

An Exploration of the Nexus Between Inner and Outer Sustainability

by

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EXAMINING COMMITTEE MEMBERSHIP

The following served on the Examining Committee for this thesis. The decision of the Examining Committee is by majority vote.

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AUTHOR'S DECLARATION

This thesis consists of material all of which I authored or co-authored: see Statement of Contributions included in the thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

STATEMENT OF CONTRIBUTIONS

Kira Jade Cooper was the sole author for Chapters 1, 2, 3, 4, 7, and 8, which were completed under the supervision of Dr. Robert Gibson and the PhD advisory committee (Dr. Dan McCarthy, Dr. Steffanie Scott, and Dr. Jeff Wilson) and were not written for publication.

Cooper was the lead author of Chapters 5 and 6 that were prepared as co-authored manuscripts for publication. As lead author, Cooper was responsible for conceptualizing study design, carrying out data collection and analysis, as well as drafting and submitting manuscripts. Prof. Dr. Robert B. Gibson co-authored these manuscripts as an advisor, editor and contributor of revisions and provided guidance throughout the research process.

Citations for co-authored chapters are as follows:

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This dissertation is presented as a standard dissertation monograph. Because it includes two papers that were designed and published as standalone manuscripts, there are some redundancies in Chapters 5 and 6.

ABSTRACT

As sustainability challenges intensify, there is increasing interest in exploring how changes in individual mindsets can support positive transformations at scale. Researchers at the interface of inner and outer sustainability now need to understand how approaches to inner transformation may support or undermine conditions for long-term wellbeing. The purpose of this dissertation is to advance understanding of how inner and outer sustainability might be enhanced in a mutually supportive manner.

Drawing on insights from an integrative literature review, a hybridized inner-outer sustainability assessment framework was developed to inform assessment of whether and how approaches to inner transformations might contribute to collective wellbeing. Application of the framework was then illustrated and tested in a case study assessing the sustainability contributions and limitations of three mindfulness-based events that took place at the onