behavioural insights, which is situated within positivistic or realistic realm, and social practice, which is firmly in the arena of constructivism or relativism, and the recognition that both can co-exist, and even complement each other, within this policy and practice paradigm.

Finally, this philosophical perspective allowed for me to accept that the science on climate change and biodiversity loss are a reality and that change is a certainty, but also to acknowledge that changes emerging will be socially constructed and highly influenced by both agency and institutional structures that evolve.

Incorporating this philosophical position within the research design allowed me to consider the experiences, views and influences of both policy implementers and policy makers on the perceived reality within HEIs. This position also recognises that epistemologically, sustainability knowledge is emerging all the time and that this research reflects one specific period within this continuum of change. A critical realist approach is evident within the data analysis and conclusions reached which acknowledge that HEIs are bound and shaped by a range of external forces and polices and the nature of their responses to sustainability steering mechanisms are highly contextualised. Within a theoretical context, critical realism accommodates the co-habitation of both social practice theory and behaviourist approaches and their values in supporting HEI morphism towards sustainability. These points are discussed further Section 4.3.

1.7 Thesis Structure

An overview of the structure of this thesis is provided in Figure 1.3. Although this is represented in a linear fashion, the process itself was cyclical and reflexive as suggested by MacKenzie and Knipe (2006). Therefore, as research literature, findings and theories were unpacked, interpreted and developed, I moved forward with the development of chapters but equally retuned to sections to make both subtle and important changes as needed.

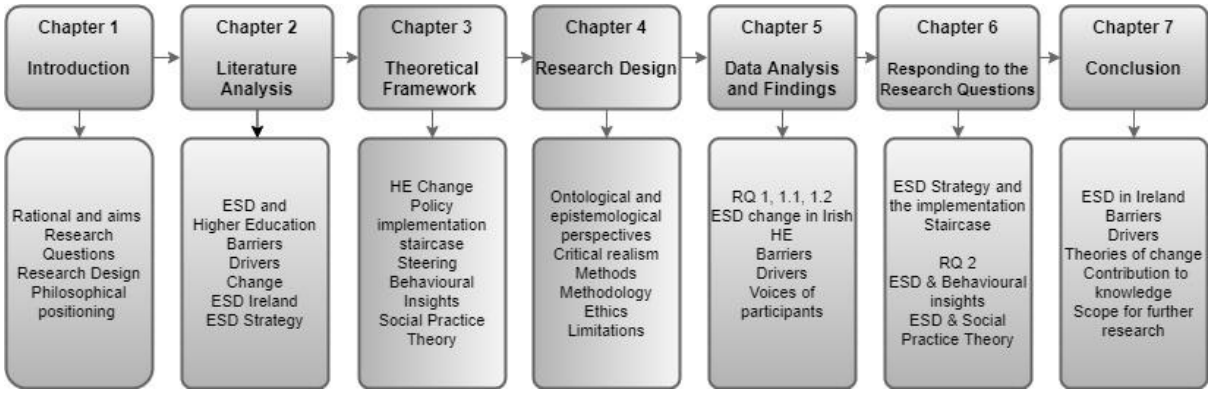

Figure 1.3: Research structure

1.8 Claims to Originality

Undertaken at a critical juncture for ESD policy in Ireland, the research provides a unique insight into the sustainability centred process of change underway within HEIs. This thesis, therefore, acts as a knowledge bridge for political decision-makers, providing an in-depth and rich insight into the successes of and challenges faced by HEIs. The ESD Strategy implementation staircase illuminates gaps in the implementation process, highlighting the difference between policy objectives and practice on the ground. A low level of awareness of the ESD Strategy is evident, resulting in HEI responses that are fragmented and disparate. The research findings point to significant sustainability-centred campus-based initiatives and research activity, though a predominance of learning *about* rather than *for* sustainability is evident.

Most importantly, the research puts forward a number of models building upon conceptualisations from social practice theory and behavioural insights that could be considered when designing policy interventions to guide holistic ESD-centred change. *Green nudges* and principles adopted from behavioural insights policy design are proposed as short-term interventions for the management of campus resources and increasing individual pro-environmental behaviour. On the other hand, a model developed using the concept of HEI practice architecture identifies four interconnected areas that could support the social reconstruction of HEI practices and lead to longer-term systemic change. One

such model, an analysis of the practice of teaching and learning for sustainability, provides a conceptual framework to reconstruct current practices so that students and academics can better engage with the sustainability agenda.

2 Literature Analysis

This chapter examines the literature on ESD within the research field, guided by the focus of the RQs. In addition, the ESD landscape from an Irish policy context is analysed, with particular emphasis on the ESD Strategy. The analysis therefore includes academic articles, books, reports, policies and other writings pertaining to ESD in Ireland and internationally. In order to keep the research focused and manageable (Tight, 2012), references are confined to those in the English language and largely restricted to those published in the past 20 years (up to 2018). The majority of the literature cited emanates from western Europe, Scandinavia, USA and Australia as these regions are more prolific in the production of related research articles (Grosseck et al., 2019) and their educational situations are considered more applicable to an Irish HE context. Through the analysis of the literature, I developed a pre-understanding of the research field and became immersed in the topic, which in turn, helped to shape the processes of data generation and analysis (Elliott & Timulak, 2005).

While this chapter provides a broad analysis of the literature relevant to ESD and HE, the focus of Chapter 3 is on literature relevant to the theoretical framework underpinning the research design.

2.1 Sustainable Development

In a global response to the perceived threat to the future viability of the planet, the concept of SD emerged as the new paradigm of human advancement (Lélé, 1991; Orr, 1992) and is defined by the United Nations (UN) as:

> development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Brundtland et al., 1987, p. 18)

Generally, SD encompasses economic, environmental and social sustainability (Giddings et al., 2002; United Nations Educational, 2014), though some of the literature includes political as a fourth pillar (Bengtsson, 2014; Fien & Tilbury, 2002; Kopnina, 2012). In 2015, the UN developed an expansive framework of SD, and launched the *17 Sustainable Development Goals* (SDG) (Figure 2.1), designed as a "universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030" (UNEP, 2015). The SDGs aim to address the threat of global challenges pertaining to climate change, inequality, depleting natural resources and population growth, whilst recognising the interconnectivity of the environment, societal values and structures and economic ecosystems (Agyeman, 2003; Buckler & Creech, 2014).

Figure 2.1: United Nations' 17 Sustainable Development Goals (Nations, 2019)

2.2 Education for Sustainable Development

The education community is considered a vital cog in the global sustainable (r)evolution and has been central to the rise of environmentalism as a social movement (Foster, 2000; Huckle, 1993; Orr, 1992). HEIs can be viewed as microcosms of society and are well placed to positively influence societal behaviour with respect to their sustainability experiences (Brinkhurst et al., 2011; Orr, 1992; Sterling et al., 1996; Tilbury, 1995). As scientific knowledge has deepened and solidified and the effects of unsustainable human activity is becoming more apparent, it is recognised that HEIs can play a transformative role as vehicles for change (Hargreaves, 2008; Sterling et al., 1996; Tilbury, 2012).

Since the *Talloires Declaration* in 1990, there has been a continuum of environmental declarations, institutional statements and policies emanating from the HE sector internationally (Cebrián et al., 2013; Hoover & Harder, 2015; Wright & Horst, 2013). Through *Agenda 21*, which emanated from the *Earth Summit* in Rio in 1992, the UN General Assembly mandated the global education community to embrace SD within teaching, research and institutional management. Thus emerged the concept of ESD (Buckler & Creech, 2014; Tilbury, 2004) which aims to:

> provide critical reflection and greater awareness and empowerment so that new visions and concepts can be explored, and new methods and tools developed. (UNECE, 2009, p. 15)

The objectives of the UN ESD Strategy (Figure 2.2) focus not just on learning, but the outcomes of learning and the importance of creating the spaces to accommodate transformative social learning and disruption (Wals, 2010). By adopting an ESD philosophy, HEIs can equip graduates with the key skills and knowledge they need to tackle sustainability problems, facilitate research to advance the

agenda and build human capital for sustainability (Mori Junior et al., 2019; Sharpe, 2001). By nurturing resilience in learners, HEIs can support the transition to new and sustainable societal, economic and ecological models (Sterling, 2010a).

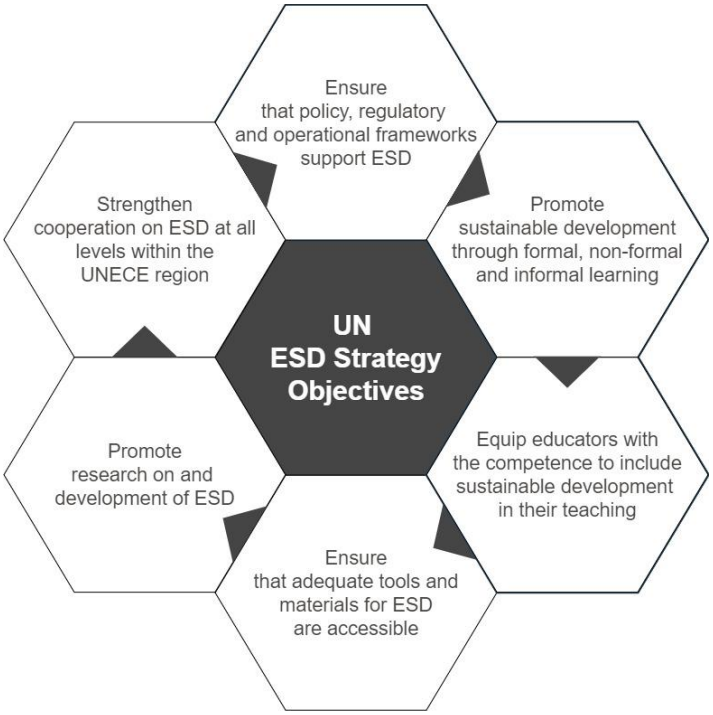

Figure 2.2: United Nations' ESD Strategy objectives, adapted from UN (2005)

Building upon the momentum generated, the UN declared 2005 to 2014 the *Decade of Education for Sustainable Development*, prompting a significant increase in related HE activity and research, which has continued to present times (Grosseck et al., 2019; Karatzoglou, 2013). Sterling (2011) summed up succinctly the importance and urgency of ESD implementation within HE:

> it is increasingly recognised that education for sustainable development and research into a sustainable future are the most significant contributions that universities can make to the problems of sustainability. (Sterling, 2011, P. 2)

2.3 Teaching and Learning for Sustainability

ESD requires a change to traditional methods of lecture and assessment, and a move away from over-simplifying complex trade-offs relating to resources, economics, ethics, the environment and society (Denby & Rickards, 2016; Harpe & Thomas, 2009; Mula et al., 2017). In this new paradigm of social learning, a focus is placed upon collaborative and interdisciplinary thinking, where students from diverse backgrounds reflect on their values and behaviours through deep personal and critical reflections (Elliott, 2010; Frisk & Larson, 2011). Taking a Vygotskian sociocultural perspective to

teaching and learning, whereby the teacher is considered a learner and the learner a teacher (Vygotsky, 1978), ESD offers an intellectually robust and holistic framework for the reconciliation of diverse views and attitudes and the exploration of solutions. The literature points to the importance of staff development programmes to enable academics to unpack and contextualise the meaning of sustainability and develop the necessary competencies and literacy (Cotton & Winter, 2010; Hopkinson et al., 2008; Mader et al., 2013). Sustainability challenges also require students to develop critical thinking and creative skills through active and experiential learning (Blackmore et al., 2015; Cebrián & Junyent, 2015; Fadel & Groff, 2019; Khoo, 2017). Huckle (2004) highlighted the way in which new information technologies provided a form of 'critical-postmodern pedagogy' that link local and abstract knowledge in ways not possible before, facilitating innovative means for co-creating knowledge. Biasutti et al. (2018) found that the actual process of curriculum reform facilitated the discussion of a range of didactic responses and practices of ESD and led to a change in attitudes, assessment and teaching methods of participants.

In terms of curriculum design, the literature reveals two broad categories of responses to the ESD agenda:

a) *bolt-on,* or learning *of*/*about* sustainability, approach which might include sustainability-related topics in conventional teaching and learning settings or the development of stand-alone modules; or
b) *built-in* or learning *for* sustainability approach whereby sustainability is contextualised within existing curricula and disciplines and/or where new approaches to teaching and learning are adopted (Thomas, 2004).

The literature reveals that bolt-on approaches are more commonly adopted but are not aligned with holistic and transformative approaches to curricular change (Mader et al., 2014; Mula et al., 2017; Wade, 2008; Wals, 2014). To facilitate the process of redesigning curriculum for sustainability, Fadel and Goff (2019) developed the '4C' framework which emphasised *collaboration, creativity, critical thinking and communication* as key criteria. The *RUCAS* project (*Reorienting University Curricula to Address Sustainability)* also devised a framework to embed sustainability into instructional methodologies and course content (Holland et al., 2013; Shriberg & MacDonald, 2010; Tilbury, 2012). Frisk and Larson (2011) cautioned that the transformational process was likely to be slow and disjointed and require academics to be reflexive and open to adapting new interdisciplinary strategies within the context of their own knowledge domains. Further challenges highlighted within the literature are discussed in Section 2.8.2.

2.4 ESD and Research

Exploring effective pathways towards global sustainability and solving complex environmental and social problems requires a new approach to knowledge construction and research (Glasser et al., 2005; Lang et al., 2012; Mauser et al., 2013). Glasser et al. (2005) defined *Research in Higher Education for Sustainability* as:

> Any research that is directed at advancing our ability to incorporate sustainability concepts and insights into higher education and its major areas of activity: policy, planning, and administration; curriculum/teaching; research and scholarship; service to communities; student life; and physical operations/infrastructure. (p. 121)

The UN Economic Commission for Europe (UNECE) outlined the importance of ESD research as a driver of change and for informing and enhancing collaborations (UNECE, 2005). The areas of research deemed pertinent by the UNECE include teaching and learning methods, economic effects of and incentives for ESD and indicators and evaluation instruments (Ciegis & Gineitienė, 2006). Furthermore, it is important through research to connect diverse interpretations of ESD and integrate principles into the activities, operations and mission of HEIs (Glasser et al., 2005). Waas et al. (2010) determined eight common characteristics adopted by universities in reorienting research towards sustainability (Figure 2.3).

Figure 2.3: Eight characteristics of research for sustainability, adapted from Waas et al. (2010)

The value of sharing the outputs and learnings from research and disseminating emerging best practices are also considered crucial for advancing ESD (Ciegis & Gineitienė, 2006). Community-based research that uses a sustainability lens and involves external stakeholders has been found to be powerful in terms of reconciling values, creating ownership of the problems being researched and the emerging solutions (Klenk & Meehan, 2017; Lang et al., 2012).

Transdisciplinary approaches to research encourage academics to move outside their traditional knowledge boundaries, develop collaborations and experiment with different methodologies (Tilbury, 2011b). Transdisciplinary approaches have also been shown to overcome complex systems of university culture and infrastructure, allowing for contextualised approaches to sustainability problems and bridging the various pillars of sustainability (Clayton & Radcliffe, 2018; Glasser et al., 2005). An effective framework for managing transdisciplinary research methodologies was developed by Lang et al. (2012) as a means to moderate conflict and tensions relating to knowledge ownership and production and research roles.

Waas (2010) however, noted that traditional research culture and conventional research practices can prove stubbornly resistant to change, and suggested policy-makers should embed SD within all research calls and funding. Beasant et al. (2015) also pointed out that the enhancement of economic prosperity still appeared to be the main objective of university research within the context of the knowledge economy. This view was echoed by Sterling and Scott (2008) who found that most ESD initiatives were driven by university's self-interests or external stimuli such as research funding, a point I will return to in the next chapter.

2.5 ESD, Campus and Community

The design of physical infrastructure and management of campuses have been shown to play a significant role in influencing student behaviour, values and attitudes towards sustainability (Winter & Cotton, 2012). In this sense, the campus can be viewed as a complex ecosystem with many layers and interdependent elements (Koester et al., 2006). Furthermore the campus can improve opportunities for social engagement, learning for sustainability, inclusivity and interaction with nature (Clarke, 2013; Lockton et al., 2016), particularly when there is transparency in the decision-making processes (Hopkinson et al., 2008). The literature is rich with examples of HEI engagement with the sustainability agenda by focusing on reducing environmental impacts, improving the management of resources and reducing carbon dependency (Longhurst et al., 2014; Mader et al., 2014; Sterling, 2013). Innovations in energy conservation, investments in renewable energy systems and the transition to low- or zero-carbon campuses feature regularly within the literature, often driven by governmental climate-change commitments, regulations and compliance and reporting requirements (Findler et al., 2017; Fonseca et al., 2018; Guerrieri et al., 2019; Robinson et al., 2018). Information and awareness campaigns on energy-saving measures have been effective in changing behaviours, particularly when directed towards operations and facilities management staff (Ferrão & de Matos, 2017). Furthermore, discussions on resource efficiency, energy generation and consumption and lifecycle analysis of materials have led to broader debates and engagement on topics such as climate change (Clarke, 2013).

This concept of the *hidden curriculum* (Winter & Cotton, 2012) or *living laboratory* (Evans et al., 2015; Holgaard et al., 2016) provides opportunities to involve and engage the campus community in a tangible way, and can limit the sense of overwhelment due to the scale of the challenges being tackled (Arbuthnott, 2009). Carefully considered campus architecture can also be a showcase of best practice and enable buildings to perform as a type of pedagogy, acting as a motivator for innovation and critical thinking (Clarke, 2013). While a focus on campus operations is in itself a narrow definition of sustainability, strategically designed projects based upon the informal curriculum offer opportunities to bring practices or case studies into the teaching and learning arena (Comm & Mathaisel, 2005; Hopkinson et al., 2008). Hopkinson et al. (2008) also highlighted the importance and interdependence of aspects of formal, informal and campus curricula, though it was found that they were rarely connected in any systemic way. Research outputs pertaining to system improvements and effective reporting frameworks of campus operations can also transfer to communities and regional districts (Guerrieri et al., 2019; Hopkins & McKeown, 2002). It is important therefore, that sustainability training and staff development initiatives target all elements of the campus ecosystem so that linkages can be created and participatory skills for sustainability can be improved (Bellou et al., 2017; Koester et al., 2006).

2.6 ESD and Systemic Change

The institutional change espoused by advocates of ESD is one that is transformative, holistic and systemic (Sterling, 2010c), requiring a reorientation of practices, structures and economic models towards more sustainable values (Tilbury, 2011b). In order to embark on and achieve that mission, HEIs need to embrace significant and fundamental changes to their mission, discipline and geographical focus and the type of collaborations, research, projects and stakeholders with which they engage (Stephens, 2013). Furthermore, it is a process that is exploratory, with unpredictable outcomes, and guided by principles and directions rather than prescriptive templates or models (O'Riordan & Voisey, 1997).

Ferrer-Balas et al.'s (2009) conceptualisation of the complex change process provides an insight into the way in which HEIs influence, and are influenced by, the various categories of local and global stakeholders (Figure 2.4). This double-directional learning, innovation and knowledge exchange occurs at an individual and institutional level, influencing and shaping the various practices, behaviours and development of the university. In transitioning to sustainability-centred institutions, policy makers therefore, need to provide HEIs with the room and autonomy to manoeuvre and contextually interpret ESD and to avoid overt instrumentalist approaches (Scott & Gough, 2006).

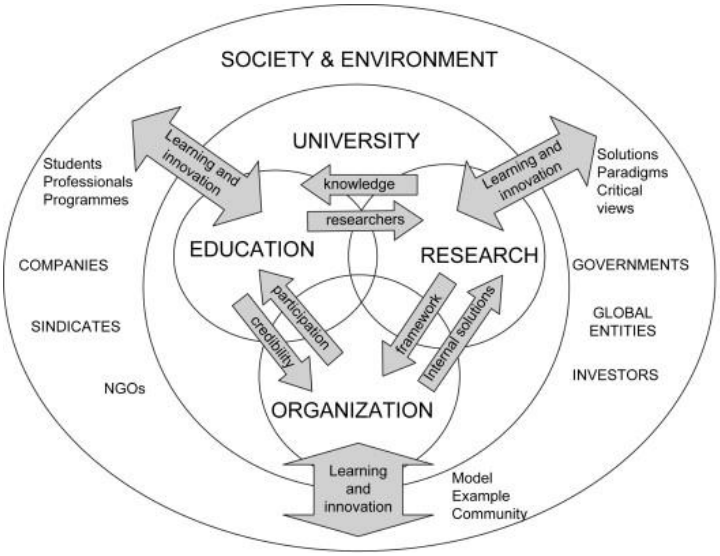

Figure 2.4: Double direction flows of learning and innovation between universities and their stakeholders (Ferrer-Balas et al., 2009)

Critical success factors for introducing ESD identified by Harpe and Thomas (2009) included policy, stakeholder engagement, staff support systems and ongoing communication. Cebrián et al. (2015) developed a more expansive list of critical successful factors necessary to manage and implement ESD (Table 2.1). Factors that influence the pace and direction of change and shape that process are considered further in section 2.7.

Table 2.1: Critical success factors for ESD, adapted from Cebrián et al. (2015)

Critical Success factors in implementing ESD	
Strategy	Clear strategy at institutional level with staff development at its core
Interdisciplinarity	Undertake projects that are interdisciplinary and collaborative
Leadership	Provide organisational leadership and support
Resources	Make the necessary financial and time resources available
Acknowledgement	Recognise and reward best practice
Research	Embed ESD into research structures
Curriculum	Make ESD a requirement of academic quality assurance

2.6.1 Frameworks for ESD Change

Within HEIs, there is a need for organisation support and professional development programmes to engage the campus community on sustainability and guide and acknowledge best practice (Cebrián et

al., 2015; Scott et al., 2012). Some useful frameworks and models have been developed to support HEIs transitioning towards sustainability (Fiselier et al., 2018; Hargreaves, 2011; Lozano et al., 2013; Tilbury, 2011a). In the UK, Fiselier et al. (2018) found that the *Guidance for ESD*, published by the Quality Assurance Agency and Higher Education Academy positively influenced HEI actions. Selby (2009) put forward the '4C' model, which highlighted HEI campus, culture, curriculum and community as mechanisms of change, though Bessant et al. (2015) added research in their model. The Green Campus Programme, discussed later in this chapter, involves student-led partnerships and initiatives, taking a long-term view of commitment and improvements, emphasising knowledge and experience sharing as key to sustainability transitions (Ryan-Fogarty et al., 2016).

The next section reviews the drivers that emerge within the literature that have been shown to advance ESD-centred change and be effective in overcoming institutional inertia.

2.7 ESD Drivers

Initially, the impetus to integrate ESD was provided through government and international declarations and frameworks. However, more recently, society and students themselves have become actively engaged in the change agenda (Bessant et al., 2015; Cotton et al., 2016; Drayson et al., 2012; Ryan & Tilbury, 2012). Research carried out in the UK suggested that more than 75% of students now expect universities to address issues of sustainability and that students are more influenced by ethics than economics when choosing a potential employer (Longhurst et al., 2014). Furthermore, as enterprises continue to embed sustainability into their own strategies and communities explore more sustainable ways of life, demand is increasing for graduates with the relevant sustainability skills and knowledge (Department of Business, 2019; Fullan & Scott, 2009). Other prominent internal and external drivers of HE sustainability are discussed in these sections.

2.7.1 Policy

International declarations and government policies are considered key instruments and extrinsic drivers of change towards more sustainable practices (Hargreaves, 2007; Hargreaves, 2008; Tilbury, 2012; Wright, 2002). It is recognised that, due to the diverse, unpredictable and unexpected outcomes of ESD policy, by their nature exploratory and pioneering, the process of change needs to be adaptable, responsive and resilient (Crow, 2007; Kaiser & Fuhrer, 2003). Therefore policymakers, implementers and change agents need to be afforded space to direct the momentum of ESD policies and contextually define sustainability (Scott & Gough, 2006). In this context, it is the job of policy makers to set the sustainability agenda and provide a legislative framework that is responsive to the emerging sustainable practices as they unfold (Evans et al., 2012). In addition new practices conducive

to sustainability will emerge through community and organisational learning and an ongoing process of rethinking and refining policies (Mader et al., 2013).

The role of an overarching institutional strategy is also considered an essential driver for embedding ESD and enabling and legitimising ground-level agency (Cebrián et al., 2015; Ceulemans et al., 2015; Tilbury, 2011a). Policy needs to embrace an *encounter-dialogue-reflection* approach (Hopkins & McKeown, 2002) and be readily adaptable to the unpredictability of outcomes (Tilbury & Stevenson, 2002; Trowler et al., 2013). Goel and Sivam (2015) however, cautioned that institutional policy alone was not sufficient to shift deep-rooted culture and patterns of behaviour and that strong institutional leadership was equally important.

2.7.2 Leadership

The role of the university leader is becoming increasing important in steering and managing ESD-centred change and initiatives require active endorsement by institutional leaders to be successful (Goel & Sivam, 2015; Scott et al., 2012). Leadership for sustainability is characterised by leading 'with' rather than 'over', and having an ability to deal with the complex issues that need to be confronted (Ferdig, 2007). Leaders need to recognise the importance of dissonance, debate and that the experience of change itself is a means of developing new thinking and innovations that are critical for the evolution of organisations and communities (Fullan, 2005). In this sense, leaders act to effect change, not only by their support of various initiatives, but by their values and actions (Van Velsor et al., 2009). By championing change and practicing exemplary pro-sustainability behaviours, leaders have a significantly positive impact, not just on staff, but also on institutional culture, students and external stakeholders (Blok et al., 2015). When change is driven from the top of an organisation, and accompanied by effective policy, adequate resources and timely assessment and reporting, it can lead to considerable success and long-lasting enabling structures (Brinkhurst et al., 2011; Cebrián et al., 2013). The appointment of senior management roles with explicit responsibility for sustainability sends a strong signal of intent to the campus community and provides a structure for implementation and monitoring of progress (O'Regan et al., 2019). It is also important to recognise that leadership for sustainability tends to emerge at all levels within HEIs and mid-level managers, academics, students and operational staff all have the capacity to become catalysts of change for sustainability (Ryan & Tilbury, 2015; Sterling & Witham, 2008).

Conversely, a lack of senior management support has been found to be a critical barrier for progress on ESD (EAUC, 2017). Hume (2016), for instance, found that leadership and vision to transform the HE landscape toward sustainability were not evident within a policy or organisational context in Ireland. This may be explained by the limited opportunities for leadership development for HE managers (HopkinS, 2012; Lozano, 2006; Tilbury, 2011a)(Lozano 2007; Tilbury 2011). Without leadership to steer

and champion it, the process of change is dominated by institutional inertia, stalled progress and insufficient resources (EAUC, 2017; Fiselier et al., 2018).

2.7.3 Funding

Funding is seen as a pivotal driver of sustainability and much of the literature correlates a lack of ESD-reform with deficits in financial and time resources (Asikainen et al., 2017; Cebrián et al., 2015; Ferdig, 2007; Gale et al., 2015; Hume, 2016; Scott & Esteves, 2013). Internationally, it is argued that there has been a tendency to neglect the discussion of how, and from where, to raise the funds required to implement HEI initiatives (Gross & Nakayama, 2010). With limited resources, there is a need to target areas that are strategic and that help create momentum in the process of change (Scott et al., 2012). Also, within a HE landscape, where neo-liberal managerialism is becoming more accepted, resourcing sustainability initiatives may not be considered an immediate priority (Bessant et al., 2015). In Chapter 3, I will return to the topic of financial steering in more depth.

2.7.4 Networks and Collaborative Learning

Internationally, HE collaboration and strategic networking have become powerful mechanisms of change, informing and directing policy, generating social capital and facilitating inter-and intra-institutional learning (Dlouha et al., 2018; Gardner, 2017; Kahle et al., 2018). Hargreaves (2007) underlines the importance for decision-makers of collaborative learning and accessing organisational memory, in recognising where strengths lie and what mechanisms have worked previously. Social learning also provides an intellectually coherent and inclusive framework for reconciling alternate views and values in a more holistic manner, critical for professional development (Blackmore et al., 2015; Mader et al., 2014) and overcoming resistance to change (Lozano, 2006). Such collaborations support integrative thinking, break down disciplinary boundaries and reorganise the application and production of disciplinary knowledge (Granados Sanchez et al., 2011; Lindenfeld et al., 2012). Communities of practice also harness intrinsic motivations, recognising the satisfaction, enjoyment and inspiration felt by actors who achieve sustainability goals, all strong drivers of change (Cebrián et al., 2015).

2.7.5 Coordination and Communication

Effective coordination of institutional sustainability change ensures that the threads of the sustainability web are connected together by introducing various actors and identifying funding streams (Lozano et al., 2013). Facilitating transdisciplinary collaborations, research and projects and linking various actions to teaching and learning is critical for sustainability-oriented transitions (Dlouha et al., 2018). Coordinators can also assist in piecing together the fragmentated knowledge which is constrained by traditional institutional structures and practices and communicate and report progress (Krizek et al., 2012; Wickenberg, 2006). Effective communication can translate the contested and

multiple goals and inherent challenges and paradoxes of SD, unique to each HEI (Kopnina & Meijers, 2014). Consistent and carefully designed messaging has also been found to be helpful in bringing people on board (Lozano et al., 2013; Ng et al., 2017). Top-level support and clear communication is instrumental in kick-starting the journey of change and introducing stakeholders to the process (Tilbury & Stevenson, 2002).

2.7.6 Tracking and Measuring

The literature highlights the importance of measuring sustainability progress and aligning operations and administrative and governance structures with institutional strategies (Clarke, 2007; Scott & Esteves, 2013; Shriberg, 2002). There are a variety of assessment tools developed to assess and monitor sustainability activities and progression such as *Auditing Instrument for Sustainability in Higher Education* (*AISHE*), *Sustainability Tool for Auditing Universities Curricula in Higher-Education* (*STAUNCH*) and *Sustainability, Tracking, Assessment and Rating System* (*STARS*) (Caeiro, 2013; Clarke, 2007; Lauder et al., 2015).

Not only do these systems lay a foundation for incorporating sustainability principles within HEI structures (Ragazzi & Ghidini, 2017), they also provide a framework for measuring baseline data and monitoring process-oriented information which supports performance management and strategic planning (Shriberg, 2002; White, 2014). Transparent and effective assessment tools have been found to support community engagement and learning for sustainability, enable HEIs to view their performance relative to others and provide managers with the necessary information to justify the release of resources towards sustainability goals (Shriberg, 2002). University ranking systems such as *Green Metric World University Ranking* and *Times Higher Education Ranking* have been shown to influence HEIs intra-institutional competitiveness and have been used as a 'corporate media product' (Stack, 2013, p. 560). In this way, HEIs use sustainability rankings to define themselves within a competitive educational marketplace, allowing for external recognition by prospective students and strategic partners (Glasser et al., 2005).

However, despite the assessment and ranking systems referred to above, there remain difficulties identifying and accurately measuring key criteria for reporting progress and demonstrating the impact of ESD to both stakeholders and decision-makers (Ceulemans et al., 2015; Mori Junior et al., 2019; Sepasi et al., 2018). Most assessment tools have limitations and some are considered too focused on operational sustainability efficiency as opposed to whole-institutional change and advancements on teaching, learning and research (Huckle, 2009; Lauder et al., 2015). In addition, the resources and time necessary to coordinate and manage data and report on progress is often underestimated and restrictive (Ceulemans et al., 2015).

This highlights some of the complexities of ESD-centred change and the next section examines other barriers identified within the literature.

2.8 Barriers to ESD Change

While there has been significant progress reported within some HEIs, ESD espouses a change in culture and a reorientation of teaching, learning and research which can be difficult to achieve (Brinkhurst et al., 2011; Cebrián et al., 2013; Shriberg & MacDonald, 2010). HEIs have been shown to demonstrate an aversion to significant change and the change process itself is complex and highly contextualised (Fullan & Scott, 2009; Trowler, 2014). Indeed, the literature attests to a myriad of challenges faced by institutions embarking on this journey (Gale et al., 2015; Hargreaves, 2008; Sterling & Scott, 2008; Tilbury, 2009; Trowler et al., 2013). Velazquez et al. (2005) categorised the perceived barriers that impact the implementation of ESD into: *organisational, staff engagement, lack of resources* and *information deficit.* In a similar vein, Verhulst & Lambrechts (2015) classified barriers into three categories: *awareness*, *resources* and *structural* (Table 2.2), some of which are discussed further now.

Table 2.2: Barriers to change for ESD adapted from Verhulst & Lambrechts (2015)

Related to Lack of Awareness
Lack of interest and involvement of the majority of the students and staff members
Lack of support by management and policy makers
Lack of professionalization and training of teachers
Lack of policy making in order to promote sustainability
Lack of standard definitions and concepts of sustainable development (SD) in higher education (HE)
Lack of recognition, change agents for SD are often not taken seriously
SD seen as a threat to academic freedom and credibility
SD is not seen as relevant to a certain course or discipline
Related to the Structure of Higher Education
Conservative disciplinary structure of HE institutions (HEIs), barely open to new paradigms
Inefficient communication and shared information both top-down and bottom-up
Resistance to change by education and research
Focus on short-term profit as a result of managerial thinking and policy making in HE
Lack of interdisciplinary research as a result of insufficient coordination and cooperation
Overcrowded curriculum
Focus on content-based learning
Related to the Lack of Resources
Lack of money, SD is not seen as a priority for funding
High work pressure and lack of time; SD is often combined with other tasks
Lack of access to information, due to absence of measuring instruments or by unwillingness of staff
Lack of consistent legislation (phrased in this work as policy support from governing bodies)
Lack of qualitative and quantitative performance indicators
Technical problems
Lack of physical place

2.8.1 Change Management

The challenges facing policy implementers are complex and multifaceted and include, among other issues, over-ambitious targets, top-down approaches, lack of engagement and turnover of both staff and students (Trowler et al., 2013). Inherent contradictions and tensions lead to a range of barriers emerging that can jeopardise the sustainability of the process of change itself (Hoover & Harder, 2015). Granados-Sanchez et al. (2011) actually found there to be a hidden agenda of unsustainable practices, with pedagogical models and approaches focussed on transmission rather than transformation of knowledge.

In spite of intentions, desire and ambition asserted by HEIs, progress on holistic, institutional reform has been sluggish and systemic and transformational approaches to change have been lacking (Mula et al., 2017; Shawe et al., 2019). Tilbury (2011b) reflected:

> There is evidence to suggest that higher education is not understanding the true nature of the challenge. It suggests that achievements have been random and mostly disconnected from the core business of higher education. (Tilbury, 2011b, p. 1)

Actions on the ground tend to be driven by motivated individuals, working on fragmented projects, with little evidence of standard approaches to support sustainability integration (Findler et al., 2017; Holgaard et al., 2016). Furthermore, actions undertaken are often considered disconnected with the core operations of the universities and therefore unsuccessful in engaging core groups of staff (Tilbury, 2012). Trowler et al. (2013) found that most HEIs demonstrated an appetite and ability to undertake small-scale projects but failed to scale those up to whole-institutional initiatives or embed sustainability more widely into everyday practices. O'Rafferty (2018) highlighted how organisational change tends to be slow and sporadic and decision-making more rational due to the various socio-technical systems, structures and culture in place within HEIs. A further challenge highlighted is that the roadmap to sustainability is a long-term strategy which will lead to as-yet undefined and indescribable landscapes which can make engagement difficult (Meadows, 2006). It is critical therefore, that institutional structures to support and maintain progress on sustainability activities are developed (Ceulemans et al., 2015).

2.8.2 Curriculum reform

Fiselier (2018) found that UK academics struggled with an understanding of the concept of ESD and its relevance to particular disciplines, even where guidelines in teaching and learning were available. In fact, Sterling (2010c) argued that traditional education practice and theory actually uphold many of the unsustainable practices that are targeted by ESD. The fragmentation of institutional structures,

traditional knowledge silos and inherent power relations can sustain current thinking and limit the potential for trans-boundary learning (Granados Sanchez et al., 2011; Trowler et al., 2012). The literature also reveals tensions within traditional curricular and pedagogical frameworks which make the transition to transdisciplinarity and enquiry-based learning cumbersome and the process of incorporating sustainability an arduous task (Fiselier et al., 2018; Foley, 2017). This limits the potential for the development of important knowledge bridges between disciplines and topics that can provide a deeper understanding of organisational impacts on society and the environment (Mori Junior et al., 2019). Most curricular developments also tend to occur within programmes and disciplines that are already sustainability-focused or where demanded by professional accreditations bodies (Ceulemans et al., 2015; Denby & Rickards, 2016; Holgaard et al., 2016). Therefore, certain subjects, disciplines and courses fail to make the necessary connections with sustainability and are omitted from the debate (Haase, 2013). Sustainability is also a relatively new challenge for HE and there is an unease in respect of sustainability literacy and competency amongst staff (Mula et al., 2017). This is further compounded by the lack of resources and time available to discuss, engage with and debate the issues at hand (Gale et al., 2015).

There is a danger that approaches that focus on teaching *of* sustainability tend to reaffirm and perpetuate unsustainable behaviour and are unlikely to lead to transformative action (Fiselier et al., 2018; Hargreaves, 2011; Sterling, 2010b). Within the literature, there is significant evidence of programme and module leaders adapting content and courses, designing bolt-on solutions and squeezing teaching of sustainability into an already overcrowded curriculum (Denby & Rickards, 2016; Sterling, 2010b). O'Flaherty and Lidy (2018) found that the majority of interventions on ESD were actually carried out using traditional teaching and learning pedagogies and so, were limited in their impact.

2.8.3 Meaning and Interpretation of ESD

Delivering a consistent and clear message on ESD remains a challenge due to varying interpretations of education for sustainability terminology (Sterling, 2010a). Finding agreement on a definition of ESD is regarded as complex and there is a difficulty in translating sustainability into institutional-specific subject matter (Brinkhurst et al., 2011; Broadbent et al., 2010; Denby & Rickards, 2016; Hopkinson et al., 2008). The broad interpretation of ESD means that advocates hold different values and priorities with respect to social, economic and environmental issues that are inherently contradictory (Hartmann, 1998; Huckle, 2004). There is evidence that the definition of SD is contested and open to misinterpretation leading to debate as to the true aims of ESD (Gale et al., 2015; Kopnina & Meijers, 2014). In some instances, sustainability initiatives can be considered exclusively 'green' or too

environmentally focussed (Trowler et al., 2013) and a lack of institutional understanding and supports are a key challenge (Fiselier et al., 2018).

2.8.4 Changing Behaviour and Practices

Arbuthnott (2009) underlines the importance of making environmentally sustainable behaviour easier, more socially acceptable and valued, thus easing the transition for those with less inclination to change. An agentic and causal perspective permeates SD policy, placing an emphasis on identifying and changing unsustainable behaviours that have become routinised in peoples' daily lives, both at home and work (Barr & Gilg, 2007; Goel & Sivam, 2015; Jackson, 2005). However, the deep-rooted and embedded nature of unsustainable behaviour, inherent in many HEIs, means that policy alone cannot provide a panacea within transitioning institutions (Goel & Sivam, 2015). Hargreaves (2011) questions the capacity of individual agents to bring about the desired change in pro-environmental behaviour and whether more fundament structural changes are needed. These approaches to change are central to RQ 2 and are further analysed in Chapter 3.

2.8.5 Resistance to Change

The lifeworlds and practices of HEIs are neither logical nor uniform but contradictory and internally contested, maintaining both real and subliminal powers (Grootenboer et al., 2017). Wals and Corcoran (2006) argued that for sustainability to be anchored into the life system of the university and in order to navigate perceived barriers, there was a need to empower faculty staff. Akins et al. (2019) also stressed the need for proponents of ESD to translate its importance to others in order to overcame resistance. Lozano (2006) developed an analysis of adaptive change management in which the objective was to encourage people to commit to a collective purpose. The framework considered resistance on three levels: *resistance to the idea itself*; *resistance involving deeper issues;* and *deeply embedded resistance*, and offered various responses to overcome each barrier type (Figure 2.5). While there was a strong focus on individual behaviour change in Levels 1 and 2, a social constructivist approach was adopted within Level 3, relying on collaborative learning and collective thinking espoused by ESD proponents. In situations where radical innovations are sought, they argued that it was necessary for institutional leaders to both recognise and challenge the various types of resistance and inherent power tensions, a critical point for sustainability-centred change (Grootenboer et al., 2017; Lozano, 2006). Hargreaves (2011) however, pointed out that the profound changes required for the re-organisation of everyday practices means that the challenge goes beyond simply the removal of contextual barriers.

Having considered aspects of the complexity of HE change for sustainability, the next section provides more specific focus on the situation within an Irish HE context.

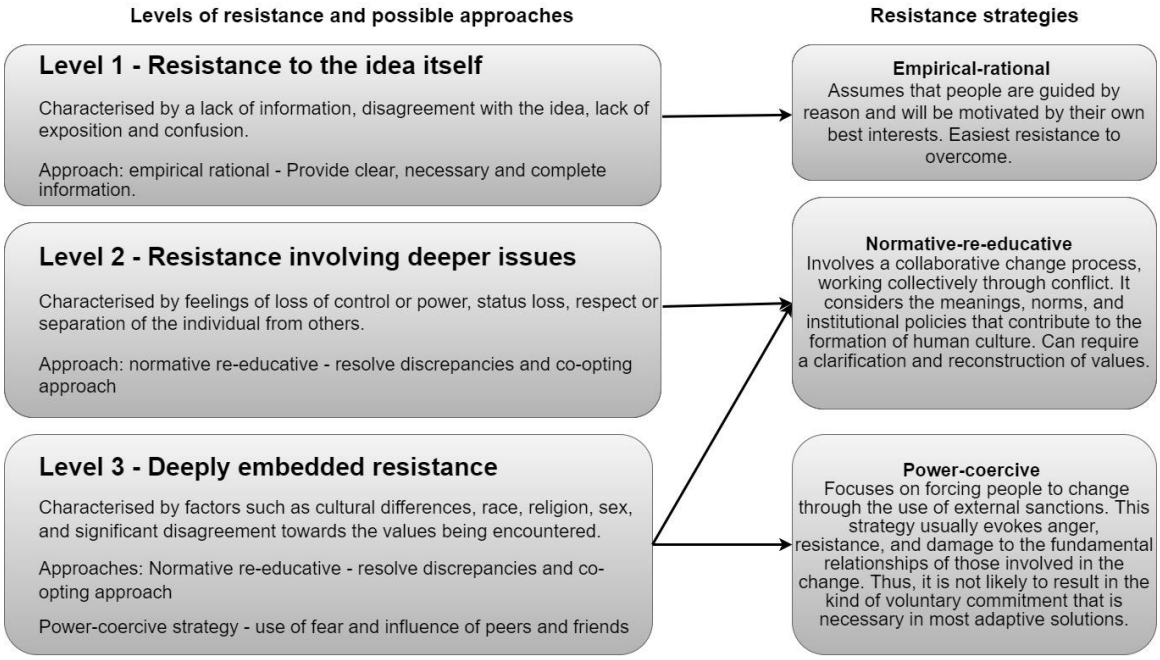

Figure 2.5: Adaptive change management and overcoming resistance, adapted from Lozano (2006)

2.9 Ireland and ESD

In line with its commitments to UN's *Conference on Environment and Development* and *Sustainable Development Strategy*, Ireland took the first tentative steps to develop a national ESD strategy as far back as 2007. At that time the Department of Education and Skills (DES) produced a draft policy in consultation with strategic stakeholders (Nevin, 2008). However, during the intervening period, Ireland's own economic sustainability was pushed to its ultimate limit when it suffered a catastrophic collapse of its national finances and subsequently entered an EU-IMF bailout programme. Paradoxically, one of the many policy casualties resulting from this period of unsustainable development was the emerging ESD Strategy. The following section presents an overview of the HE situation and developments in ESD pertinent to this enquiry.

2.9.1 Higher Education Landscape

The majority of Irish HE provision is managed by publicly funded Institutes of Technology (IoTs) (*n*=14), Universities (*n*=7) and Colleges of Education (*n*=3), under the governance of the Higher Education Authority (HEA) (DES, 2017b). The structure, scale and remit of these providers remains distinct and their activities are bound by the Universities Act 1997 and the Institutes of Technology's Act 2006, and guided by the *National Strategy for Higher Education to 2030* (DES, 2017a). The IoTs were established in the early 1970s with a strategic remit to provide industry ready graduates, support regional development and broaden the diversity of learners within HE (HEA, 2016). Since the introduction of

the *Technological Universities Act 2018*, a number of IoTs have merged to become *Technological Universities* (TU). Whilst some of the larger universities generate up to sixty per cent of their income from non-exchequer sources, the HE sector, and in particular IoTs, has a significant dependency upon direct exchequer funding (O' Brien, 2016). Universities, unlike the IoTs, are permitted to independently borrow to fund capital investments which has led to a larger concertation of new 'green' infrastructure within university campuses over the past decade.

2.9.2 ESD Strategy

As Ireland's economy began to recover, a focus on SD policy re-emerged. Following the UN conference on SD in 2012 and the publication of *The Future We Want* strategy, member states agreed to proactively embrace SD (DES, 2014). Ireland's ESD Strategy was published in June 2014, paradoxically in the final year of the decade of ESD, and opened with a clearly stated objective:

> …to ensure that education contributes to sustainable development by equipping learners with the relevant knowledge (the 'what'), the key dispositions and skills (the 'how') and the values (the 'why') that will motivate and empower them throughout their lives to become informed active citizens who take action for a more sustainable future. (DES, 2014, p. 3)

The implementation of the ESD Strategy is an objective within Ireland's overall governmental sustainability policy *Our Sustainable Future - A Framework for Sustainable Development for Ireland.* This policy document acknowledges the role of policy in directing the public toward making more sustainable choices and endorses education as a driver for affecting positive behavioural change in relation to SD. Following the publication of the UN's SDGs, and in line with Target 4.7 of the UN's *Global Action Plan*, the Irish Government committed to embedding ESD within education delivery by 2030. In parallel, Ireland signed up to the Paris Accord, requiring a 40% reduction of its greenhouse gas emissions by 2030 (UN, 2015). In the related *National Mitigation Plan*, education features strongly as an implementation tool for policies supporting climate mitigation strategies.

The ESD Strategy action plan sought to place ESD as a central tenet within the education system in Ireland and espoused for a whole-organisational change approach as advocated by Hargreaves (2008). The ESD Strategy aspires that ESD be "embedded at every level of the formal and informal education system" (DELG, 2013, p. 77), from childcare through to HE, and contains the following eight priority action areas:

1. Leadership and coordination
2. Data collection and baseline measurement
3. Curriculum at pre-school, primary and post-primary
4. Professional development

5. Further education and training
6. Higher education and research
7. Promoting participation by young people
8. Sustainability in action (DES, 2014, p. 4).

Each action area has a set of recommendations, forty-four in total, outlining the expectations and actions required to facilitate ESD progression. Three of the action areas and seven of the recommendations can be considered directly relevant to HE: *Curriculum*, *HE and Research* and *Sustainability in Action* (Table 2.3). These recommendations are used to frame some elements of this research enquiry (RQ 1) and for the purpose of analysis in this thesis, I have placed the recommendations relating to *Sustainability in Action* into three sub-categories: *Green Campus*, *collaboration* and *policy* (Table 2.3) and these are revisited in Chapter 5.

Table 2.3: The ESD Strategy and recommendations for Higher Education

Action area	Sub-category	No.	Recommendation
Curriculum	Curriculum	19	Higher Education institutions should seek to introduce more undergraduate and post-graduate programmes that are relevant to sustainable development. They should also explore the potential for introducing principles of sustainable development into existing disciplines.
Higher education and research	Research	22	Third level institutions should continue to seek collaborations with industry and other stakeholders through strategic clusters and centres of excellence for sustainable development. Any opportunities for international cooperation between academic institutions at EU level or beyond should also be promoted.
Sustainability in action	Green Campus	32	The extension of the 'Green campus' programme to all further and higher education institutions on a phased basis should also be explored.
		35	The Department of Education and Skills should continue to strive to improve the sustainability of new and existing educational infrastructure.
		43	Each school and educational institution should have a travel plan to encourage students to take more sustainable alternatives to the car.
	Collaboration	34	Higher Education institutions should continue to form closer links with schools, the Youth sector, and communities in relation to sustainable development in order to exchange ideas and best practice and in particular to facilitate wider access to the specialist expertise and knowledge on sustainability that is available in third level institutions. The learning from this collaboration could be made available on a national basis.
	Policy	39	Sustainable development should also be reflected in future mission statements of the agencies under the aegis of the Department, including all further and higher education institutions.

2.9.3 Policy Alignment and Visibility

Aligning national policy with international environmental declarations and commitments is considered critical for the SDGs to have maximum impact on national development plans (Persson et al., 2016). In addition, within an education context, it is important that policies are carefully aligned due to the multiple goals and priorities of HE and subsequent demands from government, industry and

community stakeholders (Trowler & Bamber, 2005). While alignment of the ESD Strategy within an Irish HE policy context has been slow to materialise (O'Donovan, 2017), a scan of the policy landscape reveals that the ESD Strategy is interwoven through a number of governmental policies (Figure 2.6). In 2018, for the first time, the ESD Strategy was referenced in the HEA's *System Performance Framework 2018-2020* (SPF), a pivotal funding contract between the HEA and individual HEIs. Under *Key System Objective 6,* environmental sustainability is listed and the key metrics under which HEI performance is assessed relate to environmental sustainability policies and practices and Green Campus accreditation (Figure 2.6). The SPF is discussed further in Chapters 5 and 6.

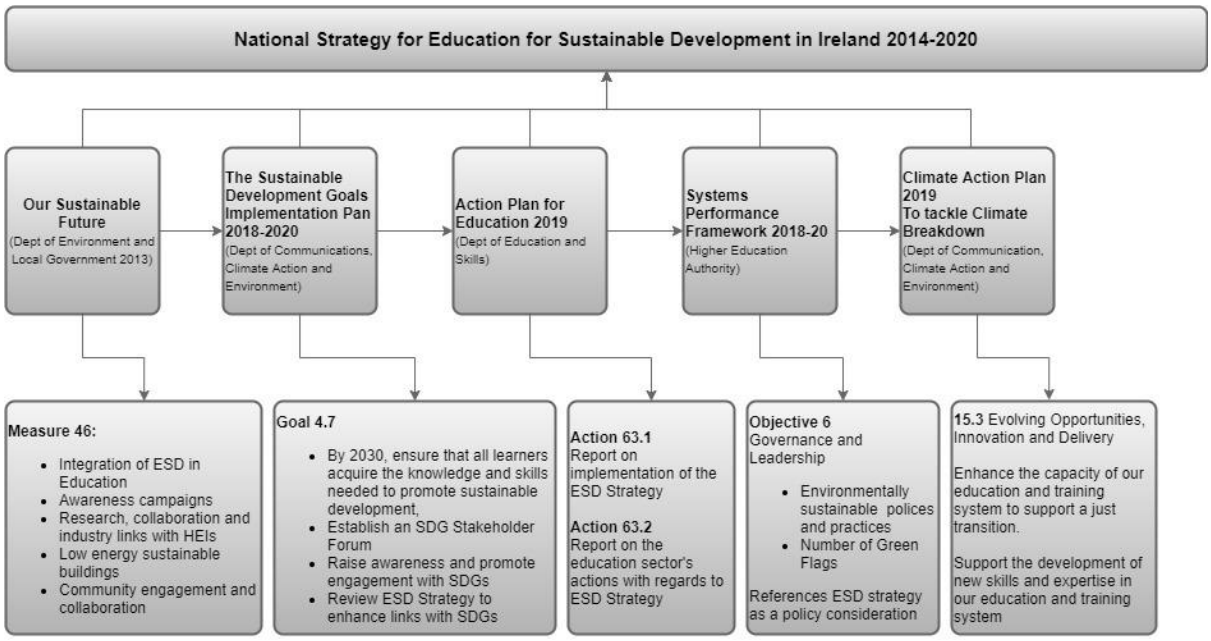

Figure 2.6: ESD Strategy and alignment with Irish governmental policy

2.9.4 Growing Demand for 'Green' Skills

A number of related Government reports have highlighted the increase in demand and gap emerging for graduates with skills to support enterprises in transitioning to low carbon and sustainable business models (Department of Business, 2019). The emerging green technology sector, the bio- and circular economies, environmental regulations and societal change are all driving innovation and creating more opportunities in energy efficient and environmentally-friendly modes of business (Department of Business, 2019). The Environmental Protection Agency's (EPA) research strategy 2014-2020 highlights the need for research to support this transition through the development of evidence-based business models that address both local and global challenges, inform policy and limit the negative impacts of Ireland's economy on the environment, societal health and well-being (Wemaere, 2016). Strong links between HE and industry, through multidisciplinary research, skills development and

technical knowledge generation, are essential for the advancement of new programmes and curriculum aligned with this aim. ESD provides an ideal framework to respond to the threats and opportunities arising out of the transition by placing sustainability as a central focus (Gale et al., 2015).

2.9.5 ESD Strategy and Higher Education

The importance of developing an overarching national strategy is emphasised within the literature as providing an authoritative impetus from Government, helping to shape and drive sectoral policy development and legitimising the efforts of ESD advocates (Kopnina & Meijers, 2014; McKeowen, 2002). The emergence of the ESD Strategy was also an opportunity to shift the momentum in Ireland's response to the sustainability agenda and address shortcomings identified by Wade (2008). However, despite its prominence in the policy landscape, the implementation trajectory of the ESD Strategy is far from clear (Foley, 2017).

The ESD strategy was launched within the context of "limited financial resources" (DES, 2014, p. 3), undermining its prominence within a busy and clustered HE policy landscape. The ESD Strategy, for instance, was just one of 13 national policies cited within the HEAs' SPF, against which HEI objectives could be set. The clamour for policy visibility is compounded by the continuing funding crisis within Irish HE as outlined in the Government's Cassells Report (2016) which has overshadowed other important reforms and developments (Hazelkorn, 2014). Since its introduction in 2014, the ESD Strategy's impact on steering and guiding the HE sector remained ambiguous and awareness of the strategy was found to be low amongst certain stakeholder groups (Foley, 2017; O'Donovan, 2017; O'Regan et al., 2019). Foley (2017) argued that the ESD Strategy, with a broad focus on the continuum of education, was "short on accountability, aspiration and specific goals" (p. i). ESD terminology and meaning were also found to be contested and unclear amongst HE stakeholders and ESD remained marginalised within the curriculum, particularly in areas of business and management (Foley, 2017; Hume, 2016; O'Donovan, 2016, 2017). Within the context of teacher education provision in Ireland, Gough (2016) argued that unless ESD became a priority for HEIs, it was likely that its implementation and objectives would remain unfulfilled.

Irrespective of the role of policy in guiding HEIs on the transition towards sustainability centred institutions, a momentum of ground-level activism and agency emerged which was channelled through the Green Campus Programme.

2.9.6 Green Campus Programme

Prior to the publication of the ESD Strategy, the HE sector had begun to mobilise itself and engage with the emerging environmental global challenges and sustainability agenda (Hume, 2016). An Taisce, a charity organisation with a remit to protect Ireland's built and natural heritage, founded the

Green Campus Programme (GCP) in 2007. The GCP provides a dynamic and flexible framework, involving a seven-step methodology aimed at embedding sustainability within institutional curriculum, campus and community (Taisce, 2017) (Figure 2.7). The framework is underpinned by five themes: energy, waste, transport, biodiversity and water, through which students and staff collaborate to improve the environmental performance of HEIs and strengthen links to the curriculum. The GCP originated as a result of a campaign by students in University College Cork (UCC) which subsequently became the first HEI internationally to be awarded a Green Flag in 2010 (Reidy et al., 2015). This programme has now emerged as a dominant model in Ireland and there are thirty-six Irish campuses, including university hospitals, registered on the programme (Ryan-Fogarty et al., 2016). The GCP is also referenced, though somewhat ambiguously, within the ESD Strategy (Recommendation #32) as a mechanism for progressing ESD:

> The extension of the 'Green Campus' programme to all further and higher education institutions on a phased basis should also be explored. (DES, 2014, p. 30)

Figure 2.7: Green Campus seven step methodology (UCC)

During the same period, HEIs have pursued a range of SD initiatives on campus management, building developments, research, pedagogy and curriculum redesign (DES, 2014; Ellis & Weekes, 2008; Nevin, 2008; Reidy et al., 2015). The *UBUNTU Network* supported by *Irish Aid,* an agency within the Department of Foreign Affairs which has responsibility for Ireland's commitment to a world without

poverty and hunger, has also been active. Established in 2006, UBUNTU seeks to promote the integration of development education (DE) into the curriculum of post-primary initial teacher education programmes (McGarr, 2010; Tormey, 2008).

2.10 Conclusion

The literature analysis has presented an overview of HE responses to the ESD agenda internationally, with a specific focus on organisational change and the challenges, drivers and barriers evident. Within an Irish HE context, the ESD Strategy has been unpacked and relevant literature has been analysed with regards to policy and practice. Gaps in the literature are evident with respect to a meso-level analysis of change within the HE sector, the ESD strategy implementation and the barriers and drivers affecting HEIs response to the sustainability agenda in Ireland. The next chapter considers theories relevant to policy implementation, steering, behaviour change and social practice that will be used as lenses to frame the findings of the research.

3 Theoretical Framework

This chapter provides an overview of theories pertinent to policy implementation and change which underpin the research design (Figure 3.1). The first sections outline how the interpretation and diffusion of policy affects the achievement of desired outcomes and how policy *steering mechanisms* influence policy prioritisation and the actions of HEIs. The *implementation staircase* model (Reynolds & Saunders, 1987) is used as a means of conceptualising the complex process of policy enactment and interpretation related to the ESD Strategy recommendations. In the latter part of the chapter, theories of behavioural insights (nudging) (Thaler & Sunstein, 2009) and social practice (Shove et al., 2012) are introduced to provide a lens through which to view ESD-centred change within HEIs.

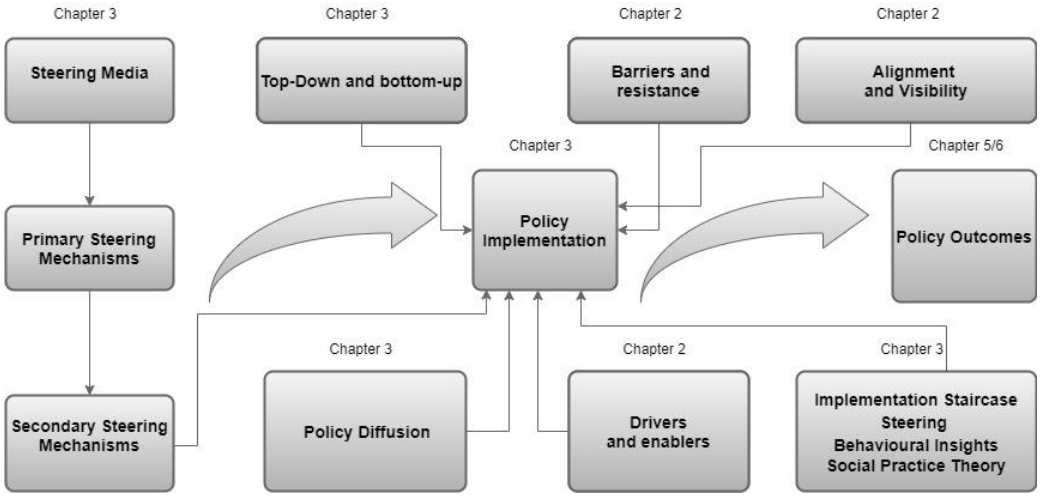

Figure 3.1: A summary of theories and concepts related to policy and change within the research

3.1 Using Theory

Pring (2000) asserts that theories facilitate researchers to conceptualise the objects of their research, thereby providing meaning for, and explaining the significance of, what was learned during the course of the enquiry. According to Law (2004), theories can help simplify the generalisations uncovered in empirical research by shaping the meaning of the data generated. Viewing the world through practices, Nicolini (2012) describes theory as a form of discursive practice and a "performative perspective to offer a new vista on the social world" (p. 7). A theoretical framework therefore, can be seen as the paradigm through which knowledge is analysed and interpreted (Mackenzie & Knipe, 2006; Mertens, 2005). Theorising research however, is also recognised as being a difficult task and described by Clegg (2012) as "messy, incomplete and non-inductive" process (p. 407).

When considering the theoretical framework within which to posit and analyse this research, there were a number of applicable theories that had the potential to frame the complex nature of policy

implementation in HE (Ball, 1994; Cohen & March, 1974; Lingard & Garrick, 1997; Reynolds & Saunders, 1987; P. R. Trowler, 2002). Kollmuss and Agyeman (2002) found that "the question of what shapes pro-environmental behaviour is such a complex one that it cannot be visualized through one single framework or diagram" (p. 239). In this context, and due to the complexity and breadth of the research field and the sustainability agenda, I have chosen a number of theories as lenses through which to frame and analyse this research area.

To analyse the policy landscape within a HE context in Ireland, and to address RQ 1, 1.1 and 1.2, I have used the *implementation staircase model* (Reynolds & Saunders, 1987) and the concept of *steering* (Broadbent et al., 2010; Habermas et al., 1991). To support RQ 2, two perceived ontologically polar fields of theory were considered: behavioural insights (nudging) (Thaler & Sunstein, 2009) and social practice theory (Reckwitz, 2002; Shove et al., 2012; Trowler, 2008), examining their value and addressing the theoretical tensions between them. This chapter introduces these theories and interweaves some of the literature to contextualise and anchor them within the field of ESD and HE.

3.2 Policy Implementation Theory

Policy implementation theory places a spotlight on different actors and interests who might influence the design and enforcement of policy and shape the nature of policy interpretation and enactment (Huang, 2004; Lipsky, 1971; Saunders et al., 2015; Sevä & Jagers, 2013). This section examines the various stages and complexities of the policy implementation process and how theory can assist in unpacking them, with specific reference to the ESD Strategy.

3.2.1 Policy Diffusion

Harman (1984) offers a definition of policy as:

> The implicit or explicit specification of courses of purposive action being followed or to be followed in dealing with a recognised problem or matter of concern, and directed towards the accomplishment of some intended or desired set of goals. (p. 13)

The linear *rational-purposive* policy model (Figure 3.2), represents a simplified policy development-implementation process whereby a problem is identified, policy drawn up, levers are designed (regulations, rewards or penalties) and desired change is achieved (Thomas & Grindle, 1990). If policies are unsuccessful, blame is often borne by those with responsibility for implementation as opposed to those who designed the policy (Juma & Clark, 1995). Early theoretical frameworks relating to environmental policy implementation were based upon linear *information-deficit* models whereby it was assumed that education and awareness targeting public understanding and action would lead to the desired pro-environmental behaviour (Burgess et al., 1998). Though widely adopted in the past

by governments and international NGOs, Kollmuss and Agyeman (2002) argued that these models proved to be largely ineffective.

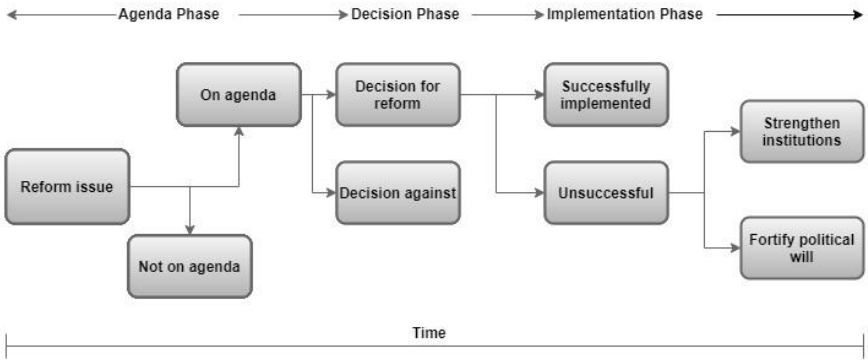

Figure 3.2: The rational-purposive policy model, adapted from Thomas and Grindle (1990)

In reality, due to the highly complex nature of organisation structure and the culture of HEIs, it is likely that the *rational-purposive* model would be unrecognisable to the lived experiences of those in HE (Trowler, 2008). Within a HE context, policy ambitions often ignore the complex reality and uncertainly of policy-making and its implementation and the desired goals tend to be over-simplified or "unproblematically identified and articulated" (P. Trowler, 2002, p. 2). Broadbent et al. (2010) found that one reason for HE policy to fail was due to an assumption that policy objectives can be attained through a reward-sanction system alone. Frequently, too, a gap is apparent between the inherent values, situations and lived experiences of the policy-makers and those that they rely on for implementation (Fuller, 2013). Furthermore, Fullan and Scott (2009) and Trowler et al. (2013) have identified an expanded range of HEI characteristics that hinder policy enactment, providing an insight into the complexity of the situation on the ground (Figure 3.3).

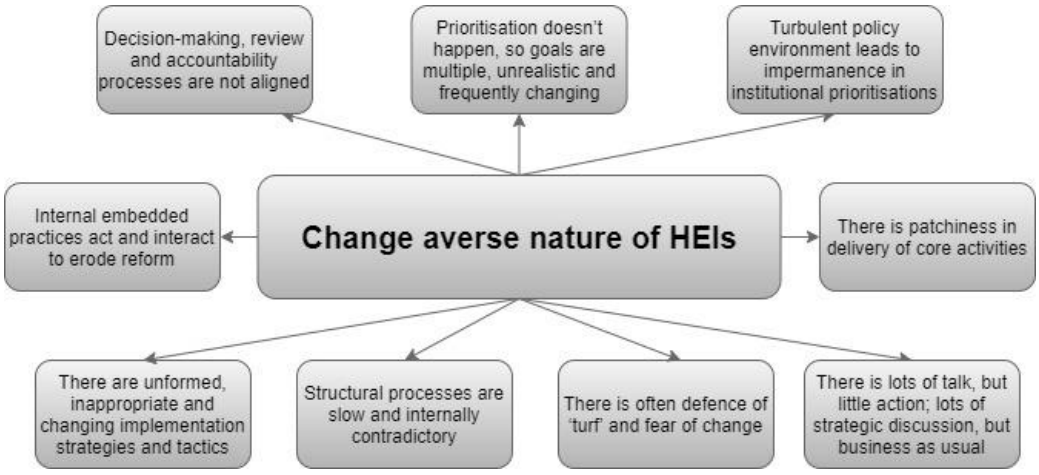

Figure 3.3: Characteristics that hinder change within HE, adapted from Fullan and Scott (2009) and Trowler et al. (2013)

An alternative definition of policy is offered by Ball (1994):

> Policy is both text and action, words and deeds, it is what is enacted as well as what is intended. Policies are always incomplete insofar as they relate to or map onto the 'wild profusion' of local practice. (p. 10)

Within this context, Trowler (2014) offers an alternative *policy making – implementation* paradigm, one which is more organic in design and practice, where organisational structures consist of multi-layered and overlapping communities of practice which evoke contextualised responses to policy. Group and individual actions and reactions are based upon a range of factors including, social norms, existing routinised behaviours, beliefs, attitudes, values, priorities and expectations (Trowler, 2014). Within this paradigm, policy actors are not constrained by boundaries but amoebic in nature and include individuals who have multiple and sometimes conflicting identities (Trowler, 2008). This *complex-adaptive systems* model is characterised by clusters existing within turbulent operating environments, where policy implementation and policy making cannot be analysed in isolation and outcomes are dependent upon the numerous goals and various extrinsic and intrinsic motivators influencing change managers. In this regard, policy can be created as it is put into action, shaped by social and localised contexts and space is provided to deal with unforeseen circumstances (P. Trowler, 2002).

The understanding of policy can therefore be broadened to consider any actions, even inaction, undertaken towards the attainment of a goal. Policy implementation also involves some level of compromise and negotiation, characterised by resolutions of conflict and social processes, or what Ball (1994) refers to "creative social action" (p. xx). This is a multifaceted activity centre where individuals are seen not just as cogs in the wheel of action but as *street level bureaucrats* who are the policy shapers and shifters, swayed by power relations, political persuasions, personal pressure and priorities (Lipsky, 1971; Sutton, 1999; Trowler, 2014).

In the next section Reynolds and Saundsers' (1987) *implementation staircase* is introduced as a useful framework to analyse the ESD Strategy implementation process.

3.2.2 Implementation Staircase

Reynolds and Saunders (1987) developed the *implementation staircase model* to demonstrate how layers of hierarchical power and agents at different locations, who both receive and produce policy, influence the shape and outcomes of that same policy based upon self-interests and localised priorities. Policy can be seen to morph as it is received and interpreted at a local level, moving up and down the staircase, leading to unpredictable and even unintended outcomes (Lingard & Garrick, 1997; Reynolds & Saunders, 1987). Policy implementation is seen as contextually contingent and capable of

taking on different forms within different institutions and even among practice clusters within the same institution. The model also helps to explain the emergence of what Reynolds and Saunders (1987) refer to as the *implementation gap* - the difference between the original purpose of policy and the eventual outcomes. An simplified policy-theoretical overview of the ESD Strategy implementation staircase, incorporating literature form the previous chapter, is presented in Figure 3.4. Later in this chapter, a second iteration of the staircase model is presented, taking into consideration other factors that influence the policy implementation process.

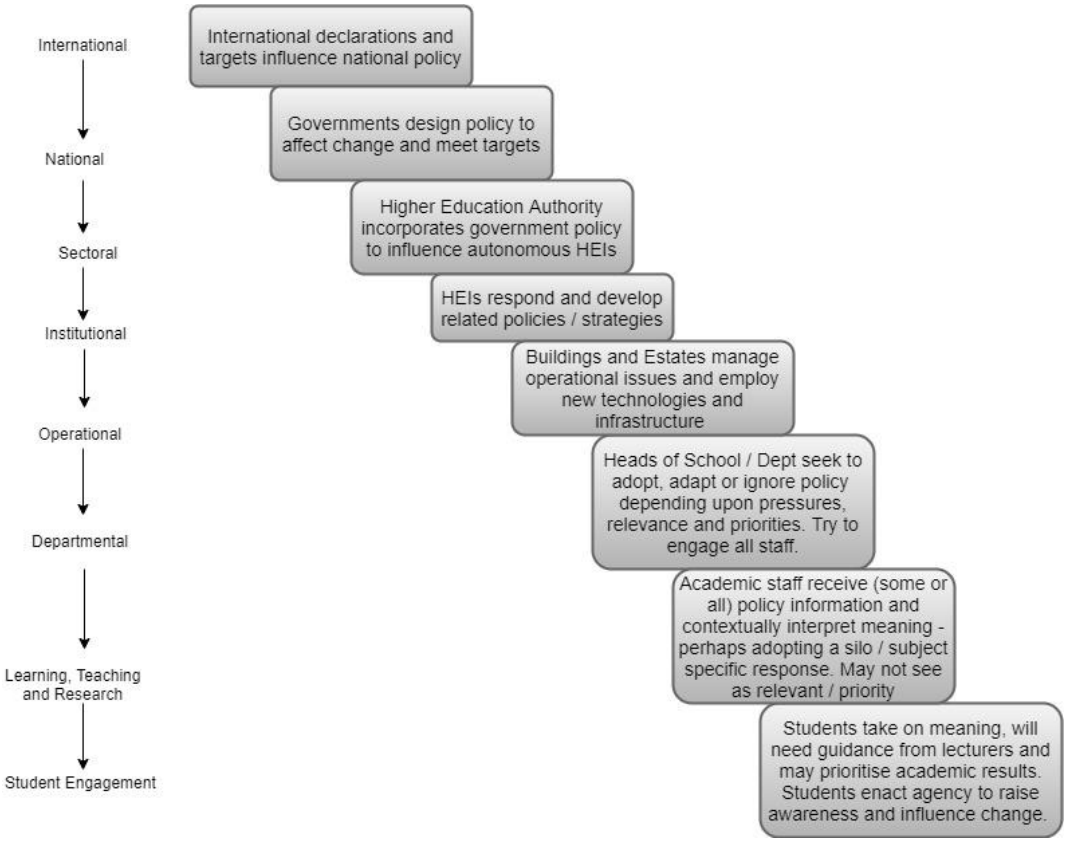

Figure 3.4: ESD Strategy implementation staircase, adapted from Reynolds and Saunders (1987)

3.2.3 Top-down v Bottom-up

When considering policy implementation for ESD, and as highlighted in the previous chapter, institutional leadership and support is considered an essential element for transformative change, engaging stakeholders and achieving long-term progress (Brinkhurst et al., 2011; Cebrián et al., 2015; Scott & Esteves, 2013). Leadership is also fundamental for managing the change process and facilitating *middle-tier* agents of change to overcome the various barriers emerging (Akins et al., 2019), some of which are highlighted in Brinkhurst et al.'s (2011) model in Figure 3.5. Fien and Tilbury (2002)

argued that, although it was the government's role to provide the structures, supports and resources to bring about the desired change, it was through bottom-up agency that real progress was made.

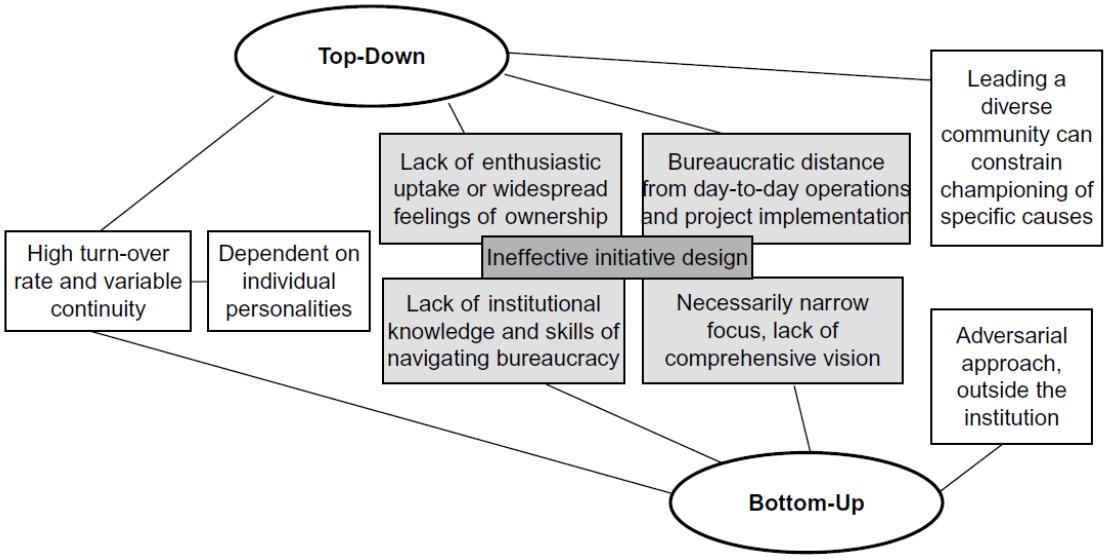

Figure 3.5: Challenges facing top-down and bottom-up change agents (Brinkhurst et al., 2011)

From the ground, agency is exerted by students through campaigns and activism, holding HIEs to account for implementation of policies and environmental management commitments (Emanuel & Adams, 2011; White, 2014). The GCP, for instance, places students at the centre of institutional initiatives and student societies, groups and unions have played a significant role in raising the sustainability agenda internationally (Brinkhurst et al., 2011; Ryan-Fogarty et al., 2016; White, 2014). Other ground-up actors, both academic and -support/services staff, play a significant role in contextualising policy, cross-linking knowledge and discipline areas, exerting agency and influencing peers in a form of social-learning (Baker-Shelley et al., 2017; Trowler et al., 2013). Furthermore, many individuals are seen to instigate ESD-centred initiatives, campus development projects and fundraising that are borne from personal, community and societal best-interest perspectives (O'Donovan, 2016).

In essence, a mixture of bottom-up activism and strong top-down leadership are considered the ideal scenario for long-term solutions and the sustainability of initiatives (O'Brien, 2018; Reidy et al., 2015). Therefore, a consensus between top and bottom, the *sandwich change* approach (Fullan & Fullan, 1993; Trowler et al., 2013), helps to smoothen the terrain and navigate the challenges posed by the necessary substantive process of change. Residing in that middle are managers and academic leaders who are a critical component of institutional change (Brinkhurst et al., 2011). Middle managers tend

to display more tact and be more politically astute in overcoming barriers and anticipating potential resistance to change (Akins et al., 2019; Brinkhurst et al., 2011). By empowering mid-level leaders, both academic and non-academic, there is greater likelihood of weaving the "golden thread" of sustainability throughout the entire system (Lozano et al., 2013, p. 795). Conversely, if HEI leaders are too far removed from this middle tier, then policy can be detached and lack meaning, leading to difficulties in implementation (Howlett et al., 2009).

3.2.4 Steering

This section considers the concept of steering media and mechanisms, as instruments and interventions used to facilitate the implementation process and ease the transition toward ESD-centred institutions (Broadbent et al., 2010; Habermas et al., 1991). Steering mechanisms are regulatory systems that aim to direct organisational behaviour in a particular way and typically include policy, funding, rewards or deterrents (Broadbent et al., 2010). Böcher (2012) includes information, persuasion and cooperation as additional steering instruments. In theory, steering mechanisms are produced by steering media (e.g. government departments, agencies and institutional executives) and should be designed to be sympathetic to and align with an organisation or sector's taken-for-granted values, beliefs and culture, or, what Habermas (1991) referred to as, their *lifeworld demands.* Steering mechanisms can be considered as primary (macro-level) or secondary (micro/meso-level) and are designed to help to guide the policy through the murky waters of the implementation process and minimise any potential resistance to change (Broadbent et al., 2010). However, steering tends to assume a rationale behaviour model of organisations, in reality, due to differences in lifeworld demands, steering media are likely to stimulate diverse responses depending upon each organisation's priorities and values (Broadbent et al., 2010). It is worth noting that steering mechanisms may also be regarded as threatening to particular values held by a lifeworld, and resistance may be generated, particularly to top-down approaches to policy implementation (Broadbent et al., 2010).

Acknowledging the pressure, both nationally and internationally, to accelerate the pace of change, steering mechanisms might help to influence the speed of the transition and overcome some of the complexity and uncertainty outlined above. The Organization for Economic Co-operation and Development (OECD) highlighted the important role governments play in influencing pro-environmental behaviours by providing relevant services and infrastructure (Ng et al., 2017). Arbuthnott (2009) also found that improved infrastructures or rewards increased the likelihood of pro-environmental behaviour change, irrespective of underlying attitudes. However, the approach taken by many governments has been one of soft-touch steering such as guidance documents and consultations rather than system-level structures and enforcement (Læssøe & Mochizuki, 2015).

3.2.5 Funding

European HEIs, though largely dependent upon state funding, remain to a large degree autonomous and similar in organisational structure to other state or semi-state institutions, comprising of both bureaucratic and professional elements (Ferlie et al., 2008). The use of external stimuli such as funding are broadly perceived by policy makers as effective levers to encourage individuals and institutions to make decisions that are best for the common good (Kennedy et al., 2015).

Irish HEIs, though statutorily autonomous, rely heavily on government funding (O'Brien, 2018). Set against a long period of perceived underinvestment (Cassells, 2016), it is no surprise that some of the key challenges facing the HE sector currently relate to strategies to overcome risks to financial sustainability. Indeed, a number of Institutes of Technology (IoT) continue to be economically vulnerable more than 10 years on from the economic crisis (HEA, 2017; O'Brien, 2018) and Hume (2016, p. 16) found that "keeping the doors open" remained one of the highest priorities for HEIs. In such a climate, funding bodies can have a significant role in influencing institutional behaviour (Broadbent et al., 2010). The DES and HEA use regulations and the provision of funding to achieve particular desired outcomes from HEIs and a considerable amount of this funding is issued based upon the attainment of performance metrics agreed biennially between the HEA and individual HEIs as laid out in the SPF (HEA, 2017). The inclusion of the ESD Strategy in the SPF in 2018 was therefore a significant steer from the HEA, however the lack of fiscal steering mechanisms accompanying the ESD Strategy may have limited its potential impact, a point I address further in chapters 5 and 6.

With a backdrop of limited funding, HEIs are becoming more business-like and fiscally-focused, with greater emphasis being placed upon economic sustainability, enterprise collaboration and innovation, a model that may not align with ESD (Bessant et al., 2015). In the UK for instance, government steering mechanisms such as funding models linked to teaching quality and research standards are thought to be driving a neo-liberal managerial agenda within HEIs (Bessant et al., 2015; Ferlie et al., 2008).

As referenced in the previous chapter, research funding also plays a significant role in influencing HEI behaviour and actions toward sustainability (Marans & Shriberg, 2012). In Sweden, Benner and Sandström (2000) found a direct correlation with the focus of research and public funding mechanisms and argued that research funding is "a key mechanism of change in the norm system since its reward structure influences the performance and evaluation of research." (p. 291). Furthermore, research funding, more and more, emphasises environmental impacts, sustainability and co-production, displacing the previous focus on scientific merit and commercialisation potential, thereby strengthening links between knowledge use and research outcomes (Irwin et al., 2018). As an example, The *European Action Plan for the Circular Economy* boasts a budget of €150 billion from

2014-2020 (Union, 2014), while the concept of *responsible research and innovation* (RRI) supports a framework that aligns innovations in technology with societal values (Forsberg et al., 2018).

3.2.6 ESD Strategy Implementation Staircase Revisited.

Taking into account the various steering mechanisms outlined above and the ESD Strategy policy positioning from the previous chapter, I have further developed the ESD strategy implementation staircase to get a truer sense of the complexity of the paradigm (Figure 3.6). This second framework demonstrates the crowded and contextualised nature of the policy landscape and how nuanced the process of HE policy implementation can be. It also provides a perspective of the hierarchal stature of various individuals and groups and how power tensions, real and subliminal, can be exerted up and down the staircase and how policy can be refracted in both directions (Grootenboer et al., 2017; Trowler, 2014). For policy makers and advocates of ESD, it identifies the various individuals and agents with whom they seek to engage. Finally, the complexity at ground level and the multitude of policy instruments and actors involved, underlines the critical importance of effective and clear communication of policy objectives, a point I return to later.

These sections were designed to weave the literature introduced in the previous chapter with policy implementation theory to provide a conceptual model for considering the ESD Strategy implementation process within a HE Irish context. This framework will be revisited in Chapter 6 to further analyse the findings of the research. Acknowledging the complexity of the change process discussed and the unpredictability of policy implementation and outcomes within HE, the following sections introduce theories of change that might prove valuable in the context of change for sustainability.

3.3 Theories of change

It is widely accepted that changes to our behaviour and practices are a fundamental part of the quest for a more sustainable future (Kaaronen, 2017; Michie et al., 2011; Mont et al., 2014; Spurling et al., 2013). Traditionally policy-makers rely on tools such as legislation, economic incentives, sanctions, education and information campaigns to bring about desired behaviour aligned with societal values, norms, or the public good (Cialdini et al., 2015; Ng et al., 2017). However, in tackling the type of systemic change required for ESD and in trying to shape civic behaviour in line with the transition to a more sustainable way of life, new strategies, interventions and policy tools need to be considered (Frisk & Larson, 2011; Kennedy et al., 2015; Mont et al., 2014). There remains considerable divergence on the optimum approach to changing unsustainable behaviours, with some focusing on changing individual behaviour patterns and others seeking to reshape the structures that underpin social practices.

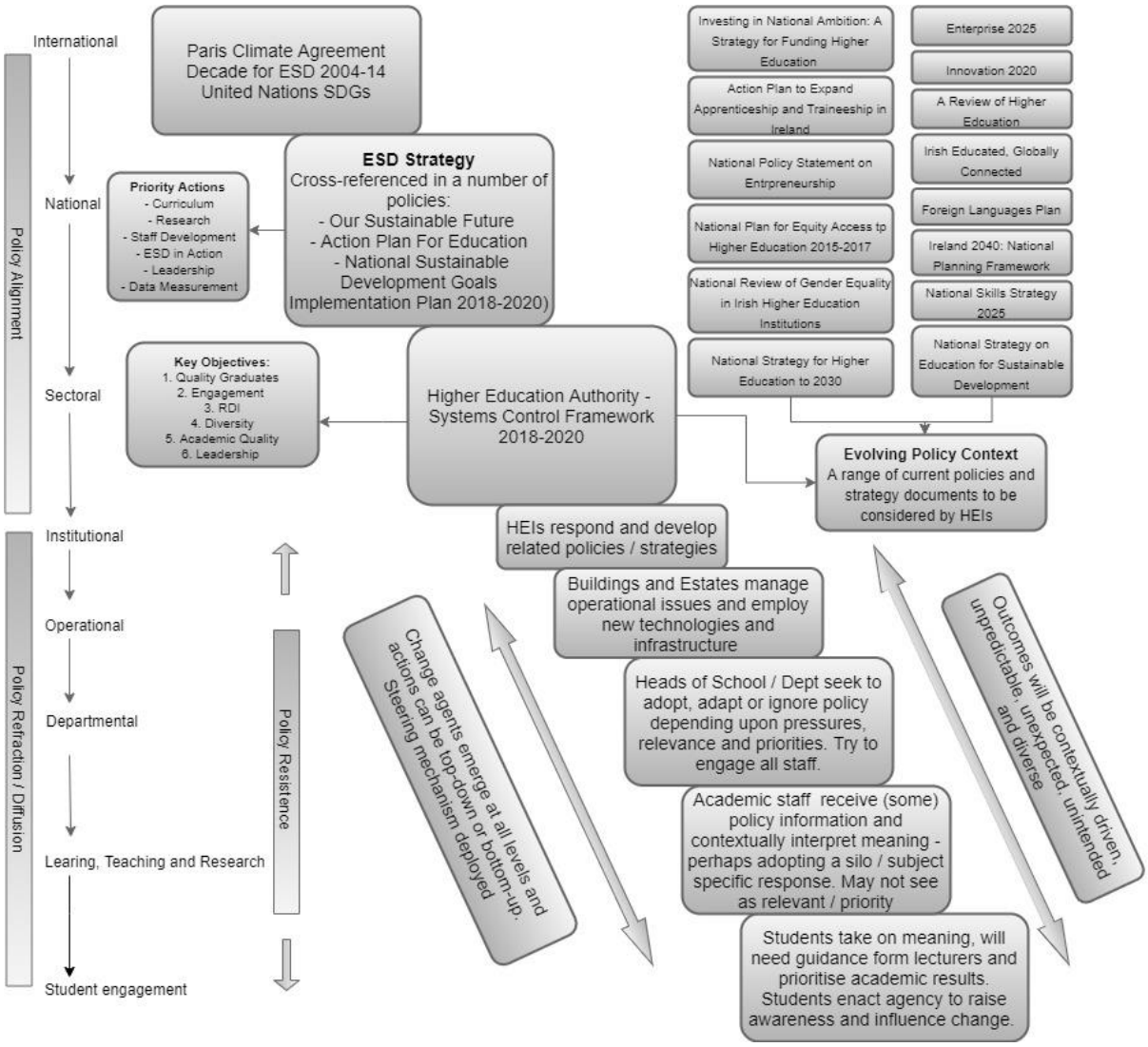

Figure 3.6: The ESD Strategy Implementation staircase incorporating policy diffusion, visibility, resistance and steering

The next section introduces two emerging theories related to behavioural insights and social practice and their relevance to ESD and HE change.

3.3.1 Behaviour Change Theories

Classical behaviour change interventions seek to influence social change by targeting individual behaviour patterns and generally align with one of two broad models: the *rational* and *context* (Arbuthnott, 2009; Lefebvre, 2010). Within the rational model, sometimes referred to as *attitude-behaviour-choice* (ABC), interventions are designed to change the attitudes that drive certain behaviours chosen by individuals (S. F. Michie et al., 2014; Shove, 2010). The context model on the other hand recognises that people can be irrational, and their behaviour is influenced by a response

to surrounding stimuli, social norms and the perceived action difficulty (Arbuthnott, 2009; Lefebvre, 2010; Michie & West, 2013).

There is a growing field of literature that argues that policy interventions must go beyond the classical knowledge-based, awareness-raising and educational approaches in order to transition to pro-environmental behaviours (Avrai, 2012; Frisk & Larson, 2011; Grüne-Yanoff & Hertwig, 2016; Lindahl & Stikvoort, 2015; S. Michie et al., 2014; Mont et al., 2017; Thaler & Sunstein, 2009). Kollmuss and Agyeman (2002) define pro-environmental behaviour as that which "consciously seeks to minimize the negative impact of one's actions on the natural and built world" (p. 240) and which they argue is influenced by both external (e.g. social class, demographics, education) and internal factors (e.g. motivation, values, knowledge, priorities). However, transitioning to pro-environmental behaviour has been shown to occur more slowly than first thought, a phenomenon referred to as the *intention-action gap* (Avrai, 2012; Barr & Gilg, 2007). Furthermore, there is a growing acceptance that humans are influenced by non-rational heuristics and social approval and can therefore make decisions that are considered poor for both themselves and society (Lindahl & Stikvoort, 2015; Thaler & Sunstein, 2009). Using knowledge and education as a primary spur for transformative pro-environmental behaviour change has therefore been shown to be largely inadequate (Finger, 2010; Simmons & Volk, 2002; McKenzie-Mohr, 2000; Ramsey, 1993). It is also recognised that people sometimes need a necessity to change and assistance in that process in order to overcome inertia and the status quo effect (Arbuthnott, 2009; Lindahl & Stikvoort, 2015). This has led to an increased interest in the area of behavioural science and the design of interventions that take account of some of those uncertainties.

3.3.2 Behavioural Insights

The field of behavioural science retains the focus on human actions but brings with it fields of psychology, cognitive-neuroscience, economics and political science (Whitley & Kite, 2013). Behavioural science underlines the need for new desired behaviour to be more attractive, easier and ideally, cheaper, while interventions put the focus on the social norms, action difficulty and choice architecture related to decision-making (Michie et al., 2011). One such area of behaviour science called *behavioural economics* or *nudge theory* was introduced as a concept by Richard Thaler, an economics Professor at the University of Chicago and Cas Sunstein, a legal scholar.

3.3.2.1 Nudge theory

In their book *Nudge: Improving decisions about health and happiness,* Thaler and Sunstein (2009) describe nudge theory as:

> any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. (p. 6)

Nudge theory was founded on the basis that people are consistently bombarded with frequently, inconsistent information. The focus therefore, is on providing meaningful information and developing interventions based upon perceived cognitive short cuts and social cues to help people make the right choices to better themselves and society (Kennedy et al., 2015; Thaler & Sunstein, 2009). Central to Thaler and Sunstein's theory of behaviour economics are two types of people: firstly, there are *Homo economicus* or *Econs,* emanating from the classical-rational theory of economics, people who are well-informed, logical, careful and make rational decisions; secondly, there are *humans*, who are emotional, fallible, irrational, sometimes lazy in their decision-making and who act upon heuristics (Thaler & Sunstein, 2009). In the latter category, people often choose what is easiest over what is wisest and those decisions are strongly influenced by the behaviour of their immediate peer groups (Ahmed, 2017).

Thaler and Sunstein (2009) maintained that nudging could be integrated into democratic policy-making to shape outcomes for the greater good (*paternalism*) without hindering or interfering in people's civic freedoms or their right to choose (*libertarianism*), thus coining the concept *libertarian paternalism*. Nudges are therefore policy design choices (*choice architecture)* that use insights from behaviour science to alter individuals' behaviour (not their attitudes), whilst upholding freedom of choice (Lindahl & Stikvoort, 2015).

Nudge theory examines ways in which markets, law and policy can be made more simplistic, context-specific and ultimately more cost-effective by observing, understanding and reacting to human behaviour (Delaney, 2017). It is claimed that nudging for behaviour change can be brought about without the introduction of new taxes or tax reliefs, thus making it very appealing for policy-makers (Hansen & Jespersen, 2013). Nudging also aligns itself with the concept of *prospect theory* (Tversky & Kahneman, 1986) whereby people value what they have more than what they could potentially gain. Nudges are broadly categorised into four areas:

1) simplification and framing of information, e.g., communication, feedback and labelling
2) changes to the physical environment, e.g., placement and presentation of products
3) changes to the default policy, i.e., the option offered unless someone actively changes it
4) the use of social norms, i.e., emphasising what the majority of people do. (Mont et al., 2014)

3.3.2.2 Nudging in Action

Thaler was installed as an advisor to former UK Prime Minister David Cameron and, such was the interest in nudge theory from a public policy perspective, that the *Behavioural Insights Team* (BIT), commonly referred to as the *Nudge Unit*, was established to carry out behavioural trials (McSmith, 2010). A policy design framework called *MINDSPACE,* published by the UK Cabinet Office, outlined nine themes of behaviour insights (Figure 3.7), bringing nudge theory into the forefront of UK policy making (Dolan et al., 2012). According to McSmith (2010), the Conservative government considered choice architecture as an ideal median between laissez-faire on the one hand and state intervention on the other. Nudging was applied to a range of legislative contexts including obesity campaigns, tax compliance and food and energy conservation (Hansen & Jespersen, 2013). When the British Government used nudging to redesign private pension policy, the impact was significant, and private pension membership increased from 2.7m to 7.7m in a four-year period (Chu, 2017). At a more basic level, nudging was also accredited with the application of a graphic fly in toilet urinals to encourage users to take better aim (Hooker, 2017).

Figure 3.7: MINDSPACE acronym made up of nine themes of behavioural insights, adapted from Lefebvre (2010)

In its simplest form, nudging or behavioural insights, uses a 4-stage framework to design, test and review trials:

1. Define the desired outcome
2. Understand the context
3. Build the intervention
4. Test, learn and adapt. (Team, 2014)

The pattern for the successful implementation of nudging has seen its application tested in one jurisdiction and then adapted and embraced by others. The nudge phenomenon quickly spread to other parts of the world and the European Commission published a report on *Nudging lifestyles for better health outcomes* (Piniewski et al., 2011). As momentum grew, the BIT developed a policy intervention framework applying four principles from nudge theory, using the acronym *EAST* (BIT, 2014) (Table 3.1).

Table 3.1: EAST framework for designing behavioural insights interventions, adapted from BIT (2014)

E	**Easy**	**Harness the power of defaults** **Reduce the 'hassle factor' of taking up a service** **Simplify messages**
A	**Attractive**	**Attract attention** **Design rewards and sanctions for maximum effect**
S	**Social**	**Show that most people perform the desired behaviour** **Use the power of networks** **Encourage people to make a commitment to others.**
T	**Timely**	**Prompt people when they are likely to be most receptive** **Consider the immediate costs and benefits** **Help people plan their response to events**

3.3.2.3 Nudging and the Environment

Behavioural insights interventions adopted by environmental policy makers, referred to sometimes as *green nudges* (Lemoine et al., 2011), are aimed at converting the 'honestly disengaged', facilitating people making 'better' choices and enacting their environmental beliefs (Barr, 2015). Examples of successful interventions, include using energy and eco-labels on consumer products (Olander & Thøgersen, 2014), providing specific measurements for rates of re-use of towels amongst guests in hotels (Goldstein et al., 2008) and offering green energy as a default option to consumers (Schubert, 2017). The BIT has also successfully trialled several green nudges including giving upfront incentives to encourage people to consider using energy efficient products, giving customer consumption comparisons on energy bills, installing smart meters and even applying a series of green footprints around rubbish bins to encourage litter prevention (BIT, 2011).

Loewenstein (2012) also describes how nudging can help to overcome the phenomenon of *present bias*, behaviour which tends to ignore the long-term costs of small accumulative decisions, particularly pertinent to pro-environmental behaviour change. Some more diverse examples of nudging

interventions with specific relevance to ESD include targeting improved access to tertiary education (Pugatch & Wilson, 2018), improving gender biases within HE (Barone et al., 2019) and assessing the impact of choice decisions on sustainable infrastructure (McWhirter & Shealy, 2018).

3.3.2.4 Nudging Emerging in Ireland

Nudging has also emerged within the policy environment in Ireland and the government has made clear its intention to adopt auto enrolment in a bid to boost the uptake of private pensions (Coyle, 2108). A *Masters in Behavioural Economics* is now offered by on one Irish HEI and a *Behavioural Economics Unit* was established within Sustainable Energy Authority Ireland (SEAI). This unit is referenced in the *National Mitigation Plan 2017* as a vehicle for examining the potential of behavioural science in the adoption of more sustainable individual behaviours (DCCAE, 2017). The SEAI also collaborates with many HEIs through research and energy saving projects, though as yet there is no evidence of trials on campuses.

3.3.2.5 Critics of Nudging

Nudging does have its critics, particularly with regards to the ethics and transparency of choice architecture and the uncertainty and transferability of outcomes (Hukkinen, 2016; Mont et al., 2017; Revell, 2013). Detractors have even warned of the potential of nudges to undermine the democratic process and potential backlash from citizens who perceive that governments may be infringing upon their autonomy and civil liberties (Dolan et al., 2012; Felsen et al., 2013; John et al., 2013; Marteau et al., 2011). Others argue that nudging may not have the desired effect of changing long-term behaviour as people are not actively engaging with sustainability discourse and may even act unsustainably without realising it (Arbuthnott, 2009; Mont et al., 2014). Lemoine (2011), though supportive of the use of green nudges, cautioned on the effectiveness of any one policy instrument and the extent to which they should be pushed. Dolan et al. (2012) also felt that the best interventions were those that succeed in changing both minds and contexts.

In order to guide the ethical application of nudges, Thaler and Sunstein (2009) suggested that they adhere to *Raw's publicity principle,* whereby only policy interventions that can be defended publicly should be adopted. Ultimately, though, Thaler and Sunstein (2009) defend libertarian paternalism and argued that it acts as a counterbalance to the existing misinformation and cognitive manipulation of modern marketing and social media, thereby redressing some of the power back towards policy-makers and citizens.

RQ 2 considers the potential value of nudging and behaviour insights within the process of change for sustainability, and I return to this topic in Chapter 6. For now, the last sections in this chapter examine social practice theory, a counter-theoretical framework to behavioural science and nudging.

3.3.3 Social Practice Theory

As with many theories grounded in behaviour change, nudge theory is individualistic in its ontology, where habits are individual and where responsibility for changing behaviour rests with personal agency. Sayer (2013) outlines the challenges faced by policy makers in addressing systemic change through behaviour change interventions:

> There is an extraordinary irony in government efforts to promote more rationable and sustainable forms of behaviour in individuals in economies which are dominated by the imperative to make profit through capital accumulation, and which are inevitably addicted to unsustainable growth. (p. 167)

Taking an alternative ontological position, social practice theory is founded on the concept of *habitus*, that cultural capital comprised of socially constructed and deeply engrained habits, skills and dispositions (Bourdieu, 1984). A *practice* within the sense of social practice theory (SPT) is defined by Reckwitz (2002) as:

> a routinized type of behaviour which consists of several elements, interconnected to one other: forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge. (p. 249)

In this sense, *practices* are socially defined and shaped by structures and processes and carried out by individuals based upon their understanding of the world and their motivational and cognitive knowledge (Reckwitz, 2002; Shove et al., 2012; Trowler et al., 2013). To delineate the nature of practices, Reckwitz (2002) contrasts the models of *homo economicus* and *homo sociologicus*, the former leading to a social order formed by the product of individual behaviours, the latter defining behaviour based upon social constructivism. This theoretical perspective, shifting the focus of behaviour from the individual to the social, means that practices are shaped socially by multiple and contested beliefs, values and emotions, and constructed by physical, political and social infrastructures (O'Rafferty, 2018; Trowler, 2014). Spurling (2013) describes practices as "observable expressions of social phenomenon" (p. 8) that are definable as a pattern of a multitude of single or unique actions. Practices should not be considered in isolation but seen to permeate social order, as inter-related and co-existing bundles or constellations, through which individuals form the unique point of connection (Hargreaves, 2011; Reckwitz, 2002).

SPT therefore tries to make sense of what people do and why they do it and "stresses the situatedness of knowing, saying, doing and relating" (Trowler, 2015, p. 3). Taking social practices as the central tenet of analysis, individual behaviour can therefore be seen as just the tip of the iceberg, beneath

which the entity of practices are anchored (Spurling et al., 2013) (Figure 3.8). In this context, Spurling et al. (2013) argued that SPT could be used as a source for ideas about how to bring about change to peoples' behaviour.

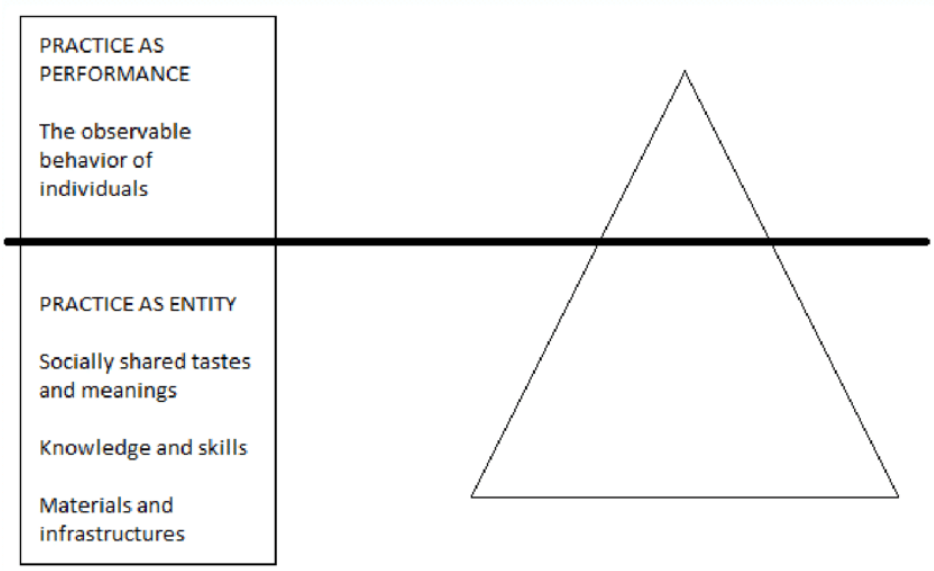

Figure 3.8: Observable behaviour relative to practices - just the tip of the iceberg (Spurling et al., 2013)

Reckwitz (2002) developed a model of practice that comprised of an interdependence of activities, things, and knowledge which are realised through an aspect of motivation. His inclusion of *things* as a central element of practices, therefore, drew a distinction from Giddens' (1984) *structuration theory* and Bourdieu's (1984) concept of *habitus* (Kennedy et al., 2015). Nicolini (2012) also asserted that practices could only be accomplished through the body's mastery of a skill and with the application and contribution of tools. Developing this theoretical thread, Shove (2012) deconstructed Reckwitz's theory and put forward that people were the *carriers* of practices and those practices were inherently linked and dependent upon three central *elements* comprising of *materials*, *competence* and *meaning* (Figure 3.9). Shove (2012) broadened the interpretation of *materials* to encompass "objects, infrastructures, tools, hardware and even the body itself" (p. 23). Practices are therefore, considered emergent, in a constant state of flux and their development, over which no one actor has control, is unpredictable. Shove et al. (2012) suggested that practices were developed, maintained and influenced through:

1. The range of elements in circulation
2. The ways in which practices relate or link to each other
3. The careers and trajectories of practices and who carry them
4. The circuits of reproduction and configuring connections. (p. 146)

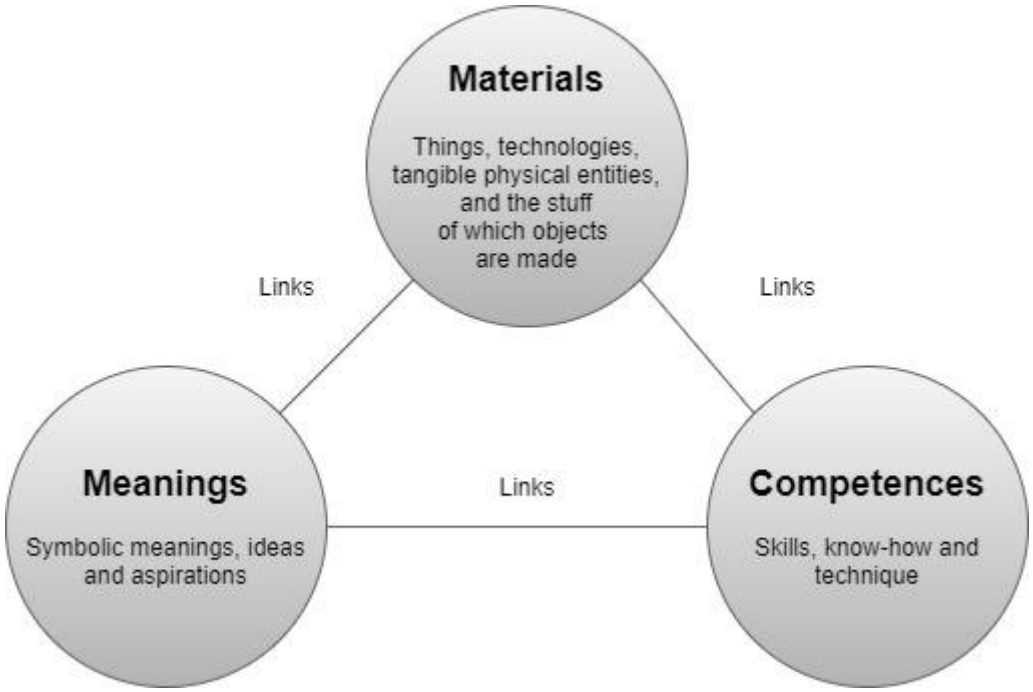

Figure 3.9: 3-element Social Practice Theory framework, adapted from Shove et al. (2012)

In this model, *elements* are seen to exist independently in the world, but once integrated, become practices. By extension, individual elements within a configuration may need to be renewed in order to ensure that practices develop in parallel with the evolution of related elements such as scientific knowledge or technological innovations. Conversely, once the links between the elements break, practices cease to exist (Shove et al., 2012).

SPT is founded on the premise that shifting behaviour is brought about, not just by rational decisions, but by the pursuit of new knowledge, altering of routines, reconstructing social norms and unsettling power relations (Bourdieu, 1984; Kennedy et al., 2015). This is particularly pertinent in a world now confronted by new understandings of the impact of human behaviour on the planet with respect to climate change and biodiversity loss. Though a variety of approaches are adopted by contemporary practice theories, they contain certain family traits which are useful for understanding and analysing social and organisational practice and change (Nicolini, 2017; Schatzki, 2001). Developing new practices can be problematic as, once habits are established, it can be difficult to remember how they evolved and to challenge the assumption upon which they were based (Kennedy et al., 2015). Nicolini (2012) suggested a process of *zooming in* and *out* as a means to analyse the tools, materials and bodily choreography inherent in practices.

For now, it is useful to reflect upon the approaches to change adopted by both social practice and behaviour change theories as presented in Table 3.2 (Shove et al., 2012).

Table 3.2: Approaches to behaviour change and social practice theories adapted from Shove et al. (2012)

	Theories of Behaviour	Theories of Practice
Basis of Action	Individual choice	Shared social convention
Process of Change	Causal, though difficult to isolate the influence of separate factors	Emergent
Positioning Policy	External influences on the factors and drivers of behaviour	Embedded in the systems of practice it seeks to influence
Transferrable lessons	Clear: based on universal laws	Limited by historical, cultural specificity

3.3.3.1 Social Practices and ESD

SPT offers a powerful and unique lens through which to unpack and analyse collective decisions made against the common good (Kennedy et al., 2015)**.** Many local and global ecological catastrophes of our time can be attributed to human behaviour and it is widely accepted that changes to our behaviour and material consumption are a fundamental part of the quest for a more sustainable future (Jackson, 2005; Kaaronen, 2017; Mont et al., 2014; Shove & Walker, 2010; Spurling et al., 2013). Furthermore, globalisation has facilitated the uptake of unsustainable practices of consumption at unprecedented speeds, that have transitioned both boundaries and cultures (Shove & Spurling, 2013). HEIs can play a significant role in this context, on the one hand becoming centres of global learning, living laboratories and a test bed for sustainability initiatives (Lozano et al., 2013; Robinson et al., 2013). More importantly, however, they can foster, develop and adapt future-oriented industry-focused practices and thinking that can have a more profound long-term impact on society and the environment. Reversing this trend and bringing the carbon footprint of human behaviour into a sustainable model, will require a fundamental redefinition of 'normal' social practices as well as changes to values and thinking, a transition that can be reframed through SPT (Sayer, 2013).

As discussed in the previous chapter, HEIs often demonstrate an aversion to change and the complexity and diversity of practices within HEIs are compounded by the contextual uniqueness of each institution and the existence and influence of non-canonical practices (Trowler, 2014). Kemmis and Mahon (2017) put forward the concept of *practice architecture* to demonstrate how university structures and culture support the continuity of practices that can become sedimented within the contested terrain of university life. SPT offers a systems-learning approach to analyse the myriad of complex inter-relationships, boundaries and perspectives that make up the entire system (Trowler, 2014). Such an approach can facilitate organisational and social learning and support an adaptive management approach to change (Sterling, 2004).

3.3.3.2 Social Practice Theory and Policy

Normal practices not only support current unsustainable behaviour but also condition the responses and determine the degree to which policies are implemented (Trowler, 2015). Unpacking those practices to see how they emerge, embed, reform, interact and ultimately disappear provides a framework for policy makers and organisations to develop more sustainable practices (Hargreaves, 2011; Shove & Walker, 2010). Spurling et al. (2013) argued that designing interventions that focus on changing social practices would have a much greater impact than behaviour change strategies in the long-term. Shove and Spurling (2013) also pointed out that while social theories facilitate an analysis of the world, they do not lead to prescribed actions or reactions, instead, they can help inform relevant policies, design purposeful interventions and frame defined problems. However it is imperative that policy interventions are aligned with the valuations and practices of those they wish to influence and that the actors involved are consulted (Sayer, 2013; Shove & Spurling, 2013).

Spurling et al. (2013) developed a *problem framing* model (Table 3.3) to consider how interventions could be designed to overcome current unsustainable practices, comparing approaches from a social practice and behaviour change perspective. This model also demonstrated how practices might be unpacked and recrafted to make them more sustainable (Spurling et al., 2013). McMeekin (2012) pointed out that the unpredictability of social practice-based interventions may make them less attractive to policy makers, who tend to prefer the more simplistic and rational perspective of an ABC framework. However, whilst uncertainty of outcomes is acknowledged, this can be outweighed by the opportunities presented for social learning and responding to the enormous global challenges now facing society and the environment (Spurling et al., 2013).

Table 3.3: Recrafting practices Problem Framing *model, adapted from Spurling et al. (2013)*

Common framings in behaviour policy interventions		**Framings drawing on a practice perspective**	
Innovating technology	Reduce the resource intensity of existing patterns of consumption through technical innovation	**Re-crafting practices**	Reduce the resource-intensity of existing practices through changing the components, or elements, which make up those practices
Shifting consumer choices	Encourage consumers to choose more sustainable options	**Substituting practices**	Replace less sustainable practices with more sustainable alternatives.
Changing behaviour	Encourage individuals to adopt more sustainable behaviours and discourage them from less sustainable behaviours	**Changing how practices Interlock**	Harness the complex interactions between practices, so that change ripples through interconnected practices

3.4 Conclusion

This chapter has provided an overview of theories of change and policy implementation relating to HE and ESD that will be used to account for the phenomena observed within the research. The use of more than one theory to consider ESD is considered useful due to the scale and complexity of change in question (Kollmuss & Agyeman, 2002). Policy implementation staircase and steering theories will, therefore, provide a useful framework to consider RQs 1, 1.1 and 1.2. Theories of behavioural insights (green nudging) and social practice will be used to consider RQ 2 and to see how they could potentially overcome some of the barriers identified within the research.

The next chapter provides an overview of the research design to show how these theories support the methodology and methods used to generate and interpret the research data.

4 Research Design and Methodology

This chapter outlines the research paradigm, the framework employed to unpack the social reality within the research field and the rationale for the tools used in that process.

4.1 Introduction

Building upon the theoretical framework presented in the previous chapter, the research design is presented and a description of how the research was undertaken is outlined. The philosophical standpoint adopted for the research and its influence on the research methodology is also discussed. Finally, the scope, limitations and reliability of the data and findings are addressed and considered.

4.2 Research Design

The research design (Figure 4.1) provides a strategic overview of the research, the techniques employed to collect data and evidence of the way in which theory and data are translated (Trafford & Leshem, 2008). A critical enquiry approach to data generation and interpretation was followed enabling me to explore the reality of the phenomenon in question, to critically analyse it and to try to see how it could be made better (Creswell & Poth, 2017; Elliott & Timulak, 2005). In considering this approach, I was cognisant of the research design being within my capability and capacity as well as being practicable and achievable (O'Leary, 2004).

The research design adopts a mixed methods qualitative approach, using the ESD Strategy document as a framework to contain the scope of the enquiry. In order to address RQ 1, the relevant policy landscape was reviewed and the ESD Strategy was analysed to determine its relevance to the HE sector. The seven specific recommendations relevant to HE (presented in Chapter 2) were then used to frame the interview questions that probed practices on the ground. *Participant Group 1* (*n*=17) comprised those with an insight and overview of HEI activities and the perceived barriers and drivers within their institutions (RQ 1.1). Thematic analysis was used to develop themes from the data generated from this group using *NVivo* software. In order to include the perspectives of those in the external policy environment and address RQ 1.2, participants (*n*=5) from specific government departments, agencies and NGOs were interviewed (*Participant Group 2*). The theoretical framework used to explore this aspect of the research incorporated theories of *policy implementation staircase* (Reynolds & Saunders, 1987; Trowler, 2014) and steering (Broadbent et al., 2010; Habermas et al., 1991). The methodology also accommodates the voices and perspectives of those interviewed to be heard, with the inclusion of quotes from the data reflecting their lived experiences, multiple realities and highlighting themes that emerge (Creswell, 2007).

Finally, theories of social practice and behavioural insights (nudging) were analysed for the potential value they offered to the process of ESD-centred transformative change (RQ 2). For this purpose,

participants from academia and policy (*n*=5) with expertise in behavioural insights were interviewed (*Participant Group 3*). These theories were then considered within the context of Irish HE and some models and frameworks relevant to policy, behaviour and practice were put forward, designed to overcome some of the barriers identified. Before expanding upon the research conceptual framework and how the research was carried out, I will first outline the philosophical considerations supporting the research design.

	Research Questions **Critical Inquiry**	**How?** **Methods employed**	**Why?** **What is the reality and how can it be made better**	**Applied Theory**	**Philosophical Position**
Outcomes of policy / Changes emerging / Policy barriers and drivers (meso/micro-level)	3. What changes aligned with goals of the ESD Strategy are evident within HE in the emerging ESD landscape? _____ 1.3 What are the perceived barriers to and drivers of ESD-centred change within HEIs? _____ 1.4 What external drivers are evident and how are they influencing HEI's engagement with the ESD Strategy?	Analyse the ESD Strategy for its relevance to HE Interview those in positions with knowledge of / championing sustainabilty activities within HEIs in Ireland. (Participant Group 1; *n*=17*).* Summarise findings as they realte to action areas within the ESD Strategy. Deductive approach to thematic analysis. _____ Draw themes from these interviews using NVivo sofware. Inductive approach to thematic analysis. _____ In-depth interviews with those in related policy areas and Green Campus Programme (Participant Group 2; *n*= 5*).* Deductive analysis to identify relevant steering media and mechanisms.	Find out what common responses are emerging from HEIs with respect to: - Actions - Emerging practices - Barriers - Drivers - Changes to structures and behaviours _____ Provide an insight into the lived expereinces of those in HEIs _____ To understand the ESD Strategy implementation and how ESD is being driven by external steering mechanisms. Examine the implmentation gap	Use policy implementation staircase / steering theories to analyse the change process	**Critical realism:** Accommodates perceived polarities of positivsim (behavioural insights) and realtvism (social practice) within the research design. Acknolwedges the role of external forcees and policy within HE change and the various interpretations and contextualised implemnetations of ESD within each institution. Knolwedge is seen as emergient and changing rapidly.
Theories of change	4. What is the value of theories of social practice and behavioural insights (nudging) for facilitating the transition towards more sustainably focused institutions?	Review of literature and interviews with people with expertise in behavioural insights and international exemplar (Participant Group *n*=5)	To explore novel solutions to support the transition toward more sustainable practices and behaviour within HEIs	Social Practice - Behavioural Insights	

Figure 4.1: Research design

4.3 World View and Knowledge

A range of philosophical assumptions underpin the stance from which the world and knowledge are viewed and understood. Explaining these assumptions and how they impact upon the research inquiry will help the reader navigate both the research design, the methodology and ultimately the tools employed for data generation. The research paradigm presents an insight into how the researcher views and understands the world in which the research is situated and provides a "definition of the field" (Kuhn, 2012, p. 19). According to Broadbent and Laughlin (2009) a well-developed and considered paradigm helps to provide an element of quality assurance and conceptual consistency for the educational researcher operating in a field that is ambiguous, diverse and highly contextualised. According to Grix (2004) the optimum approach to undertaking research is to explain clearly what can be researched (ontological position), determine what can be known about the research topic (epistemological position) and use this to define how the researcher intends to acquire the desired knowledge (methodological approach). These fields of philosophy can be described as the building blocks of research enquiry (Grix, 2004) and provide an effective route to creating links between research design, strategy and theory development (Trafford & Leshem, 2008) (Figure 4.2). The next section introduces the assumptions that make up the paradigm for this research, namely ontology and epistemology, and their significance to ESD.

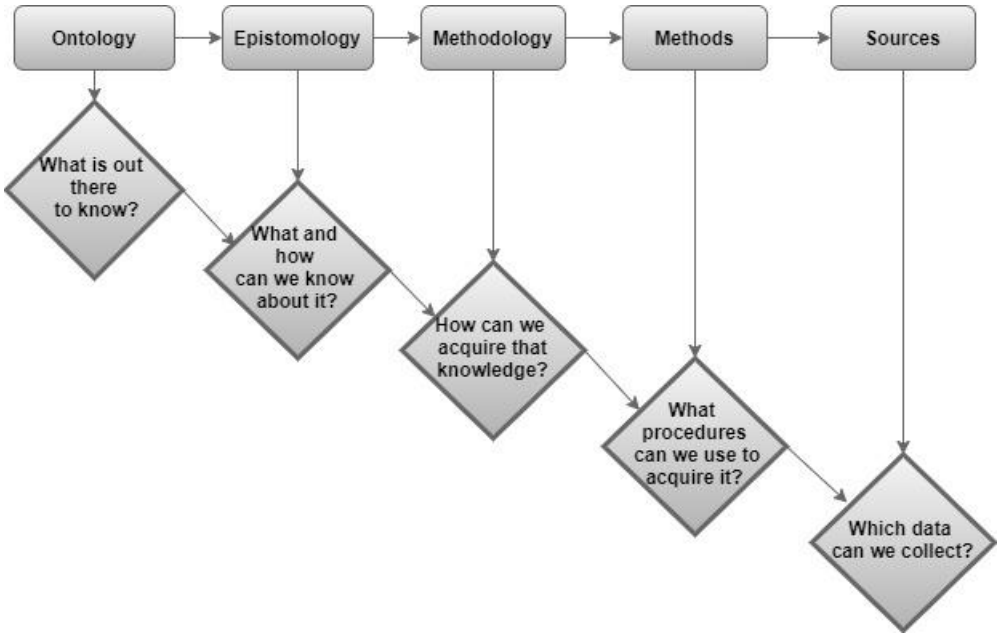

Figure 4.2: Hay's (2002) model of the relationship between the building blocks of research, adapted from (Grix, 2004)

4.3.1 Ontological and Epistemological Perspectives

Ontology considers the '*What is out there to know'* (Figure 4.2) and refers to the theory of social reality and the assumptions underpinning that reality (Blaikie, 2000). In social sciences, two ontological

binary polarities that have emerged are those of *realism* and *relativism* (Grix, 2004). A realist ontological position views reality as external and independent and somewhat predicable and takes the view that research findings can be transferrable to other social settings (Creswell & Poth, 2017). On the other hand, *relativism* or *social constructivism*, involves a view of the social world that is contextually contingent on the people within it, where agency is regarded as a co-creator of social structures and where the focus is on description and hermeneutics rather than causation (Creswell & Poth, 2017). In this sense, researchers interpret meaning to social realities and while these findings may be considered 'accurate' in one context they may be devoid of validity or applicability to other social contexts.

While ontology deals with social reality, *epistemology* relates to how knowledge is acquired, its nature and forms and the relationship between the researcher and knowledge as it is discovered (Cohen et al., 2002; Marsh & Furlong, 2002). This considers the 'W*hat and how can we know about it*' stage of the research process (Figure 4.2). As with ontology, polarities of epistemological perspectives exist, branching from *positivism* which describes empirically the relationships between causes and outcomes (Creswell & Poth, 2017), to *interpretivism,* which encapsulates research approaches whereby the researcher is never fully removed from the data or the research area (Mackenzie & Knipe, 2006).

Axiology, a further philosophical position encompasses the relations and tensions between what is considered 'worthwhile' and that which is 'practical'. In research axiology refers to the role of values in research (Creswell & Poth, 2017) or relates to what is worthy (McKenzie et al., 2009). Axiology also considers the relationship between humans and their environment, assumed to be one of symbiosis and interdependency and ultimate harmony (Plant, 2005). Axiology is useful when considering ESD and recognises the tensions that are created when HEIs have a moral obligation to do the right thing yet simultaneously try to address the diverse demands of multiple stakeholders.

4.3.2 ESD, Ontology and Epistemology

Sterling (2010a) has explored the underlying assumptions, as well as the inherent tensions, between the divergent ontological and epistemological positions, developing a framework to review the assumptions, motivations and limitations of each position with respect to ESD (Table 4.1). This sheds a light on tensions between constructivist (ontologically social) and behaviourist (ontologically individualistic) approaches to analysing environmental education and the design of respective interventions to bring about desired changes in behaviour. As can be seen, challenges exist within both positions, something Sterling (2010a) attributed to the historical tensions and challenges in adopting ESD principles within HE globally.

Table 4.1: Fundamental orientations influencing sustainability education, adapted from Sterling (2010a)

View of education	Instrumentalist / Behaviourist	Intrinsic / Constructivist
Ontology position	• Realist	• Idealist / relativist
Epistemological position	• Objectivist/positivist • Universalist view of knowledge	• Constructivist/interpretivist • Knowledge is locally contextualised
Perspective	• Individualistic	• Social
Defined by	• ESD regarded as a change agent for attitude, values and awareness	• As we do not know what a sustainable society looks like, we cannot educate *for* it as such
Assumptions about learning	• Often relatively simple and linear • Raising awareness and knowledge about environmental issues will, rationally and causally, lead to personal and behavioural change • If followed in great enough numbers can lead to social change • Product focused	• Social constructivist view of learning and the learner • Claim autonomy on who should determine what is worth learning and knowing • Process focused
Motivations	• A sense of urgency and a passion to increase levels of 'sustainability literacy', i.e. necessary sets of attitudes and skills	• Sound education raises critical awareness of environmental issues • Focus on building the individual's capacity to think critically, systemically and reflexively
Limitations	• Accommodatory response e.g. tinkering with curriculum content or greening of the estate • May or may not have impact or coherence	• Suggests a deeper reformatory response education systems find hard to grasp

Behavioural science firmly places the responsibility for change at the level of the individual, focusing on nudging their habits to bring about wide-spread sustainability reform where knowledge is viewed as a rational and causal commodity and applied as an enabler for change (Sterling, 2010b). Behaviourist approaches to sustainability-enquiry often take the approach that environmental behaviour can be measured and predicted and that given the right information, people change their behaviour accordingly (Arbuthnott, 2009). Such approaches have often led to a focus on increasing sustainability literacy and 'bolt-on' approaches to curriculum reform (Sterling, 2010b).

Conversely, social practice approaches recognise the role of structures in shaping societal behaviour. Taking a relativist ontological position, learning for ESD can be viewed as emancipatory and collaborative, whereby knowledge is co-constructed, and policy is reflexive to cater for unpredictable and undefinable outcomes (Evans et al., 2015). This position recognises the importance of deep, systemic reform of institutional structures and approaches to teaching and learning that raise a critical awareness of sustainability issues (Sterling, 2010b). The philosophical and theoretical tensions between social practice theory and behavioural insights are discussed further in Chapter 6 with regards to their value to ESD-centred change.

From an epistemological perspective, it is important to acknowledge changes to the way in which knowledge is generated and structured. Dickens (2002) argued that the crisis of sustainability is derived from a breakdown of the symbiotic relationship between societies and nature. This is exacerbated by the development of new industrial production methods that drive a wedge between people, societies, knowledge and their natural worlds (Dickens, 2002). Huckle (2004) asserted that these technical and social divisions of labour lead, not just to a loss of knowledge, but, to a loss of control and peoples' awareness of the consequences of their actions.

4.3.3 Critical Realism

The ontological and epistemological positions discussed are, of course, broad philosophical standpoints that are useful in understanding different views of the world and knowledge, the tensions that exist between research approaches and the potential application and limitations of research findings (Creswell & Poth, 2017). In practice they exist and occur within less-defined boundaries and in more complex ways.

The philosophical position adopted herein is aligned with *critical realism,* which borrows from a realist ontological perspective and a constructivist epistemology (Bhaskar, 2013; Huckle, 2004). Situated therefore, between the poles of realism and relativism, critical realism, accepts that agency strongly influences social structures, but equally recognises the external forces that shape and limit that reality (Huckle, 2004). A critical realist perspective underpinning the research design, allowed me to unpack the ESD Strategy to examine its relevance to HE and to critically analyse the emerging HEI practices (RQ 1). Equally it provided a position to critique the various HEI structures that support unsustainable practices and the neo-liberalist approaches to HE management that accommodate the slow process of change within some institutions.

This offered the basis for a middle range approach to the research, allowing me to move between the theoretical and empirical as necessary, recognising the interconnectivity and interdependency of both realms (Broadbent et al., 2010). This is evident within the research design where the ESD Strategy guided the enquiry but where scope is provided to consider and accommodate the highly contextualised lived reality and the various institutional structures that shape that reality.

Critical realism also allowed me to consider the lifeworlds of policy decision makers and how they too are impacted by the structures shaping and constraining policy development, particularly economic factors (RQ 1.2). Lastly, it provided a framework for the consideration of two perceived ontologically polar theories of change, that of behavioural science, which is situated within the positivistic or realistic realm, and social practice, which is firmly in the arena of constructivism or relativism and acknowledge their co-existence and complementarity within the research paradigm (RQ 2).

From an epistemological perspective, critical realism accommodates the multiple ways in which ESD is interpreted and shaped by intrinsic and extrinsic drivers and the emerging perspectives and actions that are contextualised, contested and unpredictable (Mack, 2010). Furthermore, it offers a philosophical framework that accommodates ESD inquiry such as interdisciplinary challenges, the provisional and contested knowledge claims emerging and knowledge that is yet to be defined and understood (Huckle, 2004; Lotz-Sisitka, 2009; Wals & Corcoran, 2006). Adopting this position allowed me to accept that the science on climate change and biodiversity loss are a reality and that change is a certainty, but also accept that the change emerging will be a constructed reality, shaped by agency and the structures that evolve.

Within the research design, I have therefore, had to be careful to recognise the subjective and contextual nature of knowledge, the multiple truths and perspectives that co-exist and appreciate what Parker (2008) describes as the *politics of knowledge* – who determines what is considered worth knowing and how access to knowledge is negotiated. The research design has considered the fragmentation of knowledge within HEIs, where disciplinary knowledge is compartmentalised and siloed and further delineated into what is considered relevant by academics and programme leaders (Huckle, 2004). In order to overcome this issue, I have sought to engage widely within HE and engage participants in positions with institutional-wide knowledge and oversight, including sustainability coordinators and Green Campus Committee members.

Finally, the research design recognises that the inquiry itself may be considered, what Sterling (2009) refers to as, a process of *transformative learning*, unearthing within participants deeply-held values and beliefs, an approach consistent with an axiological view point (Mendie & Eyo, 2016).

Having considered the 'what' of the research design, the following sections now turn to the 'how'.

4.4 Methodology

Methodology considers the '*How can we acquire the knowledge'* element of the research process (Figure 4.2) and provides the framework through which the research questions are adequately addressed (Elliott & Timulak, 2005; Grix, 2004; O'Leary, 2004). In developing an appropriate and rigorous methodology there is an attempt to facilitate the interpretation of phenomena based upon meanings of reality from multiple voices and world-views as constructed by research participants and the researcher (Denzin & Lincoln, 2002). Yardley (2000) highlighted the importance for the quality of research that the methodology takes into account sensitivity to context, is transparent and coherent and that it leads to findings that are both impactful and important.

The methodology adopted for this research is a mixed qualitative methods approach, designed to interpret the policy-practice nexus within Irish HE and the emergent changes with respect to ESD.

There was a focus therefore, on verbal accounts and descriptions and an open-ended strategy for data gathering. Interpretive practices are deployed to make sense of a phenomenon through the meanings brought to it by research participants (Denzin & Lincoln, 2011; Miles et al., 2014). Equally, the process of carrying out interviews with stakeholders was not only a means of generating data but provided an opportunity to engage practitioners and policy makers in the discourse.

The mixed methods approach was also designed to frame and represent problems and examine how policies may or may not reflect the social construction of those problems (Browne et al., 2019). Thus, document analysis was also considered a relevant and important method for data generation and was used to scope and frame some of the data generation techniques. This approach is consistent with a critical realism perspective in accommodating an analysis of both the external forces and the internal social structures that shape HE.

The methodology has also taken into consideration a number of important related factors: the duration of the data generation period; identification of suitable participants; structuring and compiling the interview questions; developing a dependable recording system; piloting and modifying the interview questions; undertaking the interviews; and the data analysis (Creswell & Poth, 2017). These will be discussed in greater details in the following sections.

4.4.1 Methods

The methods for a research enquiry consider the final building blocks of the research process - 'What procedures can we use to acquire it?' and 'What data can we collect?' (Figure 4.2). Adopting a qualitative approach, the methods included interviews with a range of relevant participants and analysis of relevant policy documents (Figure 4.3). A staged approach to data generation was undertaken whereby, first the ESD Strategy was unpacked with respect to its relevance to HE, its positioning within the policy landscape and its relationship to other policies (as outlined in Chapters 2 and 3). This involved an analysis of a range of related policy documents (Table 4.2).

Table 4.2: Policy documents analysed for this research

Policy Title	Host Department / Agency	Year of publication
The National Strategy on Education for Sustainable Development in Ireland, 2014-2020	Department of Education and Skills	2014
Our Sustainable Future	Dept of Environment and Local Government	2013
The Sustainable Development Goals Implementation Pan 2018-2020	Department of Communications, Climate Action and Environment	2018
Action Plan for Education 2019	Department of Education and Skills	2019
Systems Performance Framework 2018-2020	Higher Education Authority	2018
Climate Action Plan 2019	Dept of Communications, Climate Action and Local Government	2019

This was followed by in-depth, semi-structured interviews with 3 specific groups of participants (Figure 4.3). The action areas and recommendations within the ESD Strategy were used to frame the formulation of the interview questions for *Participant Group 1* and *2* and provided a lens through which to view emerging practices within HE. Using this variety of methods helped to strengthen the research rigour and facilitated the adoption of a critical enquiry perspective (Gorard, 2001).

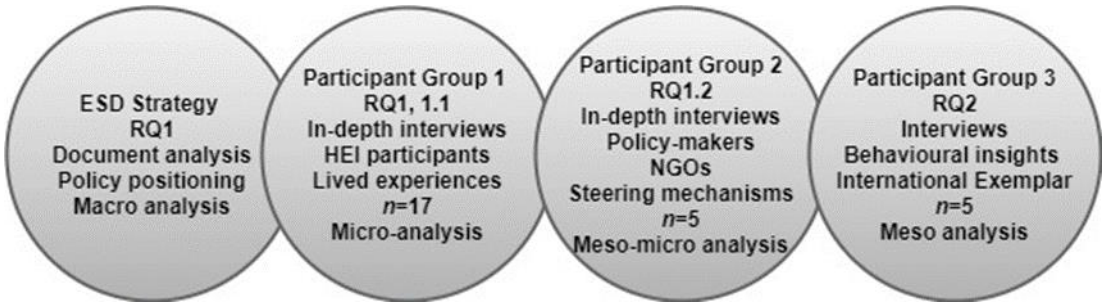

Figure 4.3: Sources for data generation - documents and research groups

4.4.1.1 In-depth Semi-Structured Interviews

The use of in-depth interviews enabled the generation of data of sufficient quality for themes to be determined and allowed me to fully explore the still emerging and multifaceted topic of ESD (Beck & Manuel, 2008). Using a semi-structured interview design with probing and insightful questions provided a means to guide the interviews, flexibility to follow topics of interest and opportunities to unpack complex issues, whilst also allowing scope to circumnavigate any potential obstructions (Lapan et al., 2011; Wilson, 2016). A number of strategic questions were included which required consideration by the interviewees and ensured open and rich conversations were made possible (Peavey, 2003). The use of semi-structured interviews also facilitated some form of comparative analysis to be then undertaken between individual responses (Beck & Manuel, 2008).

4.4.1.2 Participant Group 1

In order to generate data for RQs 1 and 1.1, a research participant from each of the 21 HEIs in Ireland (Universities: *n*=7 and IoTs: *n*=14) was sought. Participants were selected through what might be termed as purposive sampling (O'Leary 2004). In order to identify suitable participants, an email outlining the aims of the research was issued to the Registrar or Vice-President for Academic Affairs of each HEI with an accompanied *Participant Information Sheet*. They were asked to identify a suitable person who might be viewed as 'sustainability champion or leader' who would be willing to discuss

their experiences of ESD within their own institutions, the practices and challenges emerging, policies developed and change strategies adopted at an institutional level.

This invitation initially resulted in responses from 16 different HEIs (7 Universities and 9 IoTs) all of whom were interviewed. The roles of participants within each institution, their gender, the duration of the interview and where interviews took place is outlined in Table 4.3 (IoT 6 put forward 2 participants for interview). Participant roles were diverse and included academic staff, senior management, campus management personnel and those with specific responsibilities in respect of sustainability. There were 10 males interviewed and 7 females and the data set represents 100% of universities and 64% of IoTs. Each participant was provided with a pseudonym to protect their anonymity and each HEI was numbered as either a UNI (university) or IoT.

Table 4.3: Participant Group 1 details and summary of interview process

Institute of Technology/ University	Primary Role of Participant	Pseudonym	Secondary role in relation to sustainability	Interview Duration (minutes)	Male (M) / Female (F)	Interview Method
IOT 1	Assistant Manager in Building and Estates	David	Green Campus Committee Chair	37	M	F2FC
IOT 2	Sustainability Co-ordinator and Campus Development	Colin		76	M	F2FC
IOT 3	Lecturer in Design	Kieran	Green Campus Committee Chair	54	M	F2FC
IOT 4	Estates & Facilities Manager	Claire	Institute Sustainability Champion	52	F	Ph
IOT 5	Estates Manager	Michael	Green Campus Committee Chair	55	M	Ph
IOT 6	Lecturer in Engineering	Liam	Green Campus Committee	62	M	VC
	Lecturer in Computer Science	Gillian	Green Campus Chair		F	
IOT 7	Head of Research	Conor	Founder of the Environmental Science Programme	45	M	VC
IOT 8	Estates Manager	Darren	Institute Sustainability Champion	50	M	F2FN
IOT 9	Estates Manager	Ciara	Green Campus Committee Chair	64	F	VC
UNI 1	Sustainability Officer	Iris		86	F	VC
UNI 2	Lecturer	Trevor	Green Campus Committee Chairperson	88	M	Ph
UNI 3	Sustainability Officer	Laura		55	F	F2FC
UNI 4	Sustainability Officer	Deirdre		57	F	VC
UNI 5	Sustainability Officer	Tara		39	F	Ph
UNI 6	Vice President for Campus Development	Stephen	Green Campus Committee Chair	60	M	VC
UNI 7	Lecturer	Tony	Chair Environmental Committee	61	M	VC

Interview Methods: F2FC - Face to face on campus; F2FN – Face to face neutral location; Ph – Telephone Call; VC - Skype/Zoom

It is worth noting that four of the seven universities had an established Sustainability Officer role and the universities were, in general, quicker to respond to the call for participants. Within IoTs the responses to the invitation to participate were less forthcoming and, in some cases, required several follow-up correspondences. Additionally, within some IoTs, there was a degree of uncertainty in identifying a suitable participant and, in one case, a hesitancy to participate on the part of the person nominated.

Most of the interviews took place using video conferencing technology (e.g. *Skype)*, some taking place face-to-face (3 on the participant's own campus and one in a neutral location) and the remainder carried out by phone. The three interviews conducted on the participant's own campus also included a tour which provided for a rich and deep contextualisation of the participant's lifeworld. The average duration of the interviews was 59 minutes, ranging from 37 minutes to 88 minutes. In most cases interviews were not bound by time constraints and ended when all questions were finished. The

shortest interview (IoT 1) was curtailed due to pressure on the participant's schedule as he had returned from annual leave on the same day the interview was scheduled. The interview with the participant from UNI 5 was also relatively short as I had previously interviewed someone from the same university for a related research project within the previous year, so some of the information had been already gathered.

On completion of the interviews and having reflected on the data being generated, it was determined that a degree of saturation was occurring, and it was decided not to pursue further participants. This decision was made on the basis that additional participants were unlikely to add to the depth of understanding of the field, nor to the richness of the data being gathered, and therefore, the value of pursuing further participants was considered unproductive (Elliott & Timulak, 2005; Marshall et al., 2013). This also took into account the inevitable constraints of time and compromise inherent within the research design (Elliott & Timulak, 2005).

4.4.1.3 Participant Group 2

Those in *Participant Group 2* (Table 4.4) were selected specifically on the basis of their knowledge and experience of ESD-related activities or their position within policy, governance and funding agencies relevant to the ESD Strategy. These interviews were conducted with a view to unpacking the meso-level policy framework, understanding the external steering media and to include the perspectives and voices of those in decision-making roles. The group of participants also included a representative from an Irish NGO that coordinates the GCP. This group consisted of 3 male and 2 female participants and interviews ranged from 42 to 72 minutes. Interviews were mostly carried out face-to-face, except for the participants from *Government Agency 1* (GA 1) which was done via *Skype*. One other national agency involved in HE was invited for interview, but they declined as their organisation had not engaged to date with the ESD Strategy, but they did provide email replies to questions posed by me. Once again, each participant was given a pseudonym and each organisation given an identifier code.

4.4.1.4 Participant Group 3

Participant Group 3 included those with expertise and experience in behavioural insights as some expert views were sought in relation to this emerging theory (Table 4.4). These included interviews with 2 male and 1 female participant all of which were carried out by phone or *Skype* for durations between 22 and 28 minutes. Some of this group were from academia, others from government agencies with behavioural insights units in Ireland and the UK. Just one of these three interviews was recorded with an audio device (Stephanie). Finally, two representatives from an American university which had received several sustainability awards and had some experience in the application of behavioural insights also agreed to participate. This interview was 72 minutes in duration and involved both a male and female representative from that university's sustainability office.

Table 4.4: Participant Groups 2 & 3 - details and summary of interview process

Group	Institution	Code	Pseudonym	Primary Role / Location of Participant	Interview Duration (minutes)	Male (M) / Female (F)	Interview Method
2	Government Agency 1	GA 1	Richard	Higher Education – Head of Policy & Research		M	
			Margaret	Assistant Principal Officer - ESD Coordinator	42	F	VC
2	Government Agency 2	GA 2	Kim	Senior Manager, System Performance		F	
			Ronan	Head of Policy and Strategic Planning	72	M	F2FC
2	Irish Non-Governmental Organisation	NGO	Martin	Green Campus Programme Coordinator	53	M	F2FC
3	International Exemplar	EXEM	Patrick	Assistant Director for Sustainable Programs		M	
			Sara	Sustainability Education & Outreach Coordinator	62	F	VC
3	Behavioural Insights Expert 1	BIE 1	Sean	Irish Government Agency	22	M	Ph*
3	Behavioural Insights Expert 2	BIE 2	William	Irish University	28	M	Ph*
3	Behavioural Insights Expert 3	BIE 3	Stephanie	UK-Based Agency	27	F	VC

Interview Methods: F2FC - Face to face on campus; F2FN – Face to face neutral location; Ph – Telephone Call; VC - Skype/Zoom;
***No recording – Notes only taken**

4.4.2 Interview Process

Prior to commencing interviews with *Participant Group 1*, a pilot interview was undertaken with a colleague who was a member of a Green Campus Committee within my own HEI. The purpose of this interview was to prepare and test the interview design to assess the appropriateness and quality of the data generated (O'Leary, 2004). The pilot interview also allowed me to reflect on the interview process based upon feedback from the interviewee. It was used to check that the duration of the interview was appropriate for the data collection sought and consistent with the time expectation communicated to participants. Finally, I used this pilot to check the functionality and quality of recording devices used.

Once contact was made with each participant, a Lancaster University *Participant Consent Form* was issued, and arrangements made for interviews to take place. Despite the formality of the interview process, there was always an effort made to build a rapport with the participant and to create an environment and atmosphere conducive to honest and open communication. This allowed the interviewees to feel comfortable in sharing their experiences, perspectives and world views (Kvale & Brinkmann, 2009; Silverman, 2015). Attention was also given to keeping the interviews flowing and on track, with regards to both time and topic, leaving enough time to wind-down and close out the interviews and allow for any follow-up questions form the participants (O'Leary, 2004).

The means of collecting data were primarily audio digital recording devices but note taking and follow up email exchanges also contributed to data generation. Two recording devices were used simultaneously for each interview: *Voice Recorder*, loaded on a mobile device (HTC One 8 and later a Samsung Galaxy 9); and *Microphone Pro*, loaded on a Microsoft Surface. Each interview recording was saved using a coded name and stored in an encrypted folder. The interview schedule and sequence were designed in distinct blocks to afford some time to reflect and carry out initial analysis on the data generated before moving to the next group of interviewees. This also allowed me to adjust and tailor interview questions prior to the next round of interviews as required. Interviews for *Participant Group 1* were carried out between February and September 2018 and *Group 2 and 3* interviews were undertaken in February 2020.

4.4.3 Data Analysis

Thematic analysis was used to describe, organise and interpret the data generated from participant interviews in order to respond to the research questions. While I recognised the complexity of each participants reality on the ground, thematic analysis provided a framework to identify the threads that permeated the data, enabling me to build a coherent view of the field (Trowler, 2014). As much of the data was naturally occurring and grounded within the participants experiences and interpretations of ESD, I used *NVivo* software to support the thematic analysis process for interpreting *Participant Group 1* data. This allowed for a more robust and structured approach to generating themes (Braun & Clarke, 2006; Silverman, 2015).

The method undertaken for the thematic analysis was an adaption of the six-step approach put forward by Braun and Clarke (2006) and involved four stages:

1. *Familiarising myself with the data*

Once the interviews were recorded, they were reviewed and transcribed by me using the *Dictate* function in *Microsoft Word*. They were then edited, structured and uploaded to *NVivo* for analysis. This process, though time-consuming, involved repeated reading of the text and initial scanning for patterns or points of interest before I commenced coding.

2. *Generating initial codes*

Codes are described by Braun and Clarke (2006) as the most basic elements of meaning. When the data was uploaded to *NVivo*, each transcript was reviewed again, codes relating to broad topical areas were identified.

3. *Searching, reviewing and defining themes*

Codes were then organised or clustered into related groups, or *nodes*, and then developed into overarching themes. As well as using *NVivo*, mind maps were developed using a software called

Diagrams.net which provided a more visual representation of the themes, subthemes, and nodes (*Figure 5.1*, 5.2, 5.3). Two approaches to thematic analysis were taken:

a. Responding to RQ 1, a deductive approach was adopted using the ESD Strategy recommendations as a framework for identifying themes relating to initiatives and practices emerging

b. Responding to RQ 1.1, an inductive approach to thematic analysis was adopted, with themes constructed from the ground-up.

Guided by the research questions, the search for themes involved capturing patterns and elements that helped to provide meaning to the data set. Once initial themes were identified, these were further refined, with some being merged together and some being recoded or dropped as they were deemed insignificant (Braun & Clarke, 2006).

4. Selecting data extracts

Finally, in order to bring the voice, opinions and experiences of the participants into the research analysis and to add context and richness to the findings, data extracts were selected which demonstrated the prevalence of specific themes.

With regards to data generated from *Participant Groups 2* and *3*, these interviews were also transcribed, and data extracts selected in order to provide context and views from external agencies.

4.5 Ethical Considerations

Prior to commencing interviews, ethical approval was sought from the *Research Ethics Committee* at Lancaster University's Faculty of Arts and Social Sciences and Management School. The ethics approval procedure required consideration of a range of issues including drafting interview questions and identifying interview participants, the design of *Participant Information Sheets*, approach to HEIs, a consideration of resources and gender of participants. During the research period, all data was stored in encrypted files and on password-protected devices. In accordance with Lancaster University guidelines, once this research is completed, data files will be transferred to the university server where they will be kept securely for a period of ten years.

Adopting an interpretivist approach raised important ethical issues for me as the researcher. Views on knowledge strongly influence interpretation of data and it was important to recognise that knowledge is not objective but influenced by the values, beliefs and attitudes of research participants and the researcher (Mackenzie & Knipe, 2006). This raised challenges with respect to rigour and an understanding that findings are subject to bias and may not always be generalised (Reid & Scott,

2006). However, the research design and data analysis process provided a rigorous framework to mitigate against any potential for bias.

Given my immersion in the topic and knowledge acquired during the research period, it was also important to recognise the potential perception of power held by me as the researcher (O'Leary, 2004). To address this, in advance of the interviews being carried out, participants were provided with a *Participant Information Sheet,* outlining the research area, the rationale for the enquiry and their role in the data generation process. A copy of the ESD Strategy was included in the introductory email. The use of semi-structured interviews also provided opportunities for the participants to take some control of the interview process, effectively empowering the participants and allowing them to become co-researchers themselves (Elliott & Timulak, 2005).

The tensions and constraints of power also needed to be acknowledged within the lifeworlds of participants. This was particularly pertinent when answering questions that might be seen to undermine the reputation of an institution and could have led to uncertainty and hesitancy pervading the interview process (Creswell & Poth, 2017). To limit this potential, participants were provided with a *Participant Consent Form* and assured of their anonymity within the research. Participants were also afforded the opportunity to withdraw from the research at any stage or request a withdrawal of their data within a two-week timeframe after the conclusion of the interview.

4.6 Situating Myself

Qualitative research and constructivism are tightly aligned with subjectivity, both of the researcher and the researched (O'Leary, 2004). The subjectivity or positioning of the researcher, including values, attitudes, background and biases, makes neutrality difficult to achieve. It was therefore important to recognise and be aware of my own positioning, being within, what O'Leary (2006) describes as, the *dominant position* of power, and to incorporate strategies within the research design to counterbalance that as necessary.

My academic background includes a broad spectrum of disciplines and identities including business, technology, science and education research. However, a common theme on this journey has been my interest in and passion for environmental causes and campaigns. Within my own HEI I helped to establish a Green Campus Committee and have championed many environmental initiatives. I believe that HEIs are a critical part of the transition towards a more sustainable way of life and that embracing ESD is possible in a way that compliments and not detracts from other institutional priorities.

In order to broaden my world view I undertook to review and understand the field prior to full immersion and the commencement of the data generation process (Sampson, 2004). In advance of conducting the research design I interviewed (without audio recordings) a member of the *Climate*

Change Advisory Council of Ireland and a representative from the *Regional Centre of Expertise in ESD* (RCE) in Dublin. I attended the *National ESD Forum* organised by the DES in 2016, and subsequently, again in 2017 and 2019.

Two previous research enquiries undertaken prior to this thesis also informed the research design and were developed as part of my doctoral programme in Higher Education Research at Lancaster University. The research topics were: 1) an analysis of the views of academics towards ESD within my own institution (O'Donovan, 2016); and 2) an examination of senior management views on institutional ESD strategies in Ireland (O'Donovan, 2017). Emerging from these enquiries was a perceived lack of knowledge and awareness of ESD terminology and the ESD Strategy, both of which had an influence on the RQs and design for this thesis. At the National ESD Forum in 2017 I presented a case study of my ESD experiences and made a submission to the mid-term review of the ESD Strategy in 2018, based upon the findings to date of this research.

Acknowledging my own position and potential for bias, where possible, the influence of my background, world view, and subjectivities were mitigated against through the development of a robust research design. I have at all times striven to carry out the data collection, knowledge generation and thematic analysis with integrity and rigour. By including a broad spectrum of views there has been an attempt to minimise my voice within the research (Hatch & Wisniewski, 1995) and the influence of my role and background on the knowledge produced (Cassell & Symon, 2004). In particular, exploring the paradigm with a clear focus on the RQs helped to minimise the impact of subjective positioning and any level of bias in conclusions reached (O'Leary, 2004).

Whilst most participants are situated outside of my own HEI, being an academic did position me as an insider within the field. While this brought some advantages, it also brought with it certain risks and ethical issues that needed to be addressed within the research design (Humphrey, 2013). Staying mindful of my own position, interview structures, questions and times were kept as consistent as possible. Furthermore, in order to dilute the risk of insider-only perspectives (Creswell & Poth, 2017), voices and views from outside of HE, including NGOS, state agencies and government departments, were also included in the research design. Beyond this enquiry, the interview and data collection process have facilitated continuing communications and opportunities for collaborative learning and knowledge sharing with several participants, both within and external to HEIs.

4.7 Limitations and Reliability of the Data

In recognising ESD's global reach, relevant to poles north and south, it is important to acknowledge that environmental education is an evolutionary process influenced by cultural, political and economic factors (Hart & Nolan, 1999). ESD knowledge building has been dominated by European and North-

American researchers thus marginalising experiences and knowledge in some jurisdictions (Lotz-Sisitka, 2009). This research and the literature analysis, therefore, offers a view of the world shaped by western European goals, policies and agendas and so may have little relevance within cultural contexts that are fundamentally different or in which approaches to social enquiry are underpinned by different assumptions to those employed here (Hart & Nolan, 1999).

Academic enquiry is a means by which realities of the world are unpacked and re-presented in order to make them more clear and useful for interpretation and manipulation (McGilchrist, 2019). The reality presented herein, constructed through the views of participants, is considered within a certain context and moment in time. While there are limitations to interviews as a means of enquiry and data collection, the use of semi-structured and in-depth interview techniques provided flexibility and opportunities to pursue thought-provoking tangents that developed, that might not have been possible through other means (O'Leary, 2004). In order to mitigate against potential partiality, I took responsibility for knowledge production, following a robust and methodical process of data analysis (O'Leary, 2004).

The ages of those interviewed were between 45 and 65, with a solid gender balance amongst participants. While the participants represented a wide geographical spread within Ireland, it is important to acknowledge that all participants were white, well-educated, of similar social class and from what might be considered non-diverse backgrounds. While I did not know any of the participants personally, I had met some previously at various conferences or Green Campus seminars and would possibly have shared values and perhaps world views. It is accepted therefore that the findings, whilst relevant to other jurisdictions, represent a limited world view, specifically situated with HE in Ireland.

Finally, ESD knowledge emerging is contradictory and not yet fully understood which may make conclusions difficult to reach (Hartmann, 1998) and lead to perspectives, outcomes and actions that are diverse, contested and as yet unpredictable (Mack, 2010). Knowledge and data generation with respect to the crises of environmental degradation, biodiversity loss and climate change are being generated at a pace not seen before and therefore the study here can only be regarded as relevant to a certain period in time.

4.8 Scope

Prior to considering a methodological design, it was important to establish some parameters around the interpretation of the sustainability agenda. For the purpose of this research, the objective stated within the ESD Strategy was used to define the ESD agenda:

> to ensure that education contributes to sustainable development by equipping learners with the relevant knowledge (the ‘what’), the key dispositions and skills (the ‘how’) and the values

> (the 'why') that will motivate and empower them throughout their lives to become informed active citizens who take action for a more sustainable future. (DES, 2014, p. 3)

While ESD broadly defined under economic, social and environmental pillars (Ryan & Tilbury, 2012; Sterling & Scott, 2008), it is not possible to separate or completely isolate any one pillar. It was important, therefore, that the research design allowed for the participants' views, perspectives and interpretations of ESD to be heard. Furthermore, the research design accommodated the lived experiences and lifeworlds of those in the policy environment also. Nevertheless, it is important to note that many of the participants views on sustainability were environmentally, rather than socially or economically, focused.

The scope of the research was further framed by the recommendations of the ESD strategy pertaining to HE, which related to curriculum, research, collaborations, policies and sustainability in action, broadly aligned with Selby's (2009) *4Cs* framework. Finally, the HEIs considered in the research design were only those IoTs and universities that were publicly funded in Ireland. While there are several other publicly funded *Colleges of Education* and some private HE providers operating within the state, theses account for a relatively small proportion of the HE sector (<5 %) and were therefore not considered for this research.

4.9 Conclusion

Having set out my research design, philosophical positioning and methodology for the research enquiry, the next chapter provides an overview of the findings and thematic analysis of the data generated.

5 Data Analysis and Findings

This chapter presents the results of the thematic analysis undertaken on the data generated and the key findings as they relate to RQs 1, 1.1 and 1.2. It also introduces the voices and perspectives of those working in HEIs, policy agencies and NGOs with responsibility for and involvement in ESD in Ireland. And quotes are selected and presented to reflect their lived experiences, multiple realities and highlight and reenforce themes that emerge (Creswell, 2007). The focus of this chapter, therefore, is on the emerging ESD HE landscape and drivers and barriers of change. The next chapter will consider the theories discussed in Chapter 3, how they can be used to conceptualise the change process and what value they can bring to that process (RQ 2).

5.1 Introduction

This chapter is structured into four main sections that relate to the following:

5.3) Changes within the emerging ESD landscape (R Q1)

5.4) Perceived barriers to implementing ESD (RQ 1.1)

5.5) Internal ESD drivers (RQ 1.1)

5.6) External ESD drivers (RQ 1.2)

In each section, the main themes and sub-themes that emerge are discussed in detail. In addition, the thematic analysis is presented diagrammatically (Figures 5.1, 5.5, 5.6) demonstrating the themes, subordinate themes and nodes developed and providing further insight into both the analysis and the complexity of the research field.

5.2 Thematic Analysis Approach

In exploring the emerging changes within HE (Section 5.3), a largely deductive approach to thematic analysis was undertaken, using the recommendations of the ESD Strategy as a framework to unpack the data and identify and categorise the relevant changes taking place within HEIs (Braun & Clarke, 2006; Burnard et al., 2008). Specific references from the ESD Strategy are used to frame the meso-level findings in this section and the analysis adopted is therefore richer in descriptive analysis, with less emphasis on theory development. To bring further context and to ground the data in the field, a series of *Sustainability Snapshots,* innovative HEI responses to ESD, are presented throughout this section.

In respect of sections 5.4 and 5.5, an inductive approach to thematic analysis was adopted, whereby themes and subordinate themes are constructed and interpreted from the experiences of the participants. In this approach the micro-level data is situated and grounded in the lifeworlds of those interviewed, introducing context, allowing for the voice of the participants to be heard and providing

more flexibility in terms of theme and theory development (Burnard et al., 2008). When identifying themes relating to external drivers in Section 5.6, a range of sources were used which included document analysis, interviews with participants GA 1 and GA 2, in addition to the data generated from interviews with HEI participants.

5.3 Changes Within the Emerging ESD Landscape (R Q1)

As outlined in Chapter 2, the recommendations within the ESD Strategy relating to HE fall into five sub-categories:

5.3.1 Green Campus Programme (Recommendations #32, 35, 43)

5.3.2 Curriculum (Recommendation #19)

5.3.3 Research (Recommendation #22)

5.3.4 Collaborations (Recommendation #34)

5.3.5 Policy (Recommendation #39)

The following sections present the findings related to each sub-category and *Figure 5.1* presents a graphical representation of the results of this stage of the thematic analysis.

5.3.1 Green Campus Programme

The GCP is specifically referenced within the ESD Strategy (Recommendation #32) as a means of progressing ESD within HEIs:

> The extension of the 'Green Campus' programme to all further and higher education institutions on a phased basis should also be explored. (DES, 2014, p. 30)

All HEIs are seen to be participating on the GCP at the time of data collection, some having achieved full green flag accreditation, some in the process of registering applications and others engaging with elements of the programme. Though it may be a simplistic metric for such a complex area, this rate of engagement is relatively high by international standards according to Martin:

> About 40% of Green Campuses are registered here in Ireland, and I think it says a lot about us. But also, it says a lot about internationally too, we shouldn't be that far ahead from a registration perspective. (Martin; NGO)

The GCP has a dual impact with respect to ESD in that it aims to support HEIs in becoming exemplars for sustainable practices through the operation and management of campuses, but also requires HEIs to demonstrate links with sustainability and the curriculum (Ryan-Fogarty et al., 2016). In addition to the GCP, some HEIs are pursuing additional sustainability accreditation through frameworks provided by *UI Green Metrics*, *STARS* and the *Times Higher Education Impact Rankings*. Some of the subthemes

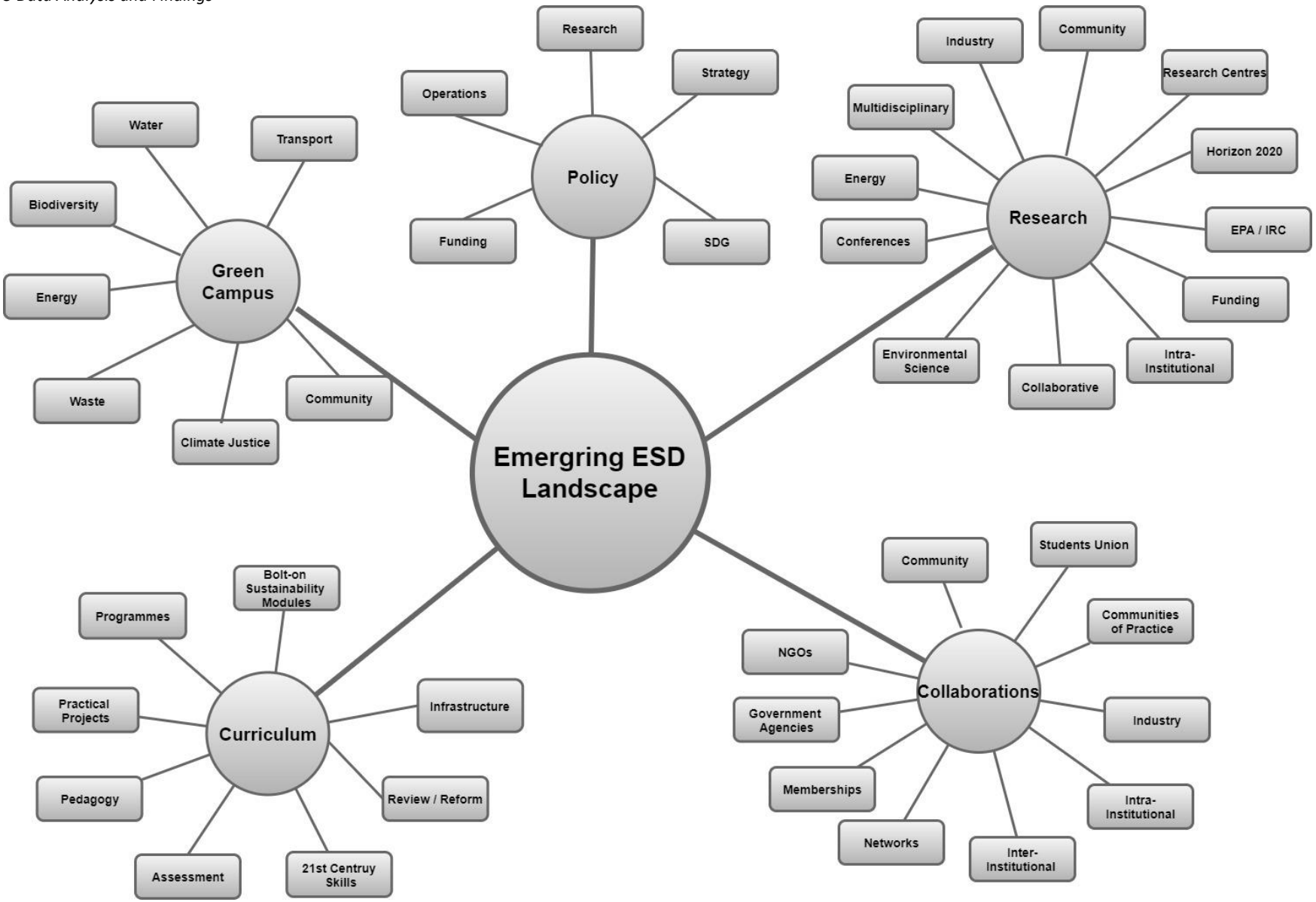

Figure 5.1: A graphical representation of the themes, subthemes and nodes relating to ESD change

that emerged relating to the GCP include *campus management*, *Green Campus committee*, the *student voice* and *connecting with nature*.

5.3.1.1 Campus Management

From the data, there is evidence of HEIs pursuing a wide range of environmental initiatives relating to the GCP themes, however, the focus on carbon reduction and the pursuit of energy conservation are dominant themes. A significant driver of change is government regulations and national climate change commitments that require HEIs to reduce their energy consumption, as highlighted by Colin:

> Public sector bodies have an obligation for one-third reduction in energy by 2020 and so we've been measuring our energy performance since 2009 and we've over 26% reduction at the moment, and they're looking for the last 7 or 8%. (Colin, IoT 2)

All participants detailed significant progress in their quest to reach those targets. Within some HEIs, there are ambitions to go beyond the minimum requirements and transfer to more sustainable technologies, as Laura described:

> We want to reduce our total energy consumption by 33% and increase energy renewable technology by 50%. So, in terms of the theme of energy the focus is on reducing the amount of energy we're using, improving the energy efficiency of what we're using and make a move towards more sustainable forms of energy. (Laura, UNI 3)

While regulations and the pursuit of cost-savings appear to drive change, Iris pointed out that demonstrating best practice to students is also considered important:

> It's coming up with KPIs and metrics for the campus. We can't teach that unless we can walk the walk, so we need to do it from all sides. (Iris, UIN 1)

The design of modern buildings as exemplars of sustainability and the implementation of new green technologies allows students and staff to act as learning participants, co-producing sustainability knowledge (Cebrián et al., 2015). Laura referenced this when talking about a new campus building:

> Some of the buildings, particularly our engineering building would be top of the range in terms of rainwater harvesting and energy. It's a living lab effectively. (Laura; UNI 3)

Examples of the campus as an ecosystem or *living laboratory,* that can provide a space for people to engage, explore or experiment with sustainability, are abundant and resonate with the literature (Clarke, 2013; Evans et al., 2015; Winter & Cotton, 2012). Tara outlined how novel experiments and unpredictable outcomes were part of the process of learning, a point echoed by Evans (2015):

> We would definitely be looking at the living lab approach because, you know, we don't always know what we're doing is the best thing to do, but we can experiment and hope then we come out with the results that everyone wants you know. (Tara; UNI 5)

The role of agency within campus management departments in initiating and coordinating actions and 'green' campus development emerges strongly from within the data. There is, however, a risk that such developments happen in isolation and remain disconnected from academia as Tony highlighted:

> It's more than just a facilities-type of issue [sustainability]. This is the overall direction of the university-type of issue. It needs more than just the waste and energy guys on it. (Tony; UNI 7)

Many participants referenced the development and implementation of waste management initiatives. Several cited issues regarding bin design, segregation, single-use cups and plastics, resources and signage and there appeared to be a lack of national guidelines and infrastructure to support this process. Initiatives relating to campus travel patterns and modal choice, particularly collaborations with the National Transport Authority (NTA) and local authorities, were also frequently cited.

Sustainability Snapshot 1: Maynooth University and Climate Justice

The Irish Climate Analysis and Research UnitS (ICARUS) centre established at Maynooth University is a national leader in the area of climate change. Through its collaboration with Maynooth Seminary and Trócaire (Irish NGO), Maynooth University adopted an anchoring theme of *climate justice* as part of its Green Campus action plan. Climate justice recognises the global, ethical and political effects of climate change and seeks to safeguard the human rights of those most impacted. As a result, climate justice has now become enshrined as a theme within the Green Campus Programme. In 2015, a student-led campaign resulted in Maynooth University becoming the first HEI in Ireland to adopt a fossil-free and ethical investment policy. This triggered similar responses by NUI Galway and Trinity College Dublin 2016.

5.3.1.2 Green Campus Committee

The GCP is coordinated by a Green Campus Committee which includes membership from a broad spectrum of the campus community. The committees offer opportunities for inter-institutional collaborations and a platform for a breadth of views to be heard, as Trevor outlined:

> Its membership [Green Campus Committee] is very much across the range and it's kind of a lateral structure with academic and admin staff, technical staff, management and students and local community and County Council, you know, even neighbors. (Trevor; UNI 2)

The multidisciplinary identity of committees and the collective learning that is facilitated (Kennedy et al., 2015) helps to overcome potential resistance to change highlighted by Lozano (2006). It also elevates campus initiatives out of the arena of campus management departments and provides the potential to develop the necessary connections with research and academia, as Ciara highlighted:

> We wanted an academic to share the Green Campus Committee because I wanted to get buy in and for it not to be just an 'Estates thing'. So, we have an academic who chairs this and he's very passionate and very much into renewable energy himself and that's his research area. (Ciara; IoT 9)

A further social impact of the Green Campus Committee is the resulting sense of pride and achievement that can accrue on receiving Green Flag accreditation, as Tara commented:

> When we get some kind of accreditation, it's everybody's, it's not just someone sitting in an office putting in data. So, I think everyone is quite proud of what they've done there, and people are kind of thinking 'Oh we can do that too'. (Tara; UNI 5)

Conor also noted how important successful projects can be in generating institutional support amongst senior management, crucial for advancing the sustainability agenda (Tilbury, 2011a):

> While failure is an orphan, success has many fathers; and that is if your strategy, unspoken, can include the gifting of good news stories to executive decision makers, on the basis of tacit or real support for the sustainability agenda, then that is a way to get progress as well. (Conor; IoT 7)

5.3.1.3 The Student Voice

The ethos of the GCP is that students are an integral part of the committee structure as Martin outlined:

> It [GCP] gives students an opportunity to meaningfully engage with issues that are local to them on campus, to think about sustainability in a broader sense, as well and giving them the power to change things. It allows them to have conversations and influence within an organisation that they might not normally have. (Martin, NGO)

This approach addresses a concern raised by Winter and Cotton (2012) that students can feel disempowered from their university's decision making with respect to sustainability. Tara, a sustainability coordinator, outlined the positive engagement from student environmental societies and the value they get from being involved:

> The students who are involved in societies are doing phenomenal work and they have very set structures within societies. They have their own budgets, so they do have that ownership and that responsibility which I don't think the Green Campus Committee has. (Tara; UNI 5)

Stephen, who chairs a GCP committee, however, had a slightly different perspective and one that was echoed by others:

> I think there's a little bit of a difference between theory and reality there, in that it's actually quite difficult to recruit people, particularly students, and to retain them. (Stephen, UNI 6)

Nevertheless, the agency exerted by students is apparent and several participants referenced reform taking place within Students' Union constitutions introducing newly designated positions with direct responsibility for environmental issues.

5.3.1.4 Reconnecting with Nature

A further theme that emerged is the way in which the campus provides an opportunity for people to reconnect with nature and promote health and well-being (Foster, 2000). An increase in awareness of biodiversity loss and the reduction in natural habitats for wildlife has initiated a range of nature-based actions and projects. Many HEIs participate on national campaigns such as the *BioBitz, All-Ireland Pollinator Plan* and *April Spring Clean*. The nature of campus management is changing too, with an emphasis on implementing resource conservation technologies, leaving with wild areas for showcasing biodiversity and supporting bees and pollination, and reducing waste. Trevor outlined how his campus was being used to develop a sense of community well-being:

> We've had quite productive links with the Mental Health Society and the campus itself is a space that can be therapeutic when it's developed in certain ways. (Trevor; UNI 2)

Sustainability Snapshot 2: Trinity College Dublin goes wild

Responding to Ireland's biodiversity crisis, in May 2020, Trinity College Dublin launched a public poll to see if there was support for a plan to change a very formal front lawn, which had been under manicured grass for at least 150 years, into a bee-friendly wildflower meadow. Out of a total of 14,000 votes, almost 12,500 voted in favour of replanting the area. The reduced need for lawn mowing and pesticide control will help support biodiversity and protect important insects that feed and nest in the soil. The wildflower meadow will provide a habitat for native insects and a food source for city centre pollinators. Equally, it will help inform the public and visitors to this historic campus of the small steps that can be taken to redress the loss of biodiversity. Prof John Parnell, chair of Trinity's grounds and gardens committee, said the results have sent a message that "people want to see more biodiversity and in particular want institutions to set an example". (Irish Times, 2020)

5.3.2 Curriculum

While SDG #4 advocates for equitable and inclusive access to quality education for all, it is recognised that education is actually a critical conduit for the achievement of all 17 SDGs (UNESCO, 2017). In this regard, ESD espouses transformational education that encompasses curriculum, programme leaning outcomes, the learning environment and pedagogy (UNESCO, 2017). In support of this aim, the ESD Strategy Recommendation #19 states:

> Higher Education Institutions should seek to introduce more undergraduate and post-graduate programmes that are relevant to sustainable development. They should also explore the potential for introducing principles of sustainable development into existing disciplines. (DES, 2014, p. 22)

This section considers two main themes, curriculum reform and pedagogy. Curriculum is considered a critical mechanism for engaging and empowering students with respect to ESD, as emphasised by Martin:

> [Curriculum] gives students the opportunity to tackle the wicked problems. We need to be asking the right questions. So, can we decouple growth and carbon emissions? How do we do that? We need to start that conversation and ask those fundamental questions. (Martin, NGO)

The review of the ESD Strategy in 2018 revealed more than 90 courses within Irish HEIs that address SD (DES, 2018). Demonstrating links to environmental sustainability and the curriculum is also a central tenet of GCP accreditation, though the depth of that integration remains ambiguous (Foley, 2017). Central to this issue is the tension between learning *for* and *about* sustainability. The ESD Strategy is clear in its ambition for HEIS to pursue Hargreaves' (2008) vision of whole-institutional change and a learning *for* sustainability approach, but the means of achieving that is less clear. The data unearths a wide variety of institutional responses with regards to curriculum development, which fall into three broad categories:

1. An emphasis on courses that are already sustainability focused (IoT: *n*=6; UNI: *n*=2)
2. Developing elective (bolt-on) sustainability modules (IoT: *n*=1; UNI: *n*=4)
3. Pursuing transformational curriculum reform (IoT: *n*=2; UNI: *n*=4)

Each of these approaches are further analysed in the following sections.

5.3.2.1 Disciplines/Courses Already Sustainability Focused

Many respondents referenced that sustainability was already embedded within programmes that would be considered a natural fit for the sustainability agenda. Trevor, for example, described how teaching and learning about the environment permeates certain departments:

> We've been trying to advance environmental issues in a number of courses. Obviously, there are some departments which are doing quite a bit anyway. So, the Geography Department here is quite extensive. (Trevor; UNI 2)

Colin, on the other hand, described how engineering students develop sustainability knowledge, without perhaps engaging deeply with the issues:

> So, there are courses that are driven by it, there are also courses that have elements of it. Anybody dealing with electrical engineering, you know, by default they're just walking into it (laughing), whether they recognise it or not that's a different matter. (Colin IoT 2)

The difficulty with this approach it that is has been shown to marginalise certain cohorts of students and faculties from the sustainability agenda (Foley, 2017; Huckle, 2004). Martin feels this is an issue that needs to be addressed:

> Business and commerce programmes of most campuses have very little involvement in the Green Campus Programme or in the environmental areas and that has to change. It can't be all just about the economics. (Martin, NGO)

Stephen, who chairs an environmental committee, gave his perspective, outlining the potential and value of ground-level agency within the reform process:

> If you went through the list of modules in the University you would probably be able to attach a sustainability tag to quite a significant number of modules, but that, in my view, is very unlikely to have come about through a commitment to sustainability at the top of the university. It would be to do with the interests of people in drafting those module descriptors. (Stephen, UNI 6).

A lack of a coordinated response also limits the opportunities for academics and students to explore the correlations and linkages between disciplines and topics and understand organisational impacts on the environment and society (Mori Junior et al., 2019).

5.3.2.2 Bolt-on Sustainability Modules

The development of *bolt-on* approaches to ESD usually involves campus-wide sustainability modules aimed at widening access to learning *about* sustainability (Denby & Rickards, 2016). This approach,

which tends to be aligned with a positivist or behaviourist perspective (Frisk & Larson, 2011; Sterling, 2010a), usually involves the development of elective, or micro-modules, which aim to introduce sustainability themes and unpack terminology. Tara described such a module at her university:

> We have a university-wide module on sustainability, and that's in its third year and that's open to anyone and to the public. (Tara; UNI 5)

In some cases, the modules are generic, but other HEIs provide discipline-specific contextualised curriculum with active learning assignments focused at campus or community level. However, Dierdre reflected on the potential drawbacks to the approach at her university:

> A lot of those would be modules that you choose to do, they're not mandatory and it's something that has come up in conversation that we've considered, you know, should we have an element or a module that everybody has to do. (Deirdre; UNI 4)

Ciara also highlighted the difficulty students have in engaging with bolt-on modules:

> The problem is they don't have time and after one semester they're totally focused on exams. Come the second semester, they have no time for extracurricular anything, even though they'd like to. (Ciara; IoT 9)

On the other hand, Irish outlined how a micro-module called *ESD for Teachers*, aimed at developing sustainability pedagogies, was creating links with local primary school teachers:

> You can do 3 hours in three weeks. So, how do you teach the teachers to teach sustainability. (Iris; UNI 1)

5.3.2.3 Whole-institution Curriculum Reform

While the GCP requires HEIs to map environmental sustainability to the curriculum, the findings demonstrate little progress to date of transformative curriculum reform. This requires a reformatory response and systemic change to institutional structures, an approach more aligned with a social practice perspective (Sterling, 2010a). The challenge can sometimes appear daunting and the findings, similar to the literature, reveals that gradual and ongoing tweaking of curriculum is preferred, slowly bringing academics and managers on board (Arbuthnott, 2009; Fullan, 2005). However, several HEIs have stated their ambition and commitment to undertake system-wide change and Laura outlined a vision for her university:

> I very much believe that the function of Higher Education Institutions would be to embed learning for sustainability into the teaching and learning so that our graduates, you know, are

> immersed in it and when they leave they become the experts and the leaders in terms of translating that knowledge. (Laura, UNI 3)

Iris' university was undertaking a review of curriculum across the full spectrum of disciplines using the SDGs as a framework for curriculum reform:

> It looks at a complete curriculum review. So the SDG's are looked at and included in all curriculum, because if we don't teach the students what in God's name sustainability is about, and the role they have to play in it, who is going to teach them what the carbon neutral campus is all about? (Iris, UNI 1)

Kim, from GA 2, also felt that the SDGs provided a useful framework:

> I think the SDG's are becoming a really useful framework for institutions and they are looking at how they are embedded across different curricula. (Kim; GA 2)

Having considered curriculum, the next section moves the focus onto teaching and learning for sustainability.

Sustainability Snapshot 3: GMIT's Swift Supports and Native Woodland

Galway-Mayo Institute of Technology's campuses in Castlebar and Letterfrack are two of the smallest campuses to attain Green Flag accreditation. Due to a loss of breeding sites in Ireland, the swift has become a bird of conservation concern. The Green Campus Committee in Castlebar intervened and erected swift nest boxes which can be viewed on livestream cameras. In 2019, 10 of these nests were occupied by swifts and 12 chicks were successfully reared. A Masters student is researching the breeding biology of the swifts at the nest boxes.

At the Letterfrack campus, where programmes are focused on furniture design and wood technology, the students and staff have collaborated with Connemara National Park to plant 5,000 native trees on a 2.5 hectares site. An Irish Hardwood Research Centre has also been established to examine opportunities to increase the utilisation of Irish-grown and locally sourced trees. A Masters student is researching the value-added potential of juvenile trees which typically are used for firewood.

5.3.2.4 Pedagogy

While the focus of the ESD Strategy is predominantly on curriculum reform, ESD advocates for active and participatory pedagogies and enquiry-based learning approaches to support critical thinking and to develop students' knowledge, skills and character (Fadel & Groff, 2019). Some innovative and multidisciplinary approaches emerged within the data, as Tony's experience highlighted:

> There's a game called *Perspectivity* and another game called *In the Loop* which are classroom-based activities related to sustainability. And actually, they're really good because it's active

> learning, so the students are actually doing things. And the other thing is it's not a role play type of game, it's a game you actually make decisions and you've got to be responsible for unpacking your decisions. (Tony, UNI 7)

Stephen commented on the introduction of problem-based learning within his faculty and the importance of the learning environment when considering ESD:

> I introduced problem-based learning into the curriculum based on the belief that they'd learn more. Then when we were designing the Science buildings, I really stuck my neck out and put in four large rooms which were for project or problem-based learning, where it was activity-based as opposed to sitting and listening. (Stephen; UNI 6)

Several participants cited opportunities to link sustainability learning with assessment as a means of engaging and rewarding student efforts:

> We also have two courses out here in public relations, in TV and media. So, we might actually ask staff to give the students an assignment. If you can link what they're doing to their assessments, you know then that they're going to do it. (Gillian; IoT 6)

Colin outlined the benefits of experiential learning and linking student projects to various sustainability initiatives on campus:

> I would love to see an integration into student projects. We have multimedia students and they could be doing little vignettes about how the bin system works and about turning off the lights and turning off computers and they can get marked academically on it. It could be very tangible and when they go looking for jobs they can say: 'Look, we did this' and 'We did that'. (Colin; IoT 2)

As evidenced, there are many and varied initiatives within the data pertaining to curriculum and teaching and learning. Funding from the HEA's Human Capital Initiative (HCI) has also provided opportunities for HEIs to increase student places on existing programmes and develop new programmes, some of which have been linked to sustainability. However, what was notable from the data was the dearth of strategies to develop the sustainability literacy and competency of academics. Just two HEIs (IOT 3 and UNI 3) had a programme in place for staff development to support the transition to sustainability-centred teaching and learning, a subject I return to in the next chapter.

5.3.3 Research

Recommendation #22 of the ESD Strategy relates to research and states:

> Third level institutions should continue to seek collaborations with industry and other stakeholders through strategic clusters and centres of excellence for sustainable development. Any opportunities for international cooperation between academic institutions at EU level or beyond should also be promoted. (DES, 2014, P.24)

From the data, a broad spectrum of sustainability-focused research is evident, from small-scale and individual projects to multidisciplinary groups and intra-institutional consortia. National funding agencies such as the Irish Research Council (IRC), Environmental Protection Agency (EPA) and Science Foundation Ireland (SFI) offer funded research opportunities for sustainability-related projects. Sustainability is also embedded in many European funding mechanisms such as *Horizon 2020* and *Interreg*. The scale and research ambition of universities is more advanced, in general, than IoTs and most universities have established research centres dedicated to energy, environment or climate change research (e.g. *ICARUS* at Maynooth University, *ERI* at University College Cork, *E3* at Trinity College Dublin and the *Ryan Institute* at National University of Ireland Galway). A significant part of the remit of these centres is to facilitate external partnerships and seek opportunities for international and transdisciplinary research, highlighted within the literature as a critical component of ESD (Ceulemans et al., 2015).

The scale and impact of research activity can, in turn, influence institutional culture, practices and programme development, as Conor described:

> Because we have an Environmental Science Department and environmental research groups and we have a reputation as leaders in the environmental area, for us it's actually easier to widen the discussion in the Academic Council, in academic committees and in Programme Boards and to get acceptance at that level. (Conor; IoT 7)

Iris also spoke of the opportunities to link research to teaching, learning and the curriculum:

> So, we have a whole pile of engineers looking at composting and making energy out of the compost. I have water filtration systems for the rainwater harvesting, I have soil analysis. One of the girls in chemistry is doing a PhD looking at the chemical markers in the honey. I come up with projects for them to do, so it’s trying to build it back into what's going on in the classroom. (Iris, UNI 1)

Though evidence of research and knowledge silos appear in the data, so too do examples of trans-boundary learning and research as espoused by ESD (Lang et al., 2012). Tara outlined such an approach:

> Everyone is taking it more seriously and realising that sustainability needs to be included across all of our operations and our research, in everything. There's a lot of really good research projects that are just after being funded combining sociology, environmental science, energy engineering and those kinds of things. (Tara; UNI 5)

Iris described an international research network that her University was involved with who prioritise action-oriented research as a means of scaling up innovations within the university and through industry and community partnerships:

> The Global Consortium for Sustainability Outcomes is a group of 10 or 12 universities that got together and decided that the research is great but what we want is outcomes. We then fund projects that are actually going to be implementable, scalable projects within our institutions in the living labs and then have implementing partners that would take them and scale them out. (Iris; UNI 1)

Trevor highlighted the impact of a recent conference on ESD and how it provided a seedbed for new thinking but also influenced their own institutional ESD transition:

> That was an international conference for about 400 people, and we had speakers from all over the world. I think it was influential and it brought in a lot of environmentalists and people across civil society who were engaged in these activities and helped to kick start changes in thinking more generally. (Trevor; UNI 2)

In parallel to the GCP Committees, several participants referred to communities of practice focused on environmental and social issues, providing opportunities for collaborative thinking and learning, networking, curriculum development, knowledge sharing and research (Gardner, 2017; Lang et al., 2012). Deirdre commented on the opportunities for collective thinking provided by her network:

> The *Sustainability Network* then, is more for people to come together in an informal way and to collaborate and to inform ourselves, but also to brainstorm for potential ideas for the group. (Deirdre; UNI 4)

The *Environmental Association of Universities and Colleges* (EAUC) features regularly, providing opportunities for strategic networking as well as a range of HEI supports, information and resources. Later in this chapter (Section 5.6.1.3) I will consider the importance of research funding as a driver of ESD-centred change, but next I discuss some of the examples of community-centred sustainability collaborations amongst HEIs.

Sustainability Snapshot 4: Dublin City University students vote for plastic-free campus

Dublin City University (DCU) students initiated a campaign to ban the use of single-use plastics on campus. Over 2000 signatures were received which permitted a university referendum to proceed in which 94% voted in favour of the ban. By the end of 2020 takeaway coffee cups, single-use plastic containers, cutlery, straws and plastic bags will be eliminated from the campus. DCU Institute of Education coordinates the *Education for a Sustainable World Project* which helps primary school teachers from Ireland, Germany, USA and Mexico reorient their teaching *for* sustainability. The programme, linking sustainability and science education, uses the SDGs as a framework to examine life cycle analysis, promoting active and participatory leaning.

5.3.4 Community Collaborations

HEI students and staff form part of the fabric of their local communities. Relationships with those communities involve multiple and complex interdependencies and associations in areas such as housing, transport, infrastructure and the environment. Recommendation #34 in the ESD strategy states that:

> Higher Education Institutions should continue to form closer links with schools, the Youth sector, and communities in relation to sustainable development in order to exchange ideas and best practice and in particular to facilitate wider access to the specialist expertise and knowledge on sustainability that is available in third level institutions. (DES, 2014, P.24)

The potential for HEIs to support community transitions to sustainable lifestyles (Hopkins & McKeown, 2002) is evident from the data, with HEIs playing a lead role in a range of government funded community-centered initiatives (e.g. *Sustainable Energy Communities*, *Smarter Trave*l). Conor described the value that HEIs can bring to these partnerships:

> I would propose that higher education institutions have a particular value and indeed they can act as the glue that holds these kinds of networks together for the very reason that they are the honest broker, that they don't present any kind of threat. (Conor; IoT 7)

Partnerships and collaborative projects with local and national government agencies are a common thread within the data and include transport initiatives with the NTA and education and awareness campaigns with local councils. Equally, there are recurrent and rich examples of various collaborations involving national and international NGOs and community-centred projects. Iris outlined the benefits of the partnership project established to develop SD literacy amongst local primary school teachers:

> On Tuesday we took twenty teachers from random Dublin schools and voluntarily they took on this CPD module on principles and competencies around sustainability. At the time, most them were afraid and scared to teach sustainability because they didn't know how. (Iris, UNI 1)

These collaborative relationships often seem to be underpinned and forged through personal relationships and the knowledge that there are mutually beneficial outcomes and knowledge sharing for all involved.

5.3.5 Policies

Recommendation #39 within the ESD strategy states:

> Sustainable development should also be reflected in future mission statements of the agencies under the aegis of the Department, including all further and higher education institutions. (DES, 2014, p. 33)

All but one participant stated that sustainability was specifically referenced within their institutional strategies. Several of the more progressive HEIs, in particular universities, have developed sustainability strategies, placing sustainability as a central pillar of their missions. Tara's comments demonstrated the importance of her university's strategy to her work as a sustainability officer:

> So, I would say it's [sustainability strategy] very important to me for the conversations I'm having with people in trying to actually get action on the ground and then with improvements for the University. I mean it kind of feeds into everything. (Tara; UNI 5)

However, when discussing this topic with participants, it was clear that the ESD Strategy itself was not influencing institutional strategies, a point I return to later in Section 5.6.1. The theme of institutional strategies is also considered further in Section 5.5.3 within the context of sustainability drivers.

Sustainability Snapshot 5: Learn, Live, Lead at National University of Ireland Galway

NUIG carried out a year-long engagement with the campus community to develop a shared understanding of what sustainability means and to generate ideas to inform their sustainability strategy. This holistic approach encompassed social, environmental and economic sustainability and a *Learn, Live, Lead* model emerged. 'Learn' recognises the importance of linking research and course curriculum; 'Live' relates to the university's ambition to reduce energy and greenhouse gases emissions, and to use the built environment to improve biodiversity and support health and well-being; and 'lead' requires sustainability values to permeate institutional governance and leadership. The multidisciplinary Community and University Sustainability Project team (CUSP) was established to manage the initiative and to achieve a clear set of targets and objectives by 2020.

Having analysed and reflected on the data and, using the ESD Strategy recommendations as a framework of enquiry, the next section provides an meso-level overview of these findings in response to RQ 1.

5.3.6 ESD-centred change in Irish HE

In order to paint a picture of the emerging HE landscape, a summary of the activities within the HE sector aligned with the ESD Strategy's recommendations is presented in Table 5.1. Though many HEIs are engaging with the GCP, in the absence of a national sustainability assessment framework, it remains difficult to measure relative progress and recognise best practice (Ceulemans et al., 2015; Laurie et al., 2016; Shriberg, 2002). As a means of brining the data together and classifying the overall level of engagement with ESD, I have adopted Trowler's et al.'s (2013) categorisation of institutional change for sustainability, as described below:

1. Small-medium scale initiatives driven by clusters of committed individuals or groups, focusing on greening the campus, student activities and module-level curriculum change
2. Various large-scale projects at organisational level, involving institutional support and resource allocation
3. Integrated-whole institutional changes, involving senior leadership and strategic vision, seeking to bring about cultural change and transforming curriculum.

I have therefore, placed each HEI in a category between 1 to 3 in Table 5.1. While I acknowledge that the rigour of this classification is somewhat limited and does not take into account the contested concepts, complexity on the ground and inherent human behaviours and attitudes, it does provide a useful means of mapping relative progress observed and allows for some meso-level analysis to be undertaken (Jacobs, 2018).

Nationally, the GCP has become a feature of all HEIs, with varying levels of engagement observed. Of the nine HEIs that have successfully received Green Flag accreditation, 6 of those are universities. Furthermore, all except one university has been placed in category 2 or 3, whereas 6 of the IoTs are in category 1, indicating that, in general, it would appear that universities are moving at a faster and more ambitious pace than their IoT counterparts, a point I return to in chapter 6. By extension, changes and initiatives within many of the IoTs appear fragmented and random and not necessarily connected to institutional priorities (Tilbury, 2011b).

While bolt-on approaches to curriculum reform continue to evolve (Wade, 2008), there are green shoots emerging of transformative change. There is also healthy competition observed and a degree of institutional isomorphism occurring (Hannan & Freeman, 1989), whereby HEIs are seen to influence and mimic the behaviour of others. This is a view shared by Marin:

> Irish campuses are leading the way in particular areas, which is great. They're learning often from each other and they're also competitive, but collegial as well. (Martin, NGO)

Table 5.1: Classification of Irish HEIs in respect of activities related to the ESD Strategy

ESD Srategy Recommendation	#32, 35, 43		#19				#22	#34	#39		
			Curriculum Reform								
Institution ... ESD Area	Green Campus Committee	Green Flag	Discipline	Bolt-on	Plan for Campus-wide reform	ESD Staff Development	Resarch Active	Collaborations	Included in Strategy	Sustainability strategy	Category of change observed
IOT 1	√		√				√	√	√		1
IOT 2	√		√		√		√	√	√	√	2
IOT 3	√	√	√			√	√	√			1
IOT 4	√		√						√		1
IOT 5	√	√	√					√	√		1
IOT 6	√		√					√	√	√	1
IOT 7	√		√				√	√	√		2
IOT 8	√		√						√		1
IOT 9	√	√	√				√	√	√		2
UNI 1	√	√	√	√	√		√	√	√	√	3
UNI 2	√	√	√				√	√	√	√	2
UNI 3	√	√	√		√	√	√	√	√	√	3
UNI 4	√	√	√				√	√	√	√	2
UNI 5	√	√	√	√	√		√	√	√	√	3
UNI 6	√		√				√	√	√		1
UNI 7	√	√	√	√			√	√	√	√	2

Stephen's comments, however, give a glimpse into the complexity of the reality on the ground and the scale of the challenge that still lies ahead:

> Universities have their eye on very different balls to sustainability really, you know. Expenditure on sustainability, I think, is potentially likely to be seen as being in the 'nice to have category' as opposed to the other imperatives that I've just talked about [research and international rankings]. (Stephen; UNI 6)

A final observation from this analysis is the lack of opportunities evident for sustainability capacity-building for academics, with just two HEIs offering professional development programmes for teaching and learning for sustainability. This is a critical enabler identified within the literature (Cebrián et al., 2015; Haase, 2013; Trowler et al., 2013) and a point I return to later.

Having considered the meso-level activity of the HE sector, the next section analyses themes relating to the perceived barriers of sustainability-centred change that emerged from the data.

5.4 Perceived Barriers

This section considers RQ 1.1 and examines the themes that have emerged relating to perceived barriers to implementing and advancing ESD. The themes, subordinate themes and nodes identified are presented in Figure 5.2, however, for the purpose of concision, the overarching themes that are discussed in detail are:

5.4.1 Scale of change (subordinate themes are coordination and communication)

5.4.2 Power (subordinate themes are leadership and resistance to change)

5.4.3 Resources

5.4.1 Scale of change

The management of institutional change is multifaceted and the scale and depth of the ESD agenda, and its global context, adds a further level of complexity to that process. The two subordinate themes related to the scale of change that emerge from the data analysis are coordination and communication.

5.4.1.1 Coordination

The systemic nature of institutional change envisioned through ESD requires the engagement of a significant proportion of the HEI community. As highlighted by Verhulst & Lambrechts (2015), coordination of the various activities is a significant challenge and impacts greatly on the management of the change process. Martin recognised this through his work with HEIs on the GCP:

> There can be challenges certainly in the institutions with 5,000 to 6,000 students. There are logistics involved in operating the programme [GCP] and trying to capture everything that's happened can be a challenge within the medium size campuses. (Martin; NGO)

Furthermore, poor coordination also leads to a proliferation of ambiguity regarding the aims, direction and pace of change (Lozano et al., 2013). At the time of interviews taking place, four of the seven universities had a person employed, either full- or part-time, with responsibility for coordinating campus sustainability initiatives. By comparison, just one IoT had a designated role for a sustainability officer (IoT 2). Martin, noted the statement of intent that such an investment makes:

> A number of those organisations now have full-time sustainability officers and it's realised that that's an important role and that the investment is coming from the institutions. (Martin; NGO)

Meadows (2006) remarked on the importance of recognising the long-term view of the process of change toward ESD, and coordinators can facilitate and empower actors on the ground, as Laura noted:

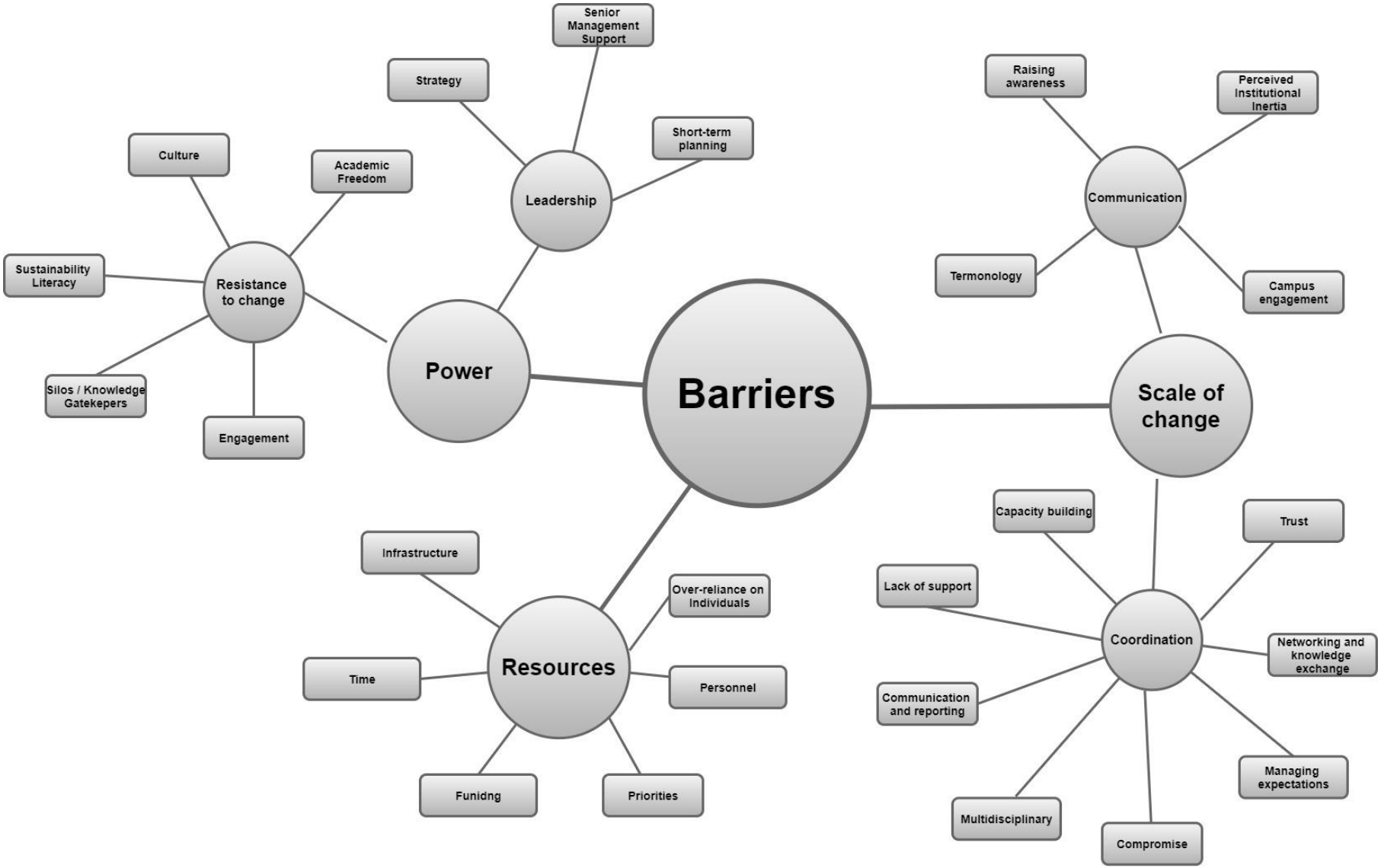

Figure 5.2: A graphical representation of the themes, subthemes and nodes related to perceived barriers to ESD

> You know change doesn't happen overnight. There are pockets of very good work and it's a matter of recognising what could work and setting things up that allows people to take actions with the sustainability knowledge they now have. (Laura; UNI 3)

Deirdre echoed this sentiment:

> I guess part of my vision for the position I'm in [sustainability advisor] is to allow people to become champions and leaders and to support them in doing that. (Deirdre; UNI 4)

Iris described how the sustainability coordinator also connects the various sustainability actors, which is critical for progressing trans-boundary learning and multidisciplinary collaboration (Dlouha et al., 2018; Glasser et al., 2005; Lang et al., 2012):

> I now have at least several people within all of the faculties that are regularly in contact with me going, “Yeah, and we're doing this. Can we link with those ones that are doing that?”. (Iris; UNI 1)

Additionally, Laura outlined the importance of her role in ensuring that the voices of the campus community were reflected within the institutional sustainability strategy:

> Getting out there and generating awareness of what sustainability actually is and getting their inputs and ideas in terms of what we should put into a strategy. (Laura; UNI 3)

The impact of effective ESD coordination on institutional change was captured by Deirdre’s comments:

> We end up recruiting the enthusiasts who become the early adopters of practices and habits and behaviours and they go back to their areas and engage their offices and their peers and colleagues in good behaviours. (Deirdre; UNI 4)

For ESD to permeate and blossom across the institution it is necessary to break down institutional knowledge silos (Granados Sanchez et al., 2011) and Iris pointed out the unique perspective afforded to those in sustainability coordinator roles:

> When I moved to this position, I was across everything. So, I could see what was going on from information and support departments all the way to Humanities and Social Sciences. (Iris; UNI 1)

Trevor felt there was a need for even greater resources to manage the process:

> To make things happen and to up the game, as it were, across the board, you need some kind of resource available, some kind of office. (Trevor; UNI 2)

Conversely, for those HEIs without coordination support, there are limits to the commitment and the enduring efforts of ground-level agents, as Trevor described:

> There isn't really much probably official recognition of that kind of input. So, it's really the individuals who make the sacrifice who are involved in it. I don't know whether indefinitely you can maintain that level of commitment. (Trevor; UNI 2)

Ciara, who is heavily involved with driving sustainability initiatives within her HEI, also outlined the challenges she faced in terms of managing her effort:

> I'm in the Estates and I have to manage a lot of things anyway and so that's where it came from naturally, but we don't have a sustainability person. I find that the communication and setting up of all those days takes a lot of time and we need someone with drive who takes ownership of it, which I do, but I can only do it when I've got spare time. (Ciara; IoT 9)

5.4.1.2 Communication

As highlighted by Kopnina and Meijers (2014), effective communication is a critical aspect for successfully managing change, engaging stakeholders and reporting to decision makers. Many participants however, felt ill-equipped or under-resourced to communicate effectively, a factor that they felt was undermining their efforts. This was reflected in comments made by Trevor and Iris:

> I'm beginning to think that communication is much more central then I have allowed for. I don't believe in communication taking over, but I do think it needs to be consciously addressed and you need to have it built into everything, otherwise you lose potential momentum. (Trevor; UNI 2)

> Communication is probably something that I'm absolutely worst at. I would do all these projects and I would do all this stuff, but I never find the time to sit down and write it all up. (Iris, UNI 1)

Darren observed that during the interview process he began to realise the importance of communication, particularly from a reporting perspective:

> The biggest thing that jumped out for me from our discussion was how little we do to explain our sustainability situation - where we are strong, where weak, what we've done, how much we've spent, how much we've saved. We're not communicating very well on this topic. It seems like, for all the work we are doing, we should be telling people. (Darren; IoT 8)

Kopnina and Meijers (2014) also referred to the challenge of interpreting and communicating sustainability within the various disciplines and knowledge domains. This was something that resonated with Colin:

> I don't know if the word sustainability is what turns people on, because, you know, sometimes people that work in the sustainability area, they might come across as a bit dogmatic (laughing) and, you know, it's the old tree huggers thing, isn't it. (Colin; IoT 2)

Conor also takes issues with those who may misuse or hijack the term 'sustainability':

> Specifically, in relation to the term sustainability, because the term is being used to further lots of different agendas, some of which are directly anti-sustainability. (Conor; IoT 7)

Inherent tensions that arise from poor communication and interpretation were also noticeable in some of the comments that emerged relating to *Athena Swan Charter*. In order to be eligible to apply for research funding from the SFI, IRC and the Health Research Board (HRB), Irish HEIs must have achieved a minimum of *Bronze Athena Swan Charter* accreditation by 2020. Despite gender equality being one of the SDGs, some participants were frustrated with the priority it had been afforded within HE, to the detriment, they felt, of environmental sustainability issues. Gillian and Trevor's comments are reflective of that:

> I mean if you look at what's happening on the Athena Swan and the huge impetus behind that because we're going to lose some of our funding if we don't get it. I know they have someone in management rolling that out and it's just prioritised, shot to the top, because it affects funding. (Gillian; IoT 6)

> You know that almost within the same week we got our Green Flag we also got the bronze Athena Swan Award but the reason there was an urgency about that was because the HEA were kind of linking it to funding so I think that is a kind of lever they have. (Trevor; UNI 2)

These comments also reflect the complexity and the expansive scale of the ESD agenda (Arbuthnott, 2009), where tensions can arise between those advocating for environmental, social or economic sustainability. This is further compounded by poor communication and lack of coherent institutional strategies (Cebrián et al., 2015). These latter comments also align with Sterling and Scott's (2008) findings that ESD initiatives were driven by HEI self-interests or external stimuli such as research funding, a point I will return to later in Section 5.6.1.3.

Having considered barriers relating to the scale of ESD-centred institutional change, the next section examines the influence of power within that process.

5.4.2 Power

Lozano (2006) outlined the importance of recognising, managing and maneuvering power obstacles for the successful implementation of ESD. Instances of power tensions emerged regularly within the data and this section outlines the experiences of participants in relation to both leadership and resistance to change.

5.4.2.1 Leadership

While the interaction and relationship between power and identity can be non-linear, within HE, it can be overtly bureaucratic in nature, particularly when management are relied upon to support or resource initiatives (Ferdig, 2007; Hume, 2016). Reynolds and Saunders (1987) also highlighted how the location and self-interests of those in a position of power can influence the policy implementation process. Later in this chapter, I will discuss the importance of leadership as a driver of ESD, but in this section instances of institutional leadership as a power dimension that needs to be navigated or accommodated are put forward. Gillian's comments give a sense of how this arises in practice:

> We had a meeting with the President in June last year and asked her would she support it [Green Campus Application] and she said she'd think about it, but that there were a lot of committees already in the college. (Gillian; IoT 6)

Foucault (1982) argues that sometimes power is not consciously exercised and in some instances, power can be experienced through apathy or an unwillingness to engage with an issue. This was prevalent, in particular with participants from IoTs, and Michael reflected on the challenge of engaging senior management on sustainability:

> Like anything that would be sustainable and green, they're for it, but do I see them actively doing anything? (Michael; IoT 5)

David also felt a lack of institutional leadership undermined the legitimacy of the actions of those championing sustainability causes:

> If it doesn't come down to us from them, it's very hard to convince people down here that this is very important. (David; IoT 1)

Indeed, without institutional leadership and support, whole-institutional change is rendered an insurmountable task (Fiselier et al., 2018). This can have the effect of frustrating ground level change agents and creating a sense of institutional inertia, and, in Liam's case, creating a culture of 'them' and 'us':

> But my feeling is that they [institutional leaders] haven't done it [employed energy saving technology in a new building] and that would be just indicative of the attitude towards conservation. I don't want to color your judgments but that's my feeling. (Liam, IoT 6)

When asked about this issue, Richard, a senior official within GA 1, commented:

> If we're going to tackle all this together, we all have to be traveling at a certain rate and to do that you need the president and the senior officer who will have the power to drive that within the college. (Richard; GA 1)

Trevor, a Lecturer, referenced the power residing at middle-management level:

> It's very much at the level of actual academics [SD-related activities] but not at the level of Heads of Department. So, if they were actually resourced and encouraged to mainstream good practice in their own buildings and also in their own curriculum and exchange ideas, I think then a lot more could be done. (Trevor; UNI 2)

In this regard, a lack of knowledge and awareness of the ESD Strategy by senior management (O'Donovan, 2017) may go some way to explaining the lack of engagement to date, particularly within the IoT sector. The lack of opportunities for leadership development identified within the literature further undermines opportunities to engage, discuss and debate the issues (Tilbury, 2011b). A *normative-re-educative* approach, as proposed by Lozano (2006), may be effective in addressing this power dynamic. However, where deeper resistance is evident, it may be necessary to consider a *power-coercive* approach by using policy levers and/or sanctions to shift the momentum forward. These approaches also align with the discussions in Chapter 6 on nudging and social practices.

5.4.2.2 Resistance to Change

As discussed, power resides at all locations along the implementation staircase. This power, which can be associated with identity, embedded within institutional structures or cultural, can be exercised to resist change (Hargreaves, 2011). For some, ESD could be considered as a potential threat to the integrity of academic freedom, particularly when initiated from a top-down approach (Verhulst & Lambrechts, 2015). Academics may therefore resist or block efforts to develop or reform curriculum for sustainability, an issue on which both Conor and Tony expressed their perspectives:

> In every programme, in every year and in every module, there is always a bum fight over those who would say that their particular contribution to the content is the most important thing in the universe. But that's the normal cut and thrust of what we do anyway. (Conor; IoT 7)

> You have to respect, we do have academic freedom as well, so I think trying to impose things on academics is a bad idea. Not because I don't think they shouldn't be doing it but because

> individual disciplines have to govern the direction of their own academic programmes. (Tony; UNI 7)

Ronan, from GA 2, also felt the integrity of academic freedom was important to respect:

> The curriculum bit, that's tricky for us because we don't have a role in terms of directing institutions on content of curriculum. So, we can ask the question, but that's an academic matter and so it goes to academic freedom and autonomy of institutions. (Ronan; GA 2)

The need, therefore, to engage the academic community is a critical element of the change process, as pointed out by Claire, a Building and Estates Manager:

> To try and build something like that [sustainability] into their programme's curriculum, it needs the academics and the head of faculty to champion it. (Claire; IoT 4)

Iris also commented more generally on the importance of engaging stakeholders and anticipating potential resistance when managing change:

> You have to do upstream engagements before you do an intervention. People hate change and no matter whether it's the best idea in the entire world, if you can't actually go and talk to them about it first and say: 'OK, this is why we want to do it'; 'This is what concerns we have'; and 'This is how we're going to mitigate the risks'. (Iris; UIN 1)

Gale et al. (2015) found that traditional institutional knowledge structures, and the culture of knowledge production and protection, engendered resistance to change. Furthermore, these structures act a barrier to the multidisciplinary and intra-institutional collaboration necessary for ESD, as noted by Iris:

> It's amazing within the research centres, you are really, really siloed. It's the same within faculties and I can see it now. People don't see outside the walls of their faculties. (Iris, UNI 1)

Having a wide range of perspectives informing policies and change strategies, particularly when considering campus-wide interventions, is a means of overcoming this barrier (Lozano, 2006). Laura provided an insight into a transdisciplinary approach to institution-wide curriculum reform taking place at her HEI, similar to that espoused by Klenk & Meehan (2017):

> We're at the stage with teaching and learning that we're trying to see what we would be proposing in terms of getting into student curriculum and staff learning and development programmes. We're hoping the multidisciplinary aspect our [sustainability] working groups will prevent resistance. (Laura; UNI 3)

Having considered barriers relating to the scale of change and power, the next section considers the final theme which relates to resources.

5.4.3 Resource Constraints

The importance of resourcing ESD is regularly highlighted within the literature (Gale et al., 2015; Hume, 2016; Verhulst & Lambrechts, 2015) and insufficient time, funding and personnel resources are also frequently cited within the data as barriers to implementing initiatives. Colin described his role as a sustainability officer and the way in which resources constrain his ability to get 'buy-in':

> I am in a business startup situation. I'm on *Dragon's Den*. I'm hawking my wares around the place. I'm trying to get people to buy-in and trying to create a market. I'm trying to get people interested. It will happen but I need more resources. (Colin, IoT 2)

Expanding further, Colin explained that creating additional capacity was his most critical need:

> Well funny, my problem is not money, my problem is manpower and time. From last year's budget I have a PO [Purchase Order] with Green Campus on it and I haven't had a chance to get to it. (Colin; IoT 2)

Financial resources are particularly pertinent for larger capital and campus improvement projects and Claire outlined her concern at the impact of energy regulations on the cost of new buildings:

> All new public buildings by 2020-21 have to be NZEB-rated [nearly Zero Energy Buildings] and that's a huge financial issue that no one has twigged. It's going to hugely increase the cost of the buildings. I can see us covering car parks with grids of photovoltaics to be able to get these buildings rated correctly. (Claire; IoT 4)

Darren described the challenge in finding resources to plan for and invest in long-term projects:

> It's pretty clear the things we haven't had money for, for the last 5 years. I don't see us getting a budget, either privately or through our central funding, for initiatives to save long term money. (Darren; IoT 8)

Investing in appropriately designed capital infrastructure is a recognised enabler of ESD (Clarke, 2013; Ng et al., 2017), but this remains a significant challenge for a HE sector that has struggled to remain economically sustainable over the past decade (Cassells, 2016). Furthermore, IoTs, by law, are not permitted to independently borrow funds and are, therefore, more reliant upon direct support from Government for capital projects.

While this section presented the themes related to barriers, the next section presents the findings concerning the perceived internal drivers that underpin ESD-centred change.

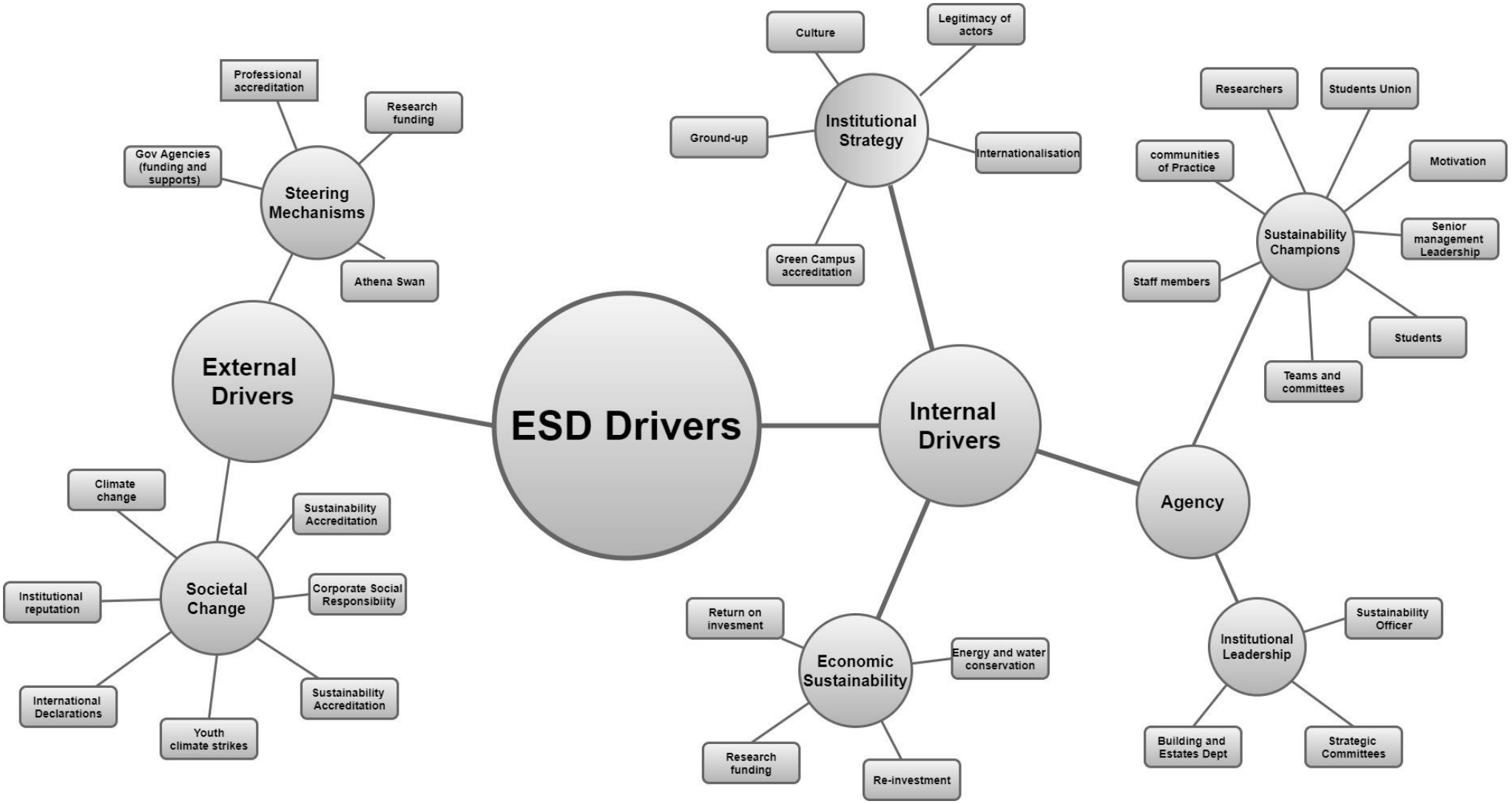

Figure 5.3: A graphical representation of the themes, subthemes and nodes related to perceived internal and external drivers of ESD

5.5 Internal Drivers

In this section, the following themes and subordinate themes (Figure 5.3), identified from the data analysis relating to RQ 1.1, are discussed:

5.5.1 Agency (subthemes are institutional leadership and ESD champions)

5.5.2 Economic Sustainability

5.5.3 Institutional Strategy

5.5.1 Agency

The role of individual and collective change agents and their positive contribution to ESD activities emerges strongly from the data. Agency is identified at all locations on the implementation staircase and the subordinate themes that emerge relate to institutional leadership and ESD champions.

5.5.1.1 Institutional Leadership

Previously in this chapter I identified the power assumed within institutional leadership as a barrier to change. Herein, I describe how institutional leadership, particularly evident within the universities, paves the way for ground-level ESD agency to flourish (Scott et al., 2012). All but one university had a president or vice-president with specific responsibility for sustainability (in the case of IoTs this was only evident in one). Consequently, instances of institutional leadership occur more frequently, though not exclusively, within university settings. Deirdre and Iris, articulated the impact senior management support has had on facilitating and legitimising their work:

> It makes a huge, huge difference when people know the president is behind it. (Deirdre; UNI 4)

> University senior management supporting the policy on single-use plastics has been phenomenal because they have actually said so. Everybody now takes it as law this is happening. Otherwise, it's just someone trying to push a tree hugging idea, that's what it can be perceived as. (Iris; UNI 1)

Deirdre described the president's vision of how the university could positively influence gradates and wider society by embracing sustainability:

> He [the president] looked me in the eye authentically and said: "Think about the 10,000 students who come through here every year, we can influence how they see the world and that has a massive ripple effect when they go out into the world and go into their work and into their lives." (Deirdre; UNI 4)

The impact of institutional leadership has also been observed by Martin from his position:

> When you see the leadership in the campuses on board, involved and are passionate about it, it seems to multiply. It gives everyone the platform to go 'OK, we'll tackle this.' and it creates an open atmosphere for people to try different things or suggest different solutions and ideas. (Martin; NGO)

This is a view echoed by Richard:

> Unless you have somebody at that level [vice-president] as such with the power to drive it and to have the backing of the president that will drive change, I think without that power behind what you have to do, you won't achieve much or if you are going to achieve something you're going to be pushing at a wall (Richard; GA 1)

As advocated by Kahke et al. (2018), several universities have set up strategic sustainability working groups, with transdisciplinary membership that act in an advisory capacity for senior management. Laura outlined the importance of system-wide leadership and how that influence trickles down the implementation staircase and helps sustainability practices to become normalised:

> We have very strong working groups under those six themes that I talked about and so, we have not only leadership at the highest level, we have system-wide leadership across all the areas, and it's embedding sustainability into daily operations here in terms of how we do business, and so, it becomes the norm for university business. (Laura; UIN 3)

While this section has focused on agency towards the top of the implementation staircase, there is considerable agency evident at other locations, as outlined in the next section.

5.5.1.2 ESD Champions

Emerging within the data is the role of individual change agents or sustainability champions in shaping institutional policy, spearheading campaigns, driving initiatives and helping to bring others on board. Deirdre described one such actor:

> So, he's [energy manager] got like a little cloud of ideas and so, he's looking at everything and he's conscious when he looks at things, he looks through the filter of environmental awareness. So, he's definitely a leader. (Deirdre; UNI 4)

Many of the participants are themselves ESD champions and Ciara reflected on the opportunities presenting to scale up sustainability initiates:

> So, we were doing all this, and I said hang on now, we've created a wave here and this has to go somewhere, and we have to channel the momentum of this into actually creating change. (Ciara; IoT9)

Within the data are many examples of groups working together collectively and learning collaboratively (Lindenfeld et al., 2012) and Deirdre described one such community of practice:

> It brings together people from various different backgrounds and research areas, offices. It's open to everybody not just academics. People are voluntarily coming forward with all sorts of ideas and it's great. (Deirdre; UNI 4)

The Green Campus Committees can been seen through the lens of a community of practice (Lave, 2009) and Trevor outlined how their committee sought to exert influence on institutional strategy and investment decisions:

> This time around we've basically called at the university to set itself the goal of becoming a model of sustainability both nationally and internationally, and I think that will be part of the strategy. We wrote a letter to the president of the university and asked him to consider adopting a fossil free investment policy and so, he actually agreed readily to that. (Trevor; UNI 2)

Students also emerge as agents of change and Deirdre described the perseverance of one student at her university:

> So, she just quietly ploughed along and kept knocking on doors in the university from the Students' Union to myself, president's office and finally got agreement from the registrar to ensure that we would fund it for a trial run [reusable cup campaign]. (Deidre; UNI 4)

Fuelling that agency are a range of intrinsic motivations, and David, for instance, outlined his anathema of wasting resources:

> I hate waste, that was probably something that was bred into me as a young fella. Whatever my driver is, first of all I hate waste too. (David; IoT 1)

Trevor, on the other hand was driven by a sense of hope, and the need to do something for the next generation:

> And you have to have hope. It's a very daunting prospect when you look at it in the round and the challenges are immense. I just basically choose not to despair (laughs) in the face of it, otherwise I'd give up completely. You have to maybe do something. There's some hope somewhere along the way and if we build something, the next generation might be able to improve on that hopefully. (Trevor; UNI 2)

I return to the role of agency in the next chapter when considering the implementation staircase, but

for now, the next section examines the importance of economic sustainability in progressing ESD change initiatives.

5.5.2 Economic Sustainability

Economic sustainability is considered one of the pillars of ESD and in Chapter 2, I outlined some of the challenges pertaining to funding within the HE sector in Ireland. Within the context of limited resources, sustainability-focused projects or investments require prudent and pragmatic management, as Colin outlined:

> Yes, it has to make economic sense, it can't be economically stupid. (Colin; IoT 2)

In some cases, economic sustainability and cost-savings remains the priority, irrespective of what projects are being undertaken, as David remarked:

> He's [line manager] very interested in the money savings side. "Look I don't care what you're doing but you're doing great, you're showing great savings here. How much do we save this year?", and that's his bottom line. (David; IoT 1)

Deirdre shared this view:

> Well, obviously, there's the financial savings with resource conservation. Which I say because you have to include that because some people still don't give a crap about the environment (laughing), they're only interested in the bottom line. (Deirdre; UNI 4)

Financial drivers therefore play an important role in steering institutional and individual behaviour. Even during times of fiscal constraints, projects that can be financially monitored and that demonstrate a return on investment are more likely to be approved (Scott & Esteves, 2013). Improving resource efficiency, particularly meeting the national target of 33% energy reduction by 2020, emerges throughout the data. Tara outlined an innovative project that both incentivised and leveraged financial savings realised:

> Across different buildings there's a team put together within each building and up front they are given the energy budget for that building for the year. So, any savings that they make throughout the year, they keep, and they reinvest that in further environmental initiatives. So that's been extremely successful, and I suppose it has been used as a means of engaging and informing students. (Tara; UNI 5)

Laura described how the economic efficiencies realised will potentially be used to fund the expansion of the Sustainability Office itself:

> We have a proposal now with the president's office to develop a sustainability office on campus and we're hoping to achieve that by 2020, and the cost base, in terms of funding that office, would be the cost savings realised. (Laura; UNI 3)

Other internal funding instruments used to drive sustainability that emerged from the data included academic and research bursaries, prizes for student projects and student internships. The ripple effect of even small financial supports can be quite powerful in raising awareness, changing behaviour and influencing curriculum and will be discussed further in Chapter 6.

5.5.3 Institutional Strategy

Whilst references to sustainability are evident within the strategic plans of most HEIs that participated, some institutions have placed sustainability as a strategic pillar of their mission and developed sustainability strategies. This is a considerable driver of change, as Iris outlined:

> One of nine strategic goals of the institution in its strategic plan for 2020-22 is to put sustainability at the core. So, that's looking as creating a carbon neutral campus. The strategy says there's to be a full curriculum review to include the SDG's in all curriculum. (Iris; UNI 1)

Laura highlighted the vision laid out by the university's senior management group:

> We [Sustainability Office] were established based on a request from our deputy president and registrar at a training event with senior staff members. At that event members raised that they would like the university to review all their practices and policies and make the move to a greener type of campus. (Laura UNI 3)

The significance of such strategies is highlighted in the literature (Cebrián et al., 2015; Ceulemans et al., 2015) and Deidre commented on the importance of that strategy being ambitious enough to drive transformative change:

> We have a sustainability policy that was just updated in 2017. A number of people said to me the old one didn't have teeth. It had great ideas, aspirational ideas, but it said 'where possible', so it removes the teeth from the whole thing and left it quite gummy (laughing). So last year they embedded it [sustainability] and they made it a lot more robust and it's a commitment statement now. (Deirdre, UNI 4)

Taking a holistic approach to institutional change, Trevor described how his university's strategic development plan was embracing sustainability principles with respect to campus design:

> We [Green Campus committee] made these broad proposals which were taken on board and they look at the big picture, where they want to introduce some sort of key ecological and sustainability features, so water might be a big part of the that and also walks and nature. Obviously, buildings and sustainability, pollination, more edible things on campus, even maybe farms or allotments and things like that could be part of the story. (Trevor; UNI 2)

Having considered the internal drivers of sustainability, the next section identifies steering mechanisms and other stimuli within the external environment that are influencing HEIs.

5.6 External Drivers

Bringing the lens out to a meso level, this section responds to RQ 1.2 and examines what Broadbent et al. (2010) refer to as *steering mechanisms*, a range of external stimuli that lead to observable institutional change (Figure 5.3). Within this section the following themes are analysed:

5.6.1 Steering mechanisms (subthemes are ESD Strategy, ESD Funding, Research Funding)

5.6.2 Professional accreditation bodies

5.6.3 Societal change

5.6.1 Steering Mechanisms

Broadbent et al. (2010) outline the importance of a combination of regulation and resources as mechanisms to drive large scale change. A wide range of steering mechanisms were identified as part of the horizon scanning for this research (Table 5.2), however, those discussed in more detail in this section include the ESD Strategy, ESD funding and research funding.

5.6.1.1 ESD Strategy

Previously, I highlighted the way in which the ESD Strategy has been interwoven into various environmental and climate change policy documents (Figure 2.6) and that the HEA referenced the ESD Strategy within the SPF in 2018. The SPF is a central funding instrument used to agree priority performance measures between the HEA and each HEI. While this document provides an overarching framework and a range of priority policy areas for HEIs to consider, there is scope for each institution to decide on their own strategy and exercise their own autonomy, as Ronan highlighted:

> We want institutions to be autonomous, strategic and responsive and so we're slightly caught about setting goals. So, we prefer that they set their own goals themselves. (Ronan; GA 2)

Table 5.2: External ESD steering mechanisms

Mechanism Type	Steering Media	Steering Mechanism	Specific to ESD
Policy / Regulatory	DES	ESD Strategy	Whole-institutional approach across continuum of education
		Action Plan for Education 2019	Action 63.1: Report on the implementation of the ESD Strategy
	Dept. of Communication and Climate Action	The SDG National Implementation Plan 2018-2020	Goal 4.7: By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development. Appoint organisational Sustainability Champions to promote SDG best practice
	HEA	Systems Performance Framework with 6 objectives	ESD Strategy referenced for 2018-2020 Objective 6: Leadership and Governance • Environmental Sustainability policies • Number of green flags
	SEAI	Public Sector Energy Efficiency Strategy (2017)	Meeting the targets to reduce energy consumption by 33% by 2020. Decarbonisation of HEI campuses
Funding	DES	ESD Strategy Funding	€1.8m 'Once-off' Funding to HEIs (Jan 2018) to support ESD-related activities
Research Funding	Irish Research Council	CAROLINE programme (co-funded by the European Union)	Research projects (fellowships) supporting UN SDGs. Athena Swan Bronze requirement
	EPA	Research calls citing SDGs	The EPA 2014-2020 programme offers research funding for calls relating to Sustainability, Climate and Water. Athena Swan Bronze requirement
	DES	Establishment of Research Centres	Strategic investments designed to support government priorities
	SFI	Research funding -Future Innovator Prize	Driving STEM-led innovation to address societies greatest challenges (e.g. food, plastics etc.
	NFETL	Funding for teaching and learning	Projects and initiatives related to ESD. Also presents awards acknowledging teaching excellence
Operational	SEAI	Sustainable Energy Communities	Initiatives to support organisations and communities to transition to low carbon energy systems
	Office of Public Works	Optimising Power @ Work Scheme	Improvements in infrastructure, expertise, awareness campaigns to encourage behavioural change to reduce energy consumption
	NTA	Smarter Travel Campus programme	Development of campus travel strategies to support modal change for more sustainable travel options
Programme Funding	DES / HEA	Human Capital Initiative	Increase in places on Environmental Science programmes
Curriculum	Teaching Council	Professional Standards	Introducing global citizenship as a programme accreditation criterion
	Engineers Ireland	Professional Standards	Sustainable energy, resource consumption, waste and construction standards
Outreach / Funded Projects	UBUNTU Network	Action-research projects for teacher education students	Supports the embedding of Development Education and promotion of SDGs within the context of initial teacher education programmes.
	Local Government	Supporting collaborative initiatives between communities and HE	Agenda 21, Climate Action Support Scheme

Both participants from GA 1 and the GA 2 underlined the importance of the strategic dialogue process for further engaging HEIs with different aspects of their SPF agreements, including sustainability initiatives as Richard outlined:

> The HEA have a strategic dialogue process that allows them interact with various different institutions. The current framework goes from 2018 to 2020 and within that there are a

> number of areas looking at sustainable development and so, when the HEA meets the institutions they can engage them on what they're doing in that area. (Richard, GA 1)

The data generated from the interviews demonstrates a less linear or causal process of policy-driven change. As outlined in Chapter 4, the ESD Strategy was used to frame the scope of this research and in advance of undertaking the interviews, each HEI participant was provided with a copy of the document. One of the interview questions with the research participants related to their views on the ESD Strategy and its relevance to the design of institutional policy. The responses revealed that most participants were not aware of its existence and only two participants said it was referenced within their institutional strategies. This is consistent with findings of a review carried out by the DES in 2018 where just 10% of teachers and school principals surveyed were aware of the ESD Strategy. However, this level of awareness amongst those directly involved in sustainability significantly undermines its potential in guiding or steering institutional behaviour. Darren expressed frustration on learning of the strategy during the interview process:

> If it's a strategy and now we're at 2018, we're more than halfway through that strategy. If that document has been sitting on the shelf for that long and hasn't been adopted formally by us and wasn't launched on the campus and there was no mention and there was no roll out to tell us that we were a part of it. So, it's clearly not something that has been driven from the top down. (Darren; IoT8)

Tara, though aware of it, was also a little ambivalent as to its current status:

> I've always wondered, you know. I haven't seen anything since then [its publication] and I know that there was supposed to be, like, a kind of advisory committee that I've never heard anything about. (Tara; UNI 5)

This finding allows for ambiguity and uncertainty to permeate the implementation staircase in terms of ESD interpretation, policy communication, priorities and desired policy outcomes (Trowler, 2014). Furthermore, it raises issues for a range of other government policies highlighted in Chapter 3 that cross-reference the ESD Strategy as the principle document to guide sustainability change within HE.

Participants were also asked for their views on HE sustainability policy and while there were diverse responses, most participants felt some form of framework and oversight was warranted to advance the sustainability agenda. David, for instance, felt strongly that penalties for non-compliance were necessary:

> They [HEA] should be jumping all over us. There should be fines coming our way. I mean the government should be pushing it, the legislation is all set up. There's nobody policing, there's nobody pushing us, there's no real urgency. (David; IoT 1)

Iris felt that a combination of steering mechanisms was required:

> Whether policy is best or whether it's incentive driven, or levy driven, I think it's going to be a combination ultimately. So, the Department [DES] or the HEA need to create a structure behind it [ESD]. (Iris; UNI 1)

Claire felt that the HEA itself possibly required more extensive structures to support and drive sustainability within the sector:

> I don't think they [HEA] have enough personnel. I think they need a whole section on sustainability. (Claire; IoT 4)

Kim provided some context for the constraints around which government agencies themselves are bound and how the development and prioritisation of policy evolves:

> It does depend on how high a priority something is for the current minister [of Education and Skills]. Because the current minister has been really, really passionate about mental health and gender issues. And that flows down into our systems performance framework. It's not a lack of interest. (Kim; GA 2)

While policy is recognised as an important steering mechanism, funding also plays a critically important role within a HE context, something that is discussed further in the next section.

5.6.1.2 ESD Funding

When the ESD Strategy was launched in 2014, it was done so "framed within the current context of limited financial resources" (DES, 2014, p. 3), a reference to the backdrop of a deep financial crisis in Ireland at the time. Considering the sensitivity of HEIs to financial steering mechanisms, the absence of any specific funding may go some way to explain the lack of awareness of the ESD Strategy. In January 2018 however, what Broadbent et al. (2010) refer to as , *transactional funding* of €2.1m was released by the HEA and distributed equally amongst HEIs. This was specifically deployed to develop courses and educate students on SD and to recognise and reward ESD strategies and initiatives. To gain an insight into the type of initiatives those funds supported, research participants were asked if their HEIs had identified priority areas. At the time of the interviews, it transpired that none of the participants were aware of the funding allocation. Deirdre, for instance, felt that this was an oversight within her university:

> You're kidding me, how come we don't know about this. I'm guessing that the university missed that. Whoever got that letter missed that. My colleague in the finance office definitely doesn't know that because if she did, she would have brought it up. So, I'm definitely going to pursue that. (Deirdre; UNI 4)

Conor reflected on the potential that could be garnered from such funding:

> You can do a lot of feel-good stuff for that amount of money. (Conor; IoT 7)

Tony remarked on the importance of transactional funding to put ESD on the agenda:

> Did they? Is that going to be recurring? Because one thing I was going to say was that unless there is an injection of money, we're going to be dancing around the edges here. (Tony; UNI 7)

Reflecting on this aspect of the enquiry, by bringing awareness to the funding, I found myself in a position of working *for* and *with* participants (O'Leary, 2004). In follow-up communications with some participants, I learned that several of them had managed to locate the funding, which was later used to support initiatives such as research bursaries, sustainability coordinator posts and micro-projects.

5.6.1.3 Research Funding

A number of research funding agencies are seen to play a role in steering sustainability-focused research activity across the HE sector as can be seen from Table 5.2. Furthermore, European *Horizon 2020* research calls, from which Irish HEIs received €254m up to 2017, along with other research agencies, now consider sustainability as a core awarding criterion, as Tony outlined:

> In H2020 [Horizon 2020] sustainability is all through it now. It depends on what flavour of sustainability you're talking about but it's certainly in there and recognisably so. You know the EPA have a big funding programme at the moment. In SFI there's a focus on energy there. (Tony; UNI 7)

With significant climate policy developments in recent years, the pursuit of energy research funding was a common theme amongst many participants. Much of this is driven from the *Public Sector Energy Efficiency Strategy (2017)* which sets stringent public sector energy reduction targets. Tony, who has an engineering background, felt there was an opportunity for a radical redesign of energy systems on HEI campuses, in a way that could make a significant statement to all HEI stakeholders:

> There should be a massive retrofit of higher education institutions for energy efficiency. Number one, because they would reduce the amount of energy we're using, but number two

> is the educational component. Because you can make a big play of the guys onsite for a couple of years. "Why are we doing it? Because of climate change." (Tony; UNI 7)

A key priority of government policy is to increase the level of collaborative research and strategic partnerships between HE and industry (Ireland, 2018). To support this, the government has funded the establishment of dedicated research centres, the outputs of which inform strategic policy and HEI actions, as Richard explained:

> There is an action under the Climate Action Plan to increase the number of climate action research centers across the institutions. If the government wants things done in certain areas, the research can be carried out and flowing out from that it can feed into actions in the HEIs and feed into curriculum and other areas. But funding is always a key challenge for that. (Richard; GA 1)

Iris described the type and level of activity within the research centre at her own HEI:

> It's like our innovation space. It's a business campus, but as part of the university. It links to research and links to companies. They're looking at new battery technology. (Iris, UNI 1)

Other research steering media active on sustainability include the IRC (*CAROLINE* programme), EPA (climate, water and waste) and SFI (STEM-innovation for global challenges). Finally, the HEA have also funded an initiative called the *Principles of Good Practice in Research* which supported several sustainability-focused research projects.

5.6.2 Professional Accreditation Bodies

As cited by Sterling (2013), overcoming resistance to transformative curriculum reform is a significant challenge. However, these barriers can sometimes be circumvented, and the pace of change expedited, by external forces. The standards required by professional accreditation bodies were cited by several participants as a driver of sustainability-centred curriculum change. Liam remarked on the significance of this in the field of engineering:

> If you get accreditation from *Engineers Ireland*, you have to include environmental impact in the syllabus. Every five years they come around and they put more pressure on us, I would say, than the HEA. (Liam; IoT 6)

Tony also considered this as a critical mechanism to introduce sustainability into an already crowded curriculum:

> That to me has been the battering ram I have used to introduce modules on *Electronics and the Environment* and the *Engineer as a Professional*, *Ethics in Engineering* into it. Like there's

> no way I would have been able to bring in modules like that only for I could play the accreditation card. (Tony; UNI 7)

The Teaching Council is another professional accrediting body that exerts an influence on curriculum reform with respect to ESD. Within the *Initial Teacher Education: Criteria and Guidelines for Programme Providers* (Council, 2011), mandatory learning outcomes are included relating to citizenship, inclusion, diversity and social and health education. The UBUNTU Network also directly supports DE collaborative action-oriented research projects amongst students on initial teacher education programmes in Ireland (Tormey, 2008). Nicolaou and Conlon (2013) however, warn of the limitations of and reliance on external accreditation bodies and argue that it is a minimalist approach and unlikely to bring about the type of transformational reform desired.

5.6.3 Societal Change

The final theme in respect of external drivers relates to broader societal change and thinking. Shifts in priorities, media attention, inter-generational exchange and ethical issues are topics that participants noted as influencers of both personal and institutional behaviour. A seismic shift in the national awareness of issues such as climate change, biodiversity loss and plastic pollution, appears to have shifted the narrative. This has put pressure on institutions to respond as highlighted by Darren's comments:

> I think we could be benefiting from the overall conversation outside of campus, you know the kids are coming home from school and enforcing certain measures from home. You know, we didn't start that conversation but we're benefiting from it. (Darren; IoT 8)

Soon after the emergence of the ESD Strategy, the UN's SDGs were launched and were mentioned by a number of participants in respect to institutional missions:

> We have a responsibility in terms of Sustainable Development Goals. You know, we are an international university, we have students from 120 different countries, and we have a responsibility for those goals, and I think that the responsibility lies within the research, in the learning and leadership for sustainability. (Laura; UNI 3)

Finally, for Deirdre, the expansion of the sustainability office and the services it provides is essential for Irish HEIs to become global leaders for ESD change:

> They should have an office of sustainability and they should have two or three people. Because that's what the leaders are doing and, you know, the university states in its strategic plan that it aims to be a global leader in campus sustainability (laughing), now that's quite an ambition. (Deirdre; UNI 4)

5.7 Conclusion

Having considered the data and analysed the themes that have emerged, the next chapter analyses the way in which theories of change and policy implementation can be used to reconceptualise and make sense of some of the findings. Chapter 6 also specifically addresses RQ 2 pertaining to the potential value of theories of social practice and behavioural insights for ESD-centred change and examines how they might address some of the barriers identified in this chapter.

6 Responding to the Research Questions

In this chapter some of the themes presented in Chapter 5 are analysed in more depth with respect to their implications for ESD-centred change (Sections 6.1, 6.2, 6.3). Later in the chapter (Section 6.4), in response to RQ 1, 1.1, and 1.2, the ESD changes emerging and perceived barriers and drivers are reconceptualised using the lenses of policy implementation staircase (Reynolds & Saunders, 1987; P. Trowler, 2002; P. R. Trowler, 2002) and steering mechanisms (Broadbent et al., 2010). The implications for institutional change and the emerging implementation gaps are also discussed (Section 6.5). Finally, in response to RQ 2, the value of theories of social practice (Reckwitz, 2002; Shove & Spurling, 2013; Trowler et al., 2013) and behavioural insights (BIT, 2014; Mont et al., 2014; Thaler & Sunstein, 2009) are considered in respect of institutional change for sustainability (Section 6.6). A number of frameworks and models are put forward using principles and thinking adapted from each theoretical perspective.

6.1 Changes Aligned with Aims of the ESD Strategy (RQ 1)

The ESD Strategy contains seven recommendations pertaining to HE which can be categorised into *sustainability in action, curriculum, research, collaborations* and *policy.* As seen from the meso-level analysis of data in the previous chapter, there has been considerable ESD-centred changes emerging within Irish HE. The most common framework adopted by HEIs to guide change is that of the UNESCO Eco-Schools *Green Campus Programme*. Through their engagement and participation on the GCP, all HEIs highlighted, to varying degrees, initiatives aimed at improving their environmental impact based upon Green Campus themes of energy, water, waste, travel and biodiversity.

Energy is a dominant theme with significant and measurable progress evident across the HEIs, guided by well-defined targets, supports and interventions managed by the SEAI (see Section 6.6.1.1). The NTA and local councils also actively support HEIs in tackling modal shifts in students and staff travel, mostly through infrastructural improvements and data gathering. Attempts to improve waste management systems and water conservation are less defined in terms of national policy and therefore tend to be more disparately actioned on campuses. Biodiversity tends to be lower on the list of priorities, though awareness of its importance seems to be rising, highlighted by campaigns such as the *National Pollinator Plan*.

Within many HEIs, campus operations are a strong focus of sustainability initiatives and considerable agency resides within campus management offices. Several examples emerge of campuses being used as living and learning laboratories and fostering the hidden curriculum (Winter & Cotton, 2012). Research activity emerges as a pivotal cog, acting as both a carrier for and driver of campus sustainability, though its influence on curriculum design is less clear. Though some HEIs have begun

to develop a roadmap for holistic curriculum reform aligned with the SDGs, so-called, bolt-on approaches dominate, alienating many students from opportunities to engage with the sustainability agenda within the context of their disciplines. A dearth of strategies and resources to support academic staff in their transition to suitability centred teaching and learning highlights a significant gap in the national policy arena. Furthermore, opportunities for inter- and intra-institutional collaborative learning and sharing of best practice are limited, and more likely to occur on an ad-hoc basis.

The research findings indicate that the extent of whole-institutional change towards sustainability is strongly contingent on institutional leadership and sustainability strategies, with universities, in general, being more progressive. The data also points to some HEIs developing expertise and additionality outside of the GCP, in effect becoming agents of policy themselves (Reynolds & Saunders, 1987). A number of universities, for instance, have used international accreditation and ranking systems to demonstrate a broader and deeper commitment to sustainability and have become leaders internationally (Reidy et al., 2015). On the other hand, some HEIs have yet to truly tackle the concept of ESD, with economic sustainability continuing to dominate the HE agenda, as referenced by Ronan:

> All of the energy and concentration has been around the funding issue and the sustainability of the higher education sector in and of itself. (Ronan; GA 2)

Not surprisingly, therefore, the findings demonstrate that the focus of actions and the strength of responses is strongly influenced by a wide range of financial steering mechanisms. Though change and progress is evident, the data unveils a very low level of awareness of the ESD Strategy, a central government steering mechanism referenced in many related educational and environmental national policies. The ESD Strategy is therefore not seen to provide the necessary guidelines and overarching framework to support the ESD transitionary process and nor is it influencing or steering institutional actions or policies.

I will return to this issue again in Section 6.5, but firstly, I will review some of the main barriers and drivers impacting ESD progress.

6.2 Perceived barriers (RQ 1.1)

The three main themes that emerged within the data in respect of barriers were the scale of the change (coordination and communication), power (institutional leadership and resistance to change) and resources. In this section, which responds to RQ 1.1, I reflect specifically on issues of coordination and power and their implications for ESD. Resources, though limiting and widely referenced as a barrier, feature more prominently as a driver of change and are addressed in Section 6.3.

6.2.1 Scale of the Change Process

As evidenced from the data analysis, the scale of ESD-centred change makes managing the transition a messy, complicated and unpredictable process, requiring diverse and contextualised solutions (Scott & Gough, 2006). Many of the universities have created designated roles for sustainability officers or coordinators who are successful in facilitating transdisciplinary collaborations, providing a platform for knowledge sharing and communicating with both internal and external stakeholders (Hoover & Harder, 2015). Crucially, they report on measurable progress to decision-makers and disseminate successes to the campus community (Ceulemans et al., 2015). Despite the emergence of considerable ground-level agency within IoTs, actions appear to be fragmented, with an overreliance on individual ESD champions whose time and resources are limited. Martin outlined the benefits in practice of having a coordinator in place:

> There's a lot of good things happening within courses and within Buildings and Estates, student societies, but you need someone to pull that together and for campuses that have put that investment in, you can see it's bearing fruits. (Martin; NGO)

6.2.2 Power

As Bourdieu contended, and as evidenced from the data analysis, the lifeworlds and practices within HEIs are shaped and significantly influenced by power (Kennedy et al., 2015). That power is exerted up and down the ESD implementation staircase, residing at every location: senior managers implementing new sustainability policies; academics either seeking to effect or resist change; and students seeking to influence institutional policies and curriculum. Power is dynamic and constantly evolving as the challenges to sustainability emerge and are confronted and in some instances can be triggered by poor communication or motivated by a feeling of a potential loss of power by certain groups or individuals (Lozano, 2006). The politics of knowledge (Parker, 2008) is observed, whereby academic freedom is upheld and knowledge boundaries protected, further reinforced by traditional institutional architecture of faculties and departments (Kemmis & Mahon, 2017).

As seen from the data analysis, senior management plays a significant role in controlling power dynamics and setting the institutional tone and agenda. Without their support, sustainability champions can be rendered relatively powerless, lacking legitimacy and left to push against a wall of institutional inertia. In the absence of clear institutional strategy, negotiating and circumventing power by ground-level actors is challenging and the interpretation and meaning of sustainability remains highly contested. To resolve inherent conflicts, there are examples of a deeper engagement with the issues through the instruments of power and change, such as academic committees and campus networks. Many participants referenced education and awareness campaigns as a means of overcoming resistance and how the behaviour of sustainability champions can influence their peers

and friends, as described by Lozano et al. (2013). There is an opportunity to empower the academic community through the provision of supports and resources to significantly enhance sustainability literacy, competencies and pedagogies for sustainability, and in the process lower their own resistance threshold (Winter & Cotton, 2012), a point I return to in Section 6.5.3.

6.3 Drivers of ESD (RQ 1.1, 1.2)

This section discusses further some of the themes that emerged in respect of internal and external drivers of ESD change in response to RQ 1.1 and 1.2.

6.3.1 Internal Drivers

Themes identified pertaining to internal sustainability drivers included agency, institutional strategies and funding. This section focuses on the latter two, while the theme of agency is considered later within the context of the implementation staircase framework (Section 6.4).

6.3.1.1 Funded Projects

With a backdrop and a legacy of limited resources (Cassells, 2016), it is evident that those sustainability initiatives that are directly funded, realise cost-savings or provide a return on investment are prioritised. Energy initiatives, in particular, that are economically viable and measurable, are more likely to be brought forward and, by becoming more operationally lean, HEIs are positively contributing to sustainability and influencing behaviour (Comm & Mathaisel, 2005; Shriberg, 2002). In some cases, savings realised are re-invested, thereby incentivising further resource efficiency and the ripple effect of impacts is demonstrated in Figure 6.1. If managed and coordinated well, such funding can support the engagement of a wide range of stakeholders and successfully impact the curriculum. However, in some cases, the data reveals that these connections are not being realised.

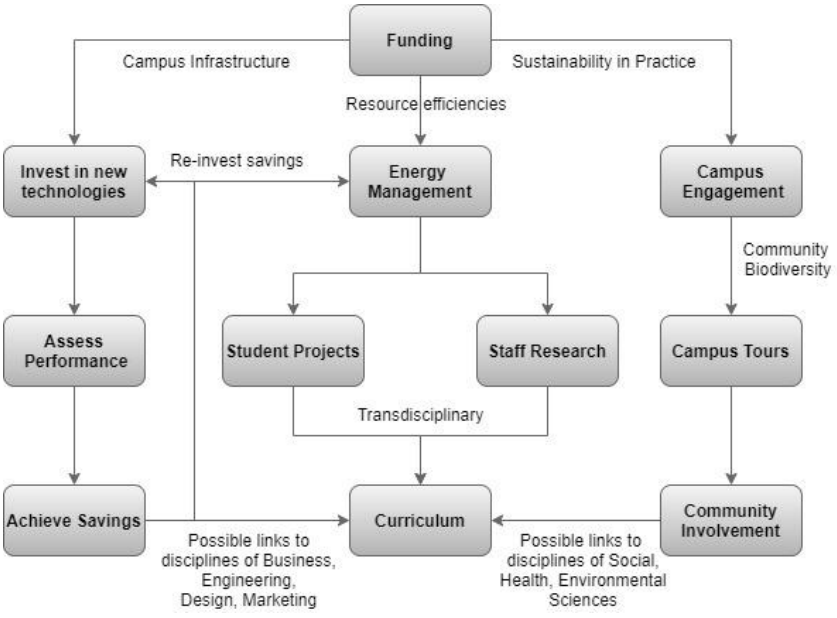

Figure 6.1: Ripple effect of sustainability funding

6.3.1.2 Institutional Strategies

The data also highlights the importance of institutional strategies in legitimising sustainability champions and empowering ground-up agency. Well-designed strategies also contribute to limiting the threshold of resistance, reducing power tensions and unlocking the domains of institutional knowledge boundaries. However, in the absence of effective supports and national guidelines to frame policy outcomes, HEIs are moving disparately, at a pace dictated by institutional self-interest and directed by fragmented fiscal steering mechanisms.

6.3.2 External Drivers

In response to RQ 1.2, the external drivers identified included steering mechanisms emanating from government steering media, standards from professional accreditation bodies and broader societal change.

6.3.2.1 Government Steering Mechanisms

As seen in the previous chapter, there are a range of government steering mechanisms that are identified as influencing HEI actions (Table 5.2). Of these, the HEA's SPF, is a primary contractual arrangement with HEIs, and provides a framework for funding. Though the ESD Strategy was cited within the SPF in 2018, the low level of awareness of the ESD Strategy, compounded by the wide range of national policies against which it competes for attention, appears to have severely limited its reach. Nonetheless, the inclusion of the ESD Strategy, despite coming towards the end of the life of that strategy, might suggest a shift in thinking, which is noted by Ronan:

> There are so many strategies out there and there is so much expected of higher education institutions and we're trying to manage that balance but obviously the environmental sustainability one is really coming back into the fore again. (Ronan; GA 2)

The limited availability of resources for HE has also resulted in an increase in the sensitivity of HEIs to financial steering mechanisms (Broadbent et al., 2010; Böcher, 2012). IoTs' in particular are more dependent upon direct government funding and, in this context, education policy is sometimes only as effective as the levers applied to it. Indeed, it is apparent from the research that those policies that attract funding get prioritised and often, what gets measured tends to get done (Ceulemans et al., 2015). Stephanie summed it up succinctly:

> If the Institutes of Technology are not marked against what they do in terms of environmental sustainability and if funding and staying solvent for the next couple of years is their main concern, then I think that's just straight economics, beyond any behavioral economics, and if you're not incentivised to do that, you won't. (Stephanie; BIE 3)

The ESD Strategy itself attracted no initial funding and this research indicates that it has remained peripheral as a steering mechanism. The impact of ESD transactional funding, issued once in 2018, has not been measured. The lack of an effective national sustainability strategy for HE means that change interventions are fragmented. Furthermore, in the absence of some form of sustainability assessment framework and key performance indicators, it remains difficult to measure progress, compare intra-institutional performance and recognise best practice (Ceulemans et al., 2015; Laurie et al., 2016; Shriberg, 2002).

One of the action areas included in the ESD Strategy is the need for HEIs to transition to low or zero-carbon campuses in line with national and international climate change commitments (Findler et al., 2017). The SEAI delivered a range of policies, steering mechanisms and interventions to guide and support HEIs in the pursuit of ambitious energy-related targets. The interventions and steering mechanisms deployed were classical behaviour change interventions targeting investments in efficient technologies, education and awareness campaigns and changing individual behaviours. Most participants noted their institutions were on track to meet or exceed government targets, a subject I return to in Section 6.6.1.1.

Capital investments, often supported by government funding, have also led to the development of exemplar buildings which can showcase sustainability and act as part of the hidden curriculum (Winter & Cotton, 2012). In addition, new learning environments are being created that facilitate the adoption of action-oriented and experiential learning pedagogies (Clarke, 2013; Ng et al., 2017).

6.3.2.2 Research Funding

The literature indicates the significant role that research plays in exploring solutions to sustainability-centred problems (Lang et al., 2012; Waas et al., 2010). The data affirms the influence that research agencies exert on research priorities and activities within Irish HEIs. Research funding is therefore a significant driver of sustainability actions and many of the funding bodies include sustainability or the SDGs as a research criterion within research calls. Though there is evidence of collaborative research between institutions, traditional knowledge domains persist, limiting opportunities for interinstitutional transdisciplinary research deemed necessary for progressing ESD (Kahle et al., 2018; Klenk & Meehan, 2017). The government has also strategically invested in research centres with a focus on areas such as energy, environment and the circular economy.

6.3.2.3 Professional Accreditation and Societal Change

Recent shifts in emphasis on industrial standards relating to sustainable construction, resource efficiency and even ethics, have demanded requisite changes to HEI curriculum. Professional standards developed by accreditation bodies, such as *Engineers Ireland*, carry particular weight which

is seen to overcome individual or institutional resistance, circumventing power and academic freedom. Despite their influence on individual modules, these changes tend to be disjointed and inadequate to address the fundamental shifts in teaching and learning required (Nicolaou & Conlon, 2013). Finally, changes in societal thinking, increased awareness of global challenges and youth climate activism all play a role in influencing institutional thinking and behaviour.

6.4 ESD Strategy Implementation Staircase Revisited

Having reviewed the various barriers, drivers and ESD-centred actions, I now return to the implementation staircase model to see how that theoretical framework can be used to reconceptualise the ESD Strategy implementation process (Figure 6.2). Within this analysis, there is a significant emphasis on the role of agency, identified within this research as a central driver of change. Each location of the staircase is considered and the *implementation gaps* are discussed, describing the difference between policy intention and outcomes (Reynolds & Saunders, 1987).

6.4.1 Government

Both the DES and the HEA play a central role in governance and policy for the HE sector. In this case, the DES has 'ownership' of the ESD Strategy and the HEA reports on progress within HEIs. Though a range of external sustainability drivers are identified within the data, the ESD Strategy itself remains largely "sitting on a shelf" as one participant commented (Darren; IoT 8) and has been found to be lacking in "accountability, aspiration and specific goals" (Foley, 2017, p. i). In the absence of an overarching policy framework to guide HEIs, they are effectively set adrift to navigate the choppy and unpredictable waters of ESD change and this is, broadly, resulting in fragmented, rather than systemic change. Furthermore, as evidenced within the data, this policy vacuum stokes the flames of inherent tensions between what actors believe should be achieved and what is possible.

6.4.2 Institutional Policy

HIE sustainability strategies play a significant role in supporting sustainability initiatives and help to legitimise the efforts of ESD champions. However, in the absence of clear and meaningful ESD guidelines from government, these strategies are guided by frameworks such as the GCP, SDGs or international sustainability metrics and ESD terminology remains ambiguous, contested and contextualised. Governmental fiscal steering mechanisms are highly influential on institutional priorities and a significant focus of HEI change is targeted at an operational level as opposed to teaching and learning for sustainability. Power enacted at the top of institutions is a significant driver of and facilitator of change but, in some cases, can supresses the enthusiasm of ground-level actors (Hoover & Harder, 2015). Poorly developed communication and reporting strategies fail to highlight successful projects and limit the flow of resources for and information about sustainability initiatives.

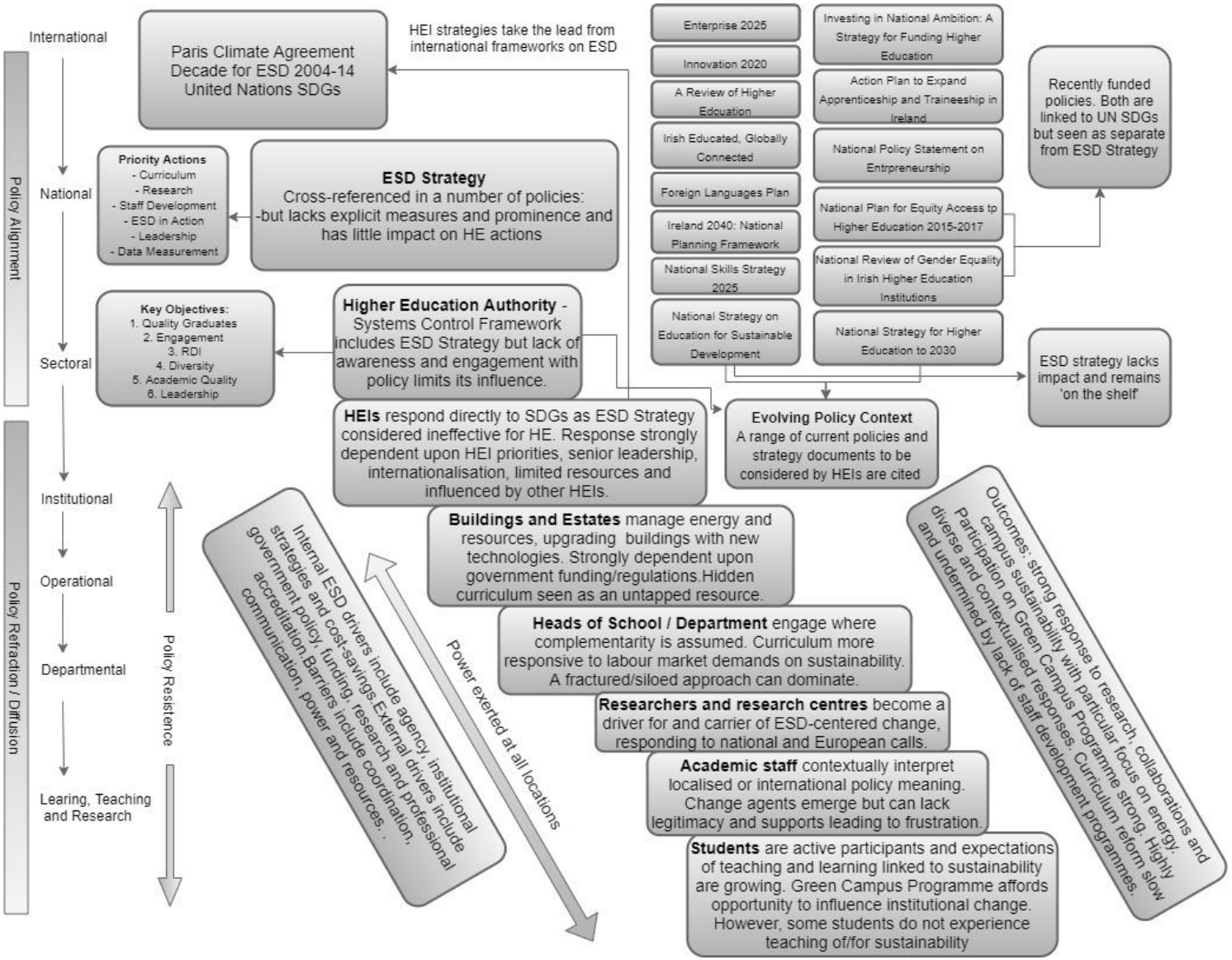

Figure 6.2: Implementation staircase highlighting agency, power and complexity of change on the ground

6.4.3 Building and Estates

The data demonstrates a strong influence from Building and Estates offices on campus sustainability initiatives, particularly with respect to infrastructure and resource management. The use of new buildings as living and learning laboratories features strongly and some institutions are investing heavily in renewable and sustainable technologies and setting out roadmaps to de-carbonise their campuses. In the case of the IoTs, where investment in capital infrastructure is more dependent upon the availability of government funding, infrastructure is considered a barrier for change. Campus improvements offer links to curriculum reform but these are tenuous in some cases, so opportunities are missed to engage academics and students in the hidden curriculum (Winter & Cotton, 2012).

6.4.4 Heads of School / Department

Implementation of policy by middle management is likely to meet less resistance and long-term successful change is more likely to occur when there is a consensus of direction from the top-down and bottom-up (Akins et al., 2019; Trowler et al., 2013). There is evidence of, what Fullan (1993) referred to as, the *change sandwich* approach emerging within a number of universities. Responses by faculties, schools and departments to ESD is largely contingent upon subject disciplines, with those having a natural fit, embracing and leading change. Some other discipline areas contest the relevance and meaning of ESD and their students may therefore stay outside the reach of learning for sustainability altogether (Gale et al., 2015). Some faculties, use institutional structures to uphold knowledge silos, thus creating barriers to transdisciplinary approaches to projects and research which are deemed critical for the advancement of ESD (Gale et al., 2015; Laurie et al., 2016; Sterling & Witham, 2008).

6.4.5 Researchers

Research is added as a new 'location' to previous models as it emerges strongly as a theme within the research data. Researchers respond to national and international research calls and the outcomes of research fuel innovation, influencing institutional and national policy development and programme curricula (de Haan et al., 2010). European research agencies all assume sustainability with their calls, a feature now replicated in a growing number of Irish research agencies. Strong evidence emerges from the data of collaborative research with enterprises and local communities, driving innovation and new models of sustainable development. Multidisciplinary and collaborative research is seen to help to address some of the complexity of the change process and facilitate an organic approach to the problems being addressed. Research into ESD in Ireland is also evident though it is still an emerging field (Besong & Holland, 2015; Foley, 2017; Hume, 2016; Tillmanns et al., 2014).

6.4.6 Academics

At a micro-level, academics are considered as the gate keepers of knowledge and accommodating and overcoming academic freedom is frequently referenced by the research participants as a challenge. Engagement is further hampered by the deficit of sustainability literacy and competency amongst academics (Mader et al., 2014) and there is an absence of staff development programmes, supports and resources. This limits pedagogical innovation and opportunities to develop more problem- or enquiry-based teaching and learning approaches. Professional bodies play a role in steering curriculum development but lead to fragmented rather than holistic change. However, academics also exert personal agency, and the data reveals considerable ground-up initiatives through academic projects, and module-level developments.

6.4.7 Students

Often considered as receptacles of education practice, in more recent years, young people have exerted considerable pressure on governments and policy makers to take more decisive and ambitious action to combat climate change and engage with the sustainability agenda. Wals (2012) noted how the students who have been born into the digital age are quick to establish change networks and are considered key agents of change in the sustainability movement. Ronan, acknowledged their growing influence on the issue:

> The most vociferous stakeholder group is probably the students and you would see that with the young people's concerns about environmental issues at the moment. That cohort will start coming into higher education in the next year or two and suddenly you will see that senior leadership will be responsive to the markets in which they are operating. (Ronan; GA 2)

Engagement with the GCP has afforded students a voice at the table of power, exerting an influence on academics and Programme Boards and playing a role in co-constructing curriculum (Khoo, 2017). In this sense, students have become agents of institutional policy too, demonstrating the refraction of policy up and down the staircase (Trowler, 2002).

Having considered the various locations and their impact on the policy implementation process, the next section considers the implications of these findings for ESD-centred change.

6.5 ESD Strategy and Implications for Institutional Change

This section considers implications for policy implementation, institutional change and teaching and learning for sustainability.

6.5.1 Implementation Gap

The ESD Strategy implementation gap, that difference between policy intentions and desired outcomes (Reynolds & Saunders, 1987), is particularly evident with respect to the slow pace of

curriculum reform and lack of advancements in teaching and learning for sustainability. The lack of clear government guidelines and supports, on the one hand, provides an opening for innovative and contextualised agentic responses and sustainability practices, shaped by the variability of institutional structures and events on the ground (Ball, 1994; Trowler, 2014). Conversely, it tolerates institutional inertia and an interpretation of ESD that is inconsistent with international sustainability goals. This type of street level bureaucracy (Lipsky, 1971), accommodates the exercise of agentic power to influence and resist change and, in some instances, protect vested interests.

6.5.2 Intra-Institutional Influence

It is evident from the data that HEIs are responding at varying rates and, in general, there is a differentiation evident in the scale and ambition of change between universities and IoTs. Universities, generally larger, more research intensive and internationally focused than their IoT counterparts, have placed sustainability as a central element within institutional strategies. This is supported by a well-developed research infrastructure and driven by international collaborations and networks. Strong institutional leadership is evident, and some Irish universities rank amongst the best in the world with regards to sustainability rankings.

The emergence of exemplar HEIs is important for demonstrating best practice and positively influencing other HEIs (Marans & Shriberg, 2012). O'Rafferty (2018) pointed out that Irish HEIs sometimes rely more on heuristics or rules of thumb, including imitating best practice, as a means to prioritise change than an evaluation of various strategies. As an example, the Irish Universities Association (IUA) have established a working group on sustainability, bringing together coordinators from each university and providing a platform to share knowledge and expertise. Richard outlined how this is likely to trigger a response within the network of IoTs:

> The IUA have taken that step to bring their sustainability offices together from the various institutions to see what can be done. I'm not sure if they've [IoTs] that same structure in place but I would imagine that once they see the IUA structure there will be an impetus on them to do something similar. (Richard; GA 1)

In ecology Hannan and Freeman (1989) described the Darwinian concept of *isomorphism* which occurs because competitive pressures select out non-optimal forms of organisation and there is evidence of such competitiveness emerging within the data with regards to sustainability. Nationally however, opportunities for sharing knowledge and best practice, a crucial mechanism through which institutions reflect and learn from each other, are limited.

6.5.3 Implications for Teaching and Learning for Sustainability

The literature outlines how the re-orientation of teaching and learning towards sustainability can enable HEIs to become centres of global learning and a test bed for sustainability problem-solving (Lozano et al., 2013; Robinson et al., 2013; Ryan & Tilbury, 2013). I refer, once again, to a key objective outlined within the ESD strategy:

> equipping learners with the relevant knowledge (the 'what'), the key dispositions and skills (the 'how') and the values (the 'why') that will motivate and empower them throughout their lives to become informed active citizens who take action for a more sustainable future. (DES, 2014)

In order to achieve that goal, there is a need to disrupt current curriculum and traditional forms of teaching and learning that re-assert knowledge and thinking that has led to the current global crises (Denby & Rickards, 2016; Foley, 2017; Harpe & Thomas, 2009). There is a need to engage and empower the academic community and to re-orient teaching and learning towards sustainability. This involves changing the way students learn and the systems supporting that leaning and the development of active-learning pedagogies, sustainability literacy and opportunities for collaborative learning (Cotton & Winter, 2010; Mader et al., 2014).

The near anonymity of the ESD Strategy within the HE sector and the lack of targeted resources and steering mechanisms to support such a reform agenda has led to a sense of indifference within many HEIs, similar to that experienced in other jurisdictions (Winter & Cotton, 2012). Overcoming this inertia is a crucial factor in transitioning toward holistic and systemic institutional change, an issue that I address in Section 6.7.2.3. The *National Forum for the Enhancement of Teaching and Learning* (NFETL), funded by the HEA, lead and advise on the development of teaching and learning within Irish HE. However, there has been little engagement to date with the ESD Strategy from this forum. Mobilising this steering media to support ESD could unlock significant resources and latent potential with the academic community and help to bring teaching for sustainability into the mainstream. The design of any interventions would need to allow academics to interpret positions and contexts and apply their own rational judgements based upon ethical, political and sustainability issues (Huckle, 2009).

Having reviewed the changes taking place within HE and the barriers and drivers of ESD through the lens of the ESD Strategy implementation staircase, I am now switching my theoretical focus to examining the potential value of behavioural insights (nudging) and social practice theory with respect to HE change for sustainability (RQ 2).

6.6 Theories of change (RQ 2)

Acknowledging the complexity, scale and ambition of the ESD transitionary process outlined above, this section considers the potential value of two emerging and contesting theories of change introduced in Chapter 3, behavioural insights and social practice theory.

6.6.1 Value of Behavioural Insights and Nudges

Behaviour change interventions generally focus on causal interventions, seeking to remove or limit the impact of barriers with the expectation that people will behave rationally and adopt the desired behaviours (S. Michie et al., 2014; O'Rafferty, 2018). However, as outlined in Chapter 3, behaviour change is far more complex than the simple rational-purposive model often espoused and adopted by policy makers (Shove, 2010; P. R. Trowler, 2002). Behavioural science, drawing on assumptions from psychology, recognises the influence of non-rational heuristics on people's behaviour choices and seeks to minimise the impact of mitigating factors and the contextual elements within the decision-making process (Lefebvre, 2010; Lindahl & Stikvoort, 2015; Thaler & Sunstein, 2009).

A review of the range of tools employed to influence individual behaviour are presented in Figure 6.3. and traditionally, policy makers have focused on regulatory, fiscal (incentives or penalties), information and awareness tools. On the right are nudges, and the various behavioural insights interventions that are used to influence and design individual choice architecture (John et al., 2009; Mont et al., 2014; Thaler & Sunstein, 2009).

Irrespective of some of the ethical issues regarding the application of nudges discussed in Chapter 3, Martin accepts that all change intervention options need to be considered:

> As a society, we have nudged everybody into using the most convenient option. So, it's trying to reverse that now. But it's not one step, one single strategy. I think it's a whole myriad of strategies that we've got to consider. (Martin; NGO)

Regulation of the individual	**Fiscal measures directed at the individual**			**Non-regulatory and non-fiscal measures with relation to the individual**			
Eliminate and restrict choice	*Guide and enable choice*						
	Incentives and information			Nudging			
Laws and regulations	Fiscal incentives	Non-fiscal incentives	Provision of information	Simplification and framing of information	Changes to physical environment	Changes to the default policy	Use of social norms

Figure 6.3: Policy tools used to influence individual behaviour, adapted from Mont et al. (2014)

This next section considers how nudging strategies might be incorporated into sustainably oriented campus operations and policy design and discusses the importance of meaningful information and first year transitions within the process of change.

6.6.1.1 Campus Operations

Examples of behaviour change interventions that appear within the data typically focus on encouraging individuals to switch from disposable cups, reduce their use of single-use plastics and increase their recycling rates. However, the most dominant behaviour change theme relates to energy reduction and the transition to low- and zero-carbon campuses. In 2009, the Government set an ambitious target of 33% energy reduction usage for the Public Sector which was implemented through the *Public Sector Energy Efficiency Strategy (2017).* This was accompanied by a range of neoclassical interventions and steering mechanisms with expertise and grants made available through *Optimising Power @ Work* and *Public Sector Energy Programme*. This process, has been broadly successful, largely driven by changes to the physical environment and investments in new energy-efficient technology. Almost all participants also expressed confidence that their institution would achieve the targeted reductions by 2020. In order to engage the wider HEI community and target individual behaviour, opportunities for knowledge exchange and sharing of best practice were facilitated and energy awareness campaigns were conducted on campuses. Despite its success at an organisational level, the data reveals some uncertainly as to the impact on pro-environmental behaviour at an individual level. In some cases, people find change difficult, as Claire pointed out:

> I have to work on the ICT manager to tell him you know it's OK to run a server room at more than 21 degrees, but I'll have to work on that (laughing). (Claire; IoT4)

In Darren's situation, his operations manager found it easier to remove the choice entirely rather than trying to engage end-users:

> You could do a campaign all you want but he's [facilities manager] taken the view, and it's just his view: "Look, they're not going to turn them off, they're going to leave the computer on all night, it's just the way it's going to be. So, we need to do it." (Darren; IoT 8)

This is consistent with Barr & Gilg's (2007) findings that engagement campaigns often rely too heavily on information and awareness to change behaviour, failing to deliver the necessary nuanced messages about everyday practices. Furthermore, due to the contextualisation of practices within HEIs, there appears to be a plethora of interventions and information campaigns on the ground, but they are fragmented and not necessarily grounded in theory or part of an overall change strategy. In order to progress pro-environmental behaviour relating to energy consumption, a range of nudging interventions that are specifically link to models of behaviour sought could be considered (Table 6.1)

These are categorised based upon the four techniques of nudging advocated by Thaler and Sunstein (2009) and could be trialled and adapted relatively easily across HEI campuses.

The advantages to such interventions are that they are relatively low cost and could be deployed and managed locally. Furthermore, such strategies could transfer effectively to other areas of campus operations, particularly with respect to water conservation and campus waste, which are frequently highlighted within the data as challenging to manage. The thrust of these interventions is, on the one hand, to engage and inform, but on the other, to ultimately make it easy for people to change their individual behaviour. Naturally, there are inherent risks that need to be considered if adopting a nudging intervention as part of a behaviour change strategy. Most approaches require the use of coordinated and carefully monitored trials which need to be evaluated for their effectiveness and likelihood of success. Once in place, the resulting impact would need to be reviewed to assess how permanent or elastic the emerging behaviour change is, and then altered accordingly.

Table 6.1: The use of green nudges targeting individual behaviour relating to energy efficiency

Category	Green Nudge	Model of Behaviour sought
Simplification and framing of information	Publish comparative energy data	Change staff behaviour by motivating them to improve the overall institutional performance
	Create a campaign and slogan	Help to motivate people for the cause
	Energy use of buildings	Real-time information on energy use enables people connect with their contribution to energy consumption and savings
	Tailored persuasive communication	Use meaningful information, prompts and social norms to persuade people to change their behaviour
	Energy labels	Use energy labels to clearly display the energy and costs associated with individual behaviours, e.g., printing, PCs, web searchers etc.
	Email reminders	Encourage people to turn off computers at weekend/holidays
	Social media campaigns	Use social media to engage and inform stakeholders
	Data	Use data to monitor and understand behaviour
	Energy in the classroom	Bring campus energy into the curriculum, explore energy use at home and at college.
Changing the physical environment	Move printers to central locations	It is more 'hassle' to print so likely to reduce energy used for printing
	Deployment of sensory lighting in rooms	Make it easier for people to adopt sought behaviours
	Infrastructure design	(Re)design buildings, internal spaces to make pro-environmental behaviour easier (more natural light etc.)
	Transport infrastructure	Provide infrastructure for electric cars and bikes
Changes to the default policy	Double-sided printer setting	Printing on both sides; assume no printed documents at meetings
	Green procurement	People specify low energy and low environmental impact equipment and products unless case made otherwise
	Timetable	Design the timetable based upon the optimum use of energy
	Monitor and set optimum temperature controls	Analyse optimum default temperature settings for rooms
Using social norms	HEI declaration	Raise awareness and encourage a stronger commitment to zero-carbon campuses
	Target first year student behaviour	Use Student's Union environmental champions to engage first year students with ways to reduce energy on campus
	Social cues	Provide contextual cues to students and staff of behaviours they are assumed to undertake
	Student accommodation	Target energy awareness in student accommodation

6.6.1.2 Designing Policy - EAST

Taking behaviour insights to a meso-level, there are potential tools and frameworks that could be considered by policy makers to further advance ESD. The *EAST* behaviour change policy framework (BIT, 2014) introduced in Chapter 3, defines four key criteria for the design of policy based upon behavioural insights: *easy*; *attractive*; *social*; and *timely*. Adopting such a framework could lead to the development of creative and accessible policy levers, deliver a clear and concise message and draw on the collective power of the HE sector to drive and influence change. The *Sustainability Campus Action Plan* presented in Figure 6.4 puts forward a framework applying principles form the *EAST* policy model that could be employed to target the efficient use and consumption of campus resources of energy, water and waste. At a meso-level, this involves national policy adopting the *EAST* principles and a range of steering mechanisms designed to support and transition HEIs. At a micro-level are green nudges, interventions aimed at increasing individual pro-environmental behaviour. Controlled trials could be undertaken and reviewed and those that prove to be effective could be targeted with investment and scaled up nationally.

6.6.1.3 Targeting Incoming Students

Several participants recognised the opportunity to focus behaviour change strategies on incoming first year students, during what is typically a disruptive transition. Once again Martin echoed this view:

> When the first years are coming in, they're transitioning, they're establishing new travel patterns, new behavior on campus and so that you're ready for that. Once they establish that pattern, they'll probably keep doing it. (Martin; NGO)

Making that transition as smooth as possible and embedding pro-environmental behaviour as the norm is key to success in this regard (Arbuthnott, 2009). Based upon the assumption that most incoming first year students expect HEIs to deliver on sustainability issues (Calder, 2016), it can be expected that students would have an appetite to engage with change interventions, helping to make new behaviours develop into permanent habits. Nudging experiments, that also incorporate a sense of fun, can be both informative and engaging and have a greater chance of sustaining behaviour change (Chappell, 2015), making them particularly appealing to student learning and enquiry. There can be a novelty to this approach, and it may be that students enjoy being part of such trials, however, it is unclear how transferrable results may be outside the campus environment (Mont et al., 2014).

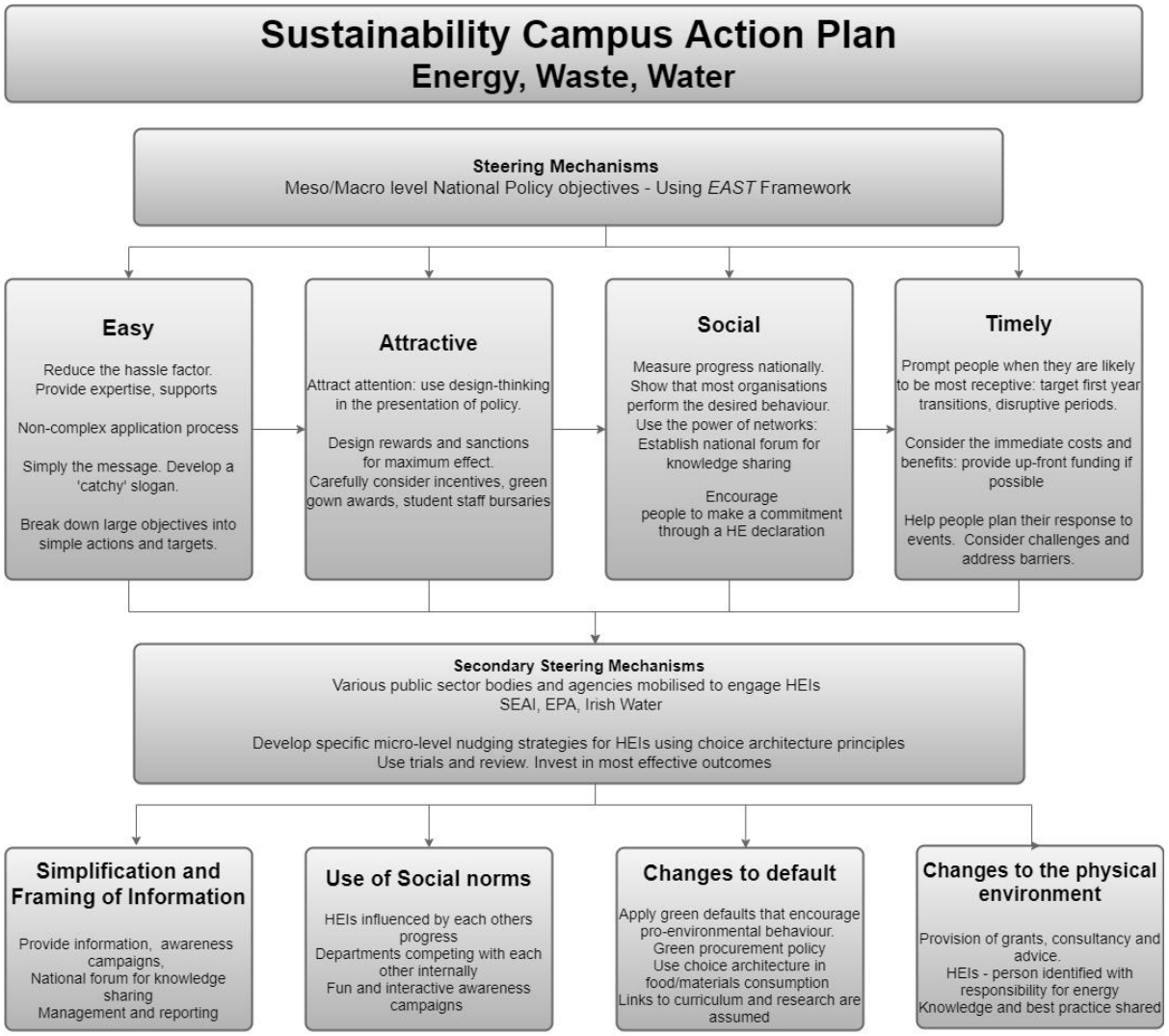

Figure 6.4: A behavioural insights approach to managing campus resources.

6.6.1.4 Meaningful Information

Behavioural insights places considerable emphasis on the use of meaningful information, recognising that individuals tend to be bombarded with a tsunami of information and inconsistent messaging on a daily basis (Thaler & Sunstein, 2009). Communication was cited by many participants as a challenge and Iris outlined how thinking has developed on this topic:

> I need to go back to college and do a master's degree in psychology and communication. Behaviour is amazing. I've had three or four psychology students [as interns] who taught me a huge amount. (Iris; UNI 1)

Information presentation is also critically important for reporting of progress and engaging all stakeholders, including decision-makers, on sustainability initiatives (Ceulemans et al., 2015; Mori Junior et al., 2019; Shriberg, 2002). The development of a national ESD / SDG awareness campaign

might be a very useful means of engaging the HEI community and motivating ground-level agents to pursue more ambitious change. The establishment of an effective HEI assessment and reporting mechanism would also help to inform and engage stakeholders and provide a consistent means of measuring relative progress. Finally, a sustainability declaration, signed by the presidents by all HEIs, would raise awareness of the critical role played by HE and send a powerful message of intent, both nationally and internationally, of the ambition to positively change the nature of education toward sustainability.

6.6.2 Limitations of Nudging for Sustainability

Though nudging and behavioural insights may be appealing to policy makers and bring a certain level of innovation to the types of interventions and levers deployed, it is important to also consider the view of detractors. Critics have argued that the outcomes of behavioural insights trials are diverse and non-definitive and that trials themselves are culturally insensitive, often requiring a customised approach to different settings (John et al., 2013; Lindahl & Stikvoort, 2015; Mont et al., 2017). Ethically, there are concerns regarding those targeted by nudges, particularly where defaults are applied to contentious societal norms and infringe upon the autonomy and civil liberties of citizens (John et al., 2013; Mont et al., 2014, 2017). Others have gone further to suggest that nudging is an anti-democratic activity, characterised by manipulation and political elitism (Dobson, 2011; Hukkinen, 2016; Revell, 2013). For policy makers, it is argued that nudging, and other positivistic change interventions, fail to accommodate the influence of power and one's position in society on individual choices that people can make (Kennedy et al., 2015). Furthermore nudges are also fraught with unexpected complications and it is unclear if they can change long-term behaviour as people remain detached and disengaged from the target of the nudge (Arbuthnott, 2009; Sayer, 2013). From a practical perspective, Dobson (2011) also questioned the 'low-cost' assumption of nudges and highlights the hidden costs of trials and development of policies.

More pertinent for ESD is that the underlying subtlety of nudging fails to involve people with the sustainability discourse and does not require them to critically reflect on their own practices (Arbuthnott, 2009; Dobson, 2011; Mont et al., 2017). There is a risk therefore, that once nudging interventions are removed, because people have not been fully in control of their own decision making, their behaviours revert back. It is also argued that nudging fails to provide scope for social learning and is therefore incongruous with the values, ethics and norms inherent in sustainability (Dobson, 2011). Finally, it is important to note that isolated nudges, in the absence of an educative framework, is counterintuitive to the mission of HEIs and should therefore be approached with caution (Lemoine et al., 2011).

6.6.2.1 Is a Nudge Enough?

Though behavioural insights have seen some successes in areas of health, organ donations and private pensions, nudging has tended to be incremental in nature and applied on the periphery of ESD-centred behaviour interventions (Loewenstein et al., 2012). There are of course limits to the effectiveness of any one policy instrument and Dolan et al. (2012) argued that the best interventions were those that succeed in changing both minds and contexts. Lowenstein et al. (2012) found that what was needed was a good 'shove' (i.e. regulation) as opposed to a nudge in order to advance individual and civic behaviour more effectively and to bring about systemic and transformative change. Hargreaves (2011) went a step further:

> If pro-environmental behaviour and sustainable consumption are to be achieved at the rate they are needed, conventional narrow models of individual behaviour change may need to be abandoned. In their place, greater research and policy attention should be paid to the complex task of generating more sustainable practices. (Hargreaves, 2011, p. 95)

It is this latter point that the final sections of this chapter now consider.

6.7 The value of a Social Practice Perspective

As outlined in Chapter 3, social practice theory (SPT) takes the attention away from individual behaviour and motivations as a target for action and change, placing instead a spotlight on the structure and organisation of social practices (Goel & Sivam, 2015; Hargreaves, 2011). Shove and Spurling's (2013) framework for analysing practices in terms of *elements* considers how changes to the *meaning*, *material* and *competence* of a practice, or the links between them can enable new practices to emerge. Proponents of SPT argue that by changing the structures that support unsustainable behaviours, more systemic and enduring change will emerge and the process will make better use of limited resources (Spurling et al., 2013). Therefore, though the process of change may take longer and result in outcomes that are less predictable, SPT provides a counterbalance to some of the limitations outlined regarding behavioural insights.

The following sections highlight some examples of changing practices that emerge from the data and discusses how the concept of *practice architecture*, aimed at collaboration, teaching and learning, policy design and campus development for sustainability can offer a framework for longer-term transformative change.

6.7.1 The Practise of Practices

There is some evidence within the data of SPT approaches being used to reframe and analyse sustainability-related challenges. On the practice of cycling for instance, beyond information campaigns and endless surveys, some HEIs are introducing interventions that seek to reconfigure

elements and their linkages to facilitate shifts in modality. The introduction of campus bike schemes, secure parking and storage, showering and changing facilities, free bike maintenance services and new cycling infrastructure are just some of the interventions that emerge from the data. In this way, elements of the practice of cycling have been redefined such as bicycle ownership (materials), road safety (meanings) and bike maintenance (competence) to facilitate wider participation and make cycling safer and more accessible for students and staff (Shove et al., 2012; Spotswood et al., 2015). This conceptualisation of cycling as a practice is represented in Figure 6.5.

Similarly, while many HEIs have used traditional behavioural change strategies to encourage individuals to switch from single-use, non-recyclable cups to compostable or reusable alternatives, some have adopted a more practice-based intervention. A *Co-Cup Scheme* introduced by the EPA, Dublin City Council and Dublin City University (based upon the German *RECUP* initiative), allows consumers to buy a reusable cup and lid for a nominal fee. The cup can then be used, returned or exchanged at participating retail outlets. Digital technologies are used to track and prompt members of the scheme (or 'club') if they have forgotten to return their cup. Once again, this tackles the hassle factor for the user (meaning), eliminates the need to wash and transport reusable cups (materials) and clarifies the message of sustainability for carriers of the practice (competence).

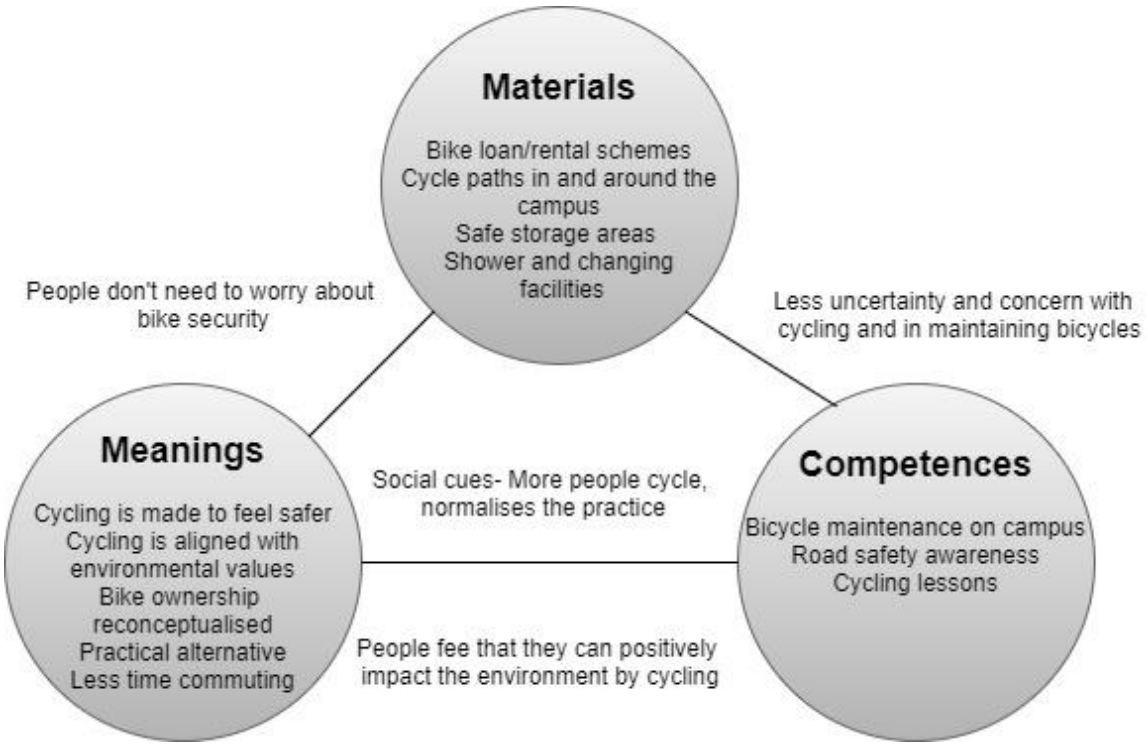

Figure 6.5: The elements of the practice of cycling, adapted from Shove et al. (2012)

These two examples show the value of unpacking practices and carefully analysing the elements and the links between them in changing behaviours on campus. Using Nicolini's (2012) concept of *zooming* in and out can also be helpful for re-imagining and restructuring practices and to better understand their elements, their interconnectivity with other practices and their historical context. Both approaches of unpacking and analysing practices are used again in the next section which considers how HEI practice architecture can be reoriented to support ESD change.

6.7.2 Practice Architecture

Zooming out, it is possible to identify those institutional structures sedimented within HEIs that constrain, embed and even protect unsustainable practices (Nicolini, 2012; Trowler, 2008). The university's *practice architecture* (Kemmis & Mahon, 2017) is a useful concept to consider the structures that support and determine HEI practices, which could then be unpacked and reconceptualised through a social practice lens. Based upon the finding of this research, the areas of practice architecture that I consider to be most pertinent are *collaborative*, *policy*, *teaching and learning* and *campus*, all of which are interconnected (Figure 6.6) and further expanded in the following sections.

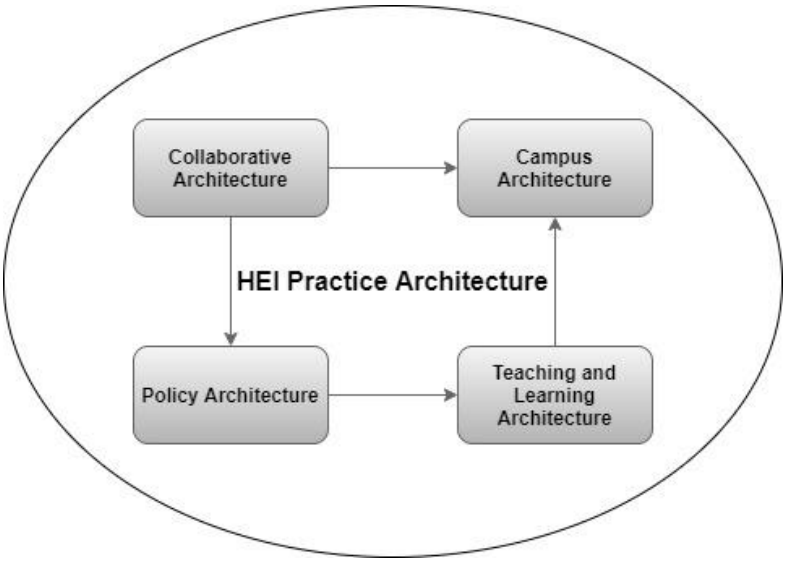

Figure 6.6: HEI practice architecture for sustainability

6.7.2.1 Collaborative Architecture

Changing practices requires an initial in-depth analysis so that a process of deconstruction and later reconstruction can take place on the target of change (Shove et al., 2012). As discussed in Chapter 2, strategic networking, multi-disciplinary thinking and trans-boundary collaborations can be effective in analysing complex practices, informing and directing policy and generating social capital for sustainability (Kahle et al., 2018; Silva et al., 2018). Collaborative structures, such as GCP, provide an

opportunity for emerging sustainability actors, including students, to get involved and inform policy and decision-making (Hoover & Harder, 2015). Within the data, several HEs referenced the establishment of new networks or communities of practice, where deep rooted issues such as environment, energy, social justice and ecology can be discussed. A further benefit of collaborative thinking is that it is aligned with a *normative-re-educative* strategy to overcoming resistance and can help to clarify and reconstruct values and ease power tensions (Lozano et al., 2013). Such networks and communities of practice, also provide an opportunity to join up the various knowledge compartments, transform the meaning and relevance of practices and negotiate and interpret sustainability meanings (Fullan & Scott, 2009; Hargreaves, 2011; Lave & Wenger, 2002).

This form of social reconstruction can lead to a deeper understanding of complex sustainability challenges, the needs and aspirations of HEI communities and the potential impact of interventions. Providing infrastructure to support these structures can also help overcome, what Gale (2015) referred to as, the "fast and frugal habits of reasoning" (p. 248) adopted by academics in their day-to-day, time-pressured environments which can lead to unsustainable positions and poorly thought through solutions. In this context, providing the appropriate architecture, both physical and philosophical, to accommodate both inter and intra-institutional debate and discussions to explore relevant sustainability issues is critical in moving ESD forward.

6.7.2.2 Policy Architecture

Shove et al. (2012) argue that current approaches to policy have struggled to produce outcomes capable of transforming our social fabric at a scale and rate required to address the sustainability crisis. In a social practice-based approach to policy development, the focus is taken off drivers of behaviour and instead the social and economic forces influencing practices are carefully analysed. As discussed in Chapter 3, the world of practices are in constant transition, emergent and unpredictable (Trowler et al., 2013). Shove (2010) argued that a new type of policy was needed to accommodate the uncertainty of sustainability:

> The emergence of new genres and styles of policy which were both more modest than at present, harbouring no illusions of manageability, and at the same time more ambitious (p. 141)

This type of policy formulation requires an alternative approach and framework to the rational, causal and largely positivist models commonly used to change behaviour. Adopting a social practice approach, practices are seen to emerge slowly and take time to become routinised and resilient (Trowler et al., 2013). Policy interventions are therefore designed to empower the carriers of practices and support the reproduction and circulation of new practices through relevant networks and social

learning. In designing policy, transdisciplinary collaborative thinking and dialogue can be used to analyse practices helping to bridge the divide between the various interpretations of sustainability, increase the durability and adoption of emerging disruptive practices and normalise them (Wals & Lenglet, 2016). Policy emanating from such collaborative thinking should be considered a living document, supporting an *encounter-dialogue-reflection* approach (Hopkins & McKeown, 2002) and be readily adaptable to the unpredictability of outcomes (Tilbury & Stevenson, 2002; Trowler et al., 2013).

Zooming out once again to a meso-level, the establishment of a HE national policy forum with representatives from all locations on the implementation staircase would provide a platform for this type of policy discourse (Bessant et al., 2015). At a macro-level, this type of approach is already emerging in Ireland within the *Citizens' Assembly*, a forum designed to discuss, debate and put forward priority policy areas for the government. This could provide for a non-determinist approach, lead to interdisciplinary responses and the development of the necessary adaptable and reflexive policies (O'Rafferty, 2018; Trowler et al., 2013). This type of transformative social learning could also lead to disruptive policy solutions that take better account of the lifeworlds of HEIs (Wals & Corcoran, 2006). Finally, and similar to the approach taken from behaviour insights, a well communicated and meaningful declaration from the Irish HE sector, outlining its ambition and commitment to ESD, could provide significant impetus and further elevate the status of carriers of those practices.

6.7.2.3 Teaching and Learning Architecture

It appears from the data that students currently get a fragmented and random experience to learning for sustainability, largely determined by their HEI and programme choice. The adoption of elective bolt-on modules (learning *about* sustainability) reflects a more rational-purposive and incremental intervention and fails to reflect the diverse settings of learning and non-linear process of curriculum design (Bernstein, 2000). Taking a practice-oriented, holistic approach to reforming curriculum as espoused by Hargreaves (2011), it is therefore necessary to consider the various actors, drivers and constraints which mould it.

Zooming out a little, curriculum can be considered as just one part of the elements of the practice of *teaching and learning for sustainability*. By deconstructing, then co-constructing and reconstructing that practice, the focus is transferred to the interaction that occurs between lecturers and students, the materials they use, disciplinary context, personal meanings and the manner in which knowledge is transferred and created. Using the data generated from this research and the literature analysis, the practice of teaching and learning for sustainability is unpacked and presented in Figure 6.7. Therefore, in order to reconfigure the practice, changes can be made to the elements themselves or to the links between the elements. Importantly, to help to normalise the new practice, best practice

should be acknowledged and nurtured, while teaching practices that support unsustainable behaviour are gradually displaced.

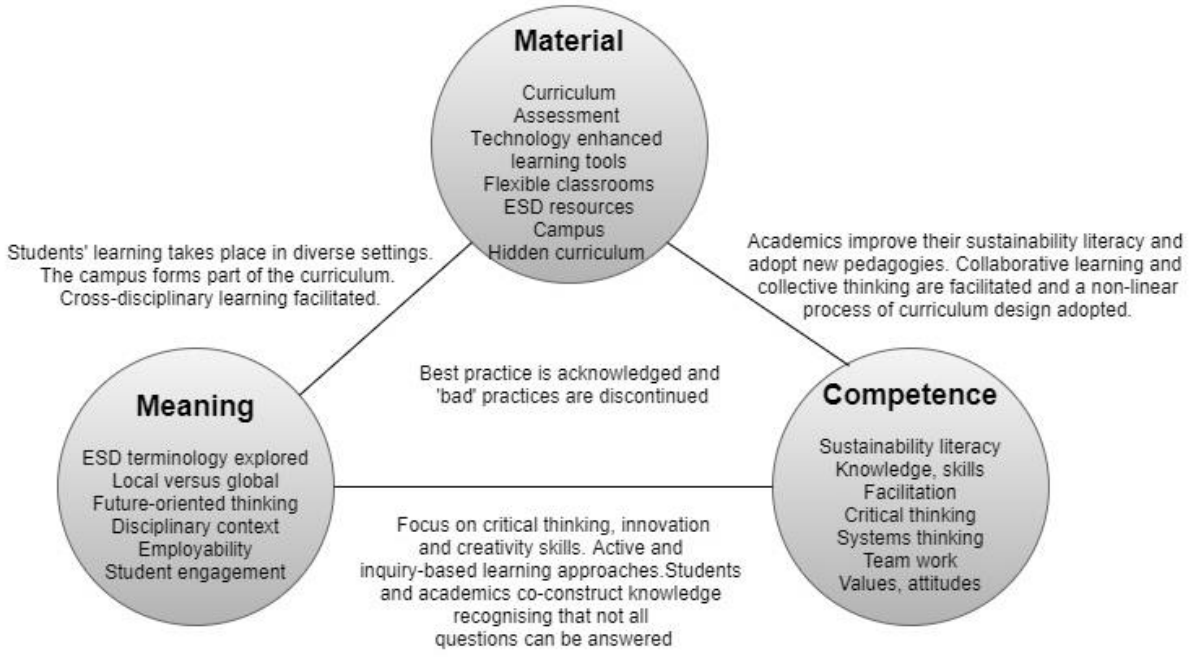

Figure 6.7: The elements of the practice of teaching and learning for *sustainability, adapted from Shove et al. (2012)*

In order to facilitate such a re-orientation of teaching and learning, academics need to be provided space to make sense of and examine their interpretation of sustainability through the collaborative architecture outlined previously. They can also enact and mediate it within the context of their professional knowledge and field of expertise. Academics must also be empowered and supported to develop sustainability literacy, competency and active learning approaches.

Through a process of collaborative learning between students and their lecturers, students can also be empowered to co-construct knowledge and re-orient the focus of their learning towards sustainability (Khoo, 2017). Such an approach has been shown to be transformative, enhancing critical thinking and problem-solving skills and providing the environment and atmosphere to explore the meaning and knowledge of sustainability (Schnitzler, 2019). Finally, learning environments need to be designed as flexible and adaptable spaces to support active engagement, participatory and experiential learning.

Zooming out a little further, it is useful to consider the structures that support teaching and learning practices within HEIs. The establishment of Academic Council committees with a sustainability remit can provide a transdisciplinary forum where an institutional meaning of sustainability can be debated and contextualised. Furthermore, such a forum can help to promote the carriers of sustainable

practices, reconfigure relationships between practices and identify those practices that require interventions (Shove et al., 2012). As discussed previously, at a national level, the engagement of the National Forum for the Enhancement of Teaching and Learning with the ESD agenda could provide significant impetus for this initiative, support for research and national recognition of best practice.

6.7.2.4 Campus Architecture

Finally, as described in Chapter 2, Winter and Cotton (2012) attribute significant value to the impact of the *hidden curriculum* on learning for sustainability. This relates to the institutional values and environment which affect the way in which students think and behave and the opportunities afforded for interdisciplinary and experiential learning (Blackmore et al., 2015). In many instances within the data, participants describe rich examples of the campus being used as a living and learning resource. Campus energy tours, newly designed low-energy buildings and campus biodiversity all are used to engage and inform the HEI community. The application of universal design to the physical campus environment has also been shown to improve social inclusivity, learning for sustainability and engagement with nature (Clarke, 2013; Lockton et al., 2016; Stephens, 2013).

An in-depth analysis of the campus environment and the practices it supports, can lead to inclusive and creative solutions and an increase in the uptake of new sustainable practices. Several participants spoke of bringing a range of stakeholders together to discuss issues relating to management of campus operations. Similarly, energy networks have been established, comprising multidisciplinary teams, bringing together a range of views, developing projects, research and on-campus initiatives to improve energy efficiency and engage students and local communities. Rethinking procurement, consumption and waste management from a social practice perspective might lead to novel approaches to tackling the problems that, for now, appear insurmountable. Using HEI campuses as a showcase for sustainable building, living and learning could provide all stakeholders with a model of sustainable practices.

6.7.3 Conclusion

The transition to a more sustainable model of HE will require innovation in policy-thinking, a shift in behaviours and practices and a radical overhaul of the structures that support them. Both behavioural insights and social practice theory are considered as relevant to conceptualise interventions and address some of the issues raised. The former has a focus on more immediate-term, individually centred interventions and campus operations. The latter is aimed at more long-term systemic change, focused on structures that support practices and promote collaborative learning and thinking. There is no perfect or best way, and for now, both theoretical frameworks can co-exist and be considered for conceptualising policy and interventions that support Irish HEIs transitioning to sustainability-centred institutions.

7 Conclusion

7.1 Aim and Scope of the Research

This empirical research set out to examine the changes emerging within the HE sector in Ireland with respect to ESD and the barriers and drivers affecting that process. The research brought to life the experiences, perspectives and voices from a range of relevant actors from within government, higher education and related agencies. Adopting a critical realist perceptive, the qualitative enquiry provided a critique of both the HEI practices emerging and the social and institutional structures that accommodate and support unsustainable practices. Specifically, the research questions were designed to provide evidence of the current ESD practices aligned with the recommendations of the ESD Strategy (RQ 1) and the perceived barriers and drivers impacting and influencing HEI actions and progress (RQ 1.1, 1.2). Theories relating to policy implementation (Reynolds & Saunders, 1987) and steering (Broadbent et al., 2010) were used to analyse the process of change and the implementation of the ESD Strategy. Finally, the research considered the potential value of theories of social practice and behavioural insights (nudging) to facilitate the transition of HEIs towards more sustainably focused institutions (RQ2).

The research adopted a qualitative approach, using semi-structured in-depth interviews with a range of sustainability champions from HEIs in Ireland. Further data was generated from interviews with senior figures from leading government steering media, documentary analysis of the ESD Strategy and an analysis of the relevant policy landscape. Thematic analysis of the data using *NVivo* software generated themes which were further analysed and reconceptualised through the theoretical frameworks.

7.2 Research Questions

This section provides an overview of the findings relating to RQs 1, 1.1 and 1.2, which relate to the ESD Strategy implementation and barriers and drivers of change within HEIs.

7.2.1 ESD Changes Emerging Within HEIs

In response to RQ 1 and using the recommendations of the ESD Strategy to frame this part of the enquiry, the emerging ESD landscape within HE was analysed. The data analysis highlighted a plethora of evidence and rich examples of engagement with the sustainability agenda. However, a three-tiered level of engagement with ESD emerged, with considerable diversity and levels of commitment observed between HEIs. A common thread was participation on the GCP, though more than half of the HEIs had yet to achieve *Green Flag* accreditation. Some HEIs showed extensive engagement with research linked to global challenges, particularly within universities, with energy and climate change

being dominant themes. Collaborations with industry and communities were evident throughout the sector, some at a strategic level, others less formal and localised. There were few opportunities evident for knowledge sharing nationally, though some universities were engaged with international HEI networks.

A wide disparity of positioning along the ESD pathway was evident, with an observable differentiation between the progress of universities compared with IoTs. On the one hand, universities displayed strong institutional leadership and ambition with several being recognised internationally for their progress, effectively acting as agents of policy change themselves. Conversely, some participants from IoTs noted the challenges of engaging institutional leaders on the sustainability agenda and getting support for initiatives.

The findings point to a stronger focus on technological improvements on campus and research rather than on the pursuit of transformative curriculum reform and teaching and learning for sustainability. A key recommendation from this element of the research is the need for a strategy to develop the necessary sustainability literacy, competencies and pedagogies to support the ESD transition.

7.2.2 ESD Barriers and Drivers

The research identified perceived barriers of ESD (RQ 1.1) with themes emerging related to the scale of change, power and resources. The sheer scale and reach of ESD across all levels, service functions and faculties within HEIs and the systemic change sought, requires a degree of cohesion between campus operations, teaching and learning and research. In particular, the coordination and communication of the various institution-wide activities was cited by participants as a significant obstacle to overcome. The research also cast a light on the inherent tensions and power relations that directly influence ESD-centred change, particularly prominent in the absence of institutional sustainability leadership. Resistance to change and academic freedom made the enactment of curriculum reform difficult and traditional silos of disciplinary knowledge, upheld by institutional structures, restricted the opportunities for transdisciplinary research. Limited resources and a lack of capital investment, particularly within IoTs, has undermined the potential of campuses to support the hidden curriculum and further influence students' sustainability behaviours.

With regard to internal drivers of ESD (RQ 1.1), the implementation staircase was used to demonstrate the groundswell of agency at all levels which emerged from within the data. Institutional sustainability leadership and strategies were highly influential with respect to the pace of change and the legitimisation of ground-level actors. Sustainability networks and multidisciplinary communities of practice offered opportunities for collaborative learning and awareness building. At ground level was the voice of the student, active in influencing curriculum, institutional policies and environmental

management of campuses. Economic sustainability was a dominant theme and projects that either attracted funding or demonstrated a return on investment were seen to be prioritised.

Looking externally (RQ 1.2), the sensitivity to financial steering mechanisms across the HE sector was particularly acute. Climate change mitigation policies have driven measures to significantly improve campus energy efficiency, though resource management of waste and water are less structured. Research funding emerged strongly from the data as an external driver, but the impact of research on informing and advancing curriculum was less clearly defined. Professional accreditation standards were seen to influence ESD curriculum reform, as was societal change and thinking, though in a fragmented manner.

7.2.3 ESD Strategy Implementation

When viewed through the lens of the implementation staircase model, several gaps appear between the ESD Strategy's objectives and the messiness of change and contextualised reality on the ground. The low level of awareness of the ESD Strategy, compounded by a lack of effective steering mechanisms and communication strategy, has led to ambiguity in respect of sustainable development terminology, principles and meaning. Many institutions are grappling with the sustainability agenda and attempting to solve highly complex problems in the absence of guidelines and an effective policy framework. Therefore, the pace and prioritisation of ESD-centred institutional change is largely dependent upon institutional leadership. The sustainability agenda requires a shift from traditional teaching methods to active- and experiential-learning pedagogies, yet there is no strategy in place to support this transition. The implementation gaps suggest that the current process of change is incompatible with the desired urgency required to mitigate against global challenges and transition to more sustainable ways of life. Now that the ESD Strategy is nearing the end of its lifespan, it is important for the government to identify and provide autonomy to an agency that champions ESD for the HE sector, where policy design takes into account the lifeworlds of those institutions and provides a realistic and supportive framework to support HEIs transition to sustainability-centres institutions.

7.3 Theories of change

RQ 2 sought to examine the potential value of two perceived ontologically and theoretically polar theories of change in moving the sustainability agenda forward. Both behavioural insights and social practice theory were considered in this light.

7.3.1 Behavioural Insights and Nudging

Behavioural insights, applying thinking from fields of psychology, economics and cognitive-neuroscience, seeks to alter individual behaviours by making it easier for people to make choices that are better for them and society (Thaler & Sunstein, 2009). Coined as *nudging* by Thaler and Sunstein

(2009), this positivist or causal theoretical approach recognises that people are bombarded with information and often take the easiest option presented to them. This research presents two models underpinned by behavioural insights that could be considered at the operational level of HEIs to further enhance the management and conservation of campus resources. A range of *green nudges* are put forward to guide and enable individual choices and further improve HEI energy efficiency using the four classical nudging strategies: *simplification and framing of information*; *changes to physical environment*; *changes to the default policy*; and *use of social norms* (Thaler & Sunstein, 2009). Additionally, at a meso-level, the *EAST* framework (BIT, 2014) provides a behavioural insights approach for the design of policy that is based upon four principles: *easy*, *attractive*, *social* and *timely*. The proposed *Sustainability Campus Action Plan* could be used to guide HEI campus operations and resource management in waste and water and build upon the achievements to date in energy conservation in the public sector. Furthermore, targeting first year students with the use of sustainability-focused social cues, a classic behavioural insights intervention, could prove valuable for embedding longer-term change to student behaviours. Finally, placing an emphasis upon meaningful information and reporting could help to develop a clear communication and measurement strategy for ESD nationally, a theme that emerged as a barrier with participants of this research.

Though I have reservations that significant social change will result from placing the burden of responsibility on the individuals, I believe that the incorporation of behavioural insights perspectives into the design of policy interventions may be productive, particularly in dealing with immediate challenges. Ultimately, however, I tend to agree with Shove and Spurling (2013) in that these interventions could be categorised as incremental and peripheral to the core transformational agenda of ESD. Finally, a lack of engagement with the discourse of sustainability means that such interventions are less likely to bring about the necessary substantive or systemic change.

7.3.2 Social Practice Theory

Social practice theory offers an alternative approach to ESD-centred change, one that is underpinned by social constructionism. Therefore, the focus of change shifts to the power and shaping of structures that support deep rooted unsustainable practices with a view to achieving longer-term transformative change (Reckwitz, 2002; Shove et al., 2012; Trowler et al., 2013). Adopting the concept of HEI *practice architecture* (Mahon et al., 2017), a number of inter-connected models of change are considered within the context of *collaborative, policy, teaching and learning and campus architectures*.

In order to deconstruct and reconstruct current practices, a deep analysis of practices can be facilitated through collaborative thinking and learning. At a micro-level, there is a focus on providing appropriate spaces, both physical and philosophical, to support social interaction that builds a contextualised meaning of sustainability for staff and students. Such collaborative thinking provides

width and depth to the process and a means of social learning that is strongly aligned with the principles of ESD. Strategic networking, trans-boundary collaborations, multi-disciplinary thinking and learning are supported to analyse complex practices, inform and direct policy and generate social capital for sustainability.

At a meso-level, social practice theory imbues policy that is ambitious and reflexive and that provides a flexible framework, recognising that outcomes may be unpredictable and enabling institutions to contextually interpret meaning and change. Policy interventions aim to empower carriers of best practices and strategic networks and social learning help to support the reproduction and circulation of new practices. Transdisciplinary and collaborative thinking can inform policy design, helping to bridge the divide between the various interpretations of sustainability, reduce resistance and normalise emerging disruptive practices (Wals & Lenglet, 2016).

When considering the practice of teaching and learning for sustainability, Shove's (2012) model of the three elements of practices (*meaning*, *competences* and *materials*) is adapted. Therefore, where the ESD Strategy seeks curriculum reform, a practice perspective considers curriculum as just one element of the practice of teaching and learning for sustainability. A deconstruction of the practice of teaching, therefore, identifies changes that can be made, either to elements or their links, in order to reconceptualise and enhance teaching and learning for sustainability. Within this model, students and academics can co-construct knowledge, develop critical thinking and embrace active and experiential pedagogies.

Finally, the various practices that form part of, and are supported by, the campus architecture should be considered within the process of change. This can allow the full impact and potential of the campus as learning and living laboratory to be fulfilled, leading to inclusive and creative solutions and a facilitation of the uptake of new more sustainable practices.

Social practice theory, therefore, can provide a framework to pursue systemic changes to the way that we learn and live that are compatible with ESD. In this context, the uncertainty of the outcomes of interventions is outweighed by the enormity of the potential for social and transformative change.

7.3.3 Which to Adopt?

In conclusion, it is my view that there is space for both approaches in the current climate. Though theoretically polar, a critical realist perspective recognises the complimentary nature and value of both approaches within a HE reality, bound and shaped by a range of external forces and a plethora of policies and highly responsive to relevant steering mechanisms. Interventions based upon behavioural insights that advance short-term change and employ fiscal steering mechanisms are likely to meet less resistance and be more familiar and palatable to policy makers. A social practice approach

on the other hand will require more time, result in outcomes that are unpredictable but is likely to lead to longer-term holistic change. Interestingly, both approaches highlight the importance of recognising best practice and the influence of social learning or cues and equally would support the publication of a collective declaration of intent from HEIs. However, while behavioural insights might place emphasis on the 'message', social practice theory would require a deep engagement with the structures supporting current unsustainable practices and require adjustments to the priorities and economic modelling of those institutions (Tilbury, 2011b). Therefore, while both theoretical frameworks have potential to advance ESD, social practice theory in my opinion is more likely to result in what Orr (1992) believed to be a critical outcome of education:

> a rejuvenation of civic culture and the rise of an ecologically literate competent citizenry who understand global issues. (Orr, 1992, p. 18)

7.4 Contribution to Knowledge

Undertaken at a critical juncture for ESD policy in Ireland, the research provides a unique and rich perspective of the emerging ESD landscape, the challenges faced and the economic, policy and social drivers of change within HEIs. This empirical enquiry provides a critique of the ESD Strategy, the structures within HE that support current unsustainable practices and the neo-liberal management approaches that accommodate the slow process of change evident within some institutions. The adaption of the ESD Strategy implementation staircase model illuminates significant gaps in the implementation process, exposing the difference between policy objectives and practice on the ground. As the sun sets on the life of the current ESD Strategy, the research findings highlight the significant ground-level agency, pointing to a considerable appetite for engagement with sustainability issues. This should encourage policy makers who are tasked with drawing up a new, more ambitious strategy, one that sets broad goals and catalyses action, yet provides scope for localised and contextualised institutional responses to sustainability. In this regard, the thesis provides a knowledge bridge and rich insight into the lifeworlds of HEIs for those political decision-makers. Furthermore, the course of this research and evaluation has also helped to raise the profile of this agenda amongst the various participants and stakeholders, highlighting what Patton (1998) refers to as the *process use* of the research itself.

Most importantly, in considering the value of social practice theory and behavioural insights, the research puts forward a number of models that could be considered when framing policy and interventions to guide ESD-centred change. These theoretical perspectives, though ontologically polar, are not considered mutually exclusive and can accommodate the various structures and agency that shape HEI sustainability behaviours. Behavioural insights could be valuable in designing

interventions, both policy and green nudges, to advance short-term change. On the other hand, a social practice approach will require more time, result in outcomes that are unpredictable, yet could be more likely to bring about necessary longer-term systemic change. The model developed using the concept of HEI practice architecture identifies four interconnected areas that could support the social reconstruction of HEI practices and holistic change. Finally, the reconceptualisation of the practice of teaching and learning for sustainability brings together the literature and the findings of this research. This provides a framework to deconstruct that practice and enable students and academics to have the opportunity to engage better with the sustainability agenda and co-construct new knowledge and curriculum.

7.5 Scope for Further Research

Further research in this area could focus on an expansion of the frameworks relating to practice architecture, and particularly the practice of teaching and learning for sustainability. A series of behavioural insights trials using green nudges and involving first year students transitioning to HE could also be examined. Finally, the application of theories of change, both social practice and behavioral insights, in the design and development of the next national ESD strategy should be considered. This could enable the production of ambitious policy that is creative and reflexive, and that addresses both immediate and longer-term challenges facing the HE community on their transition to sustainability-centred institutions.

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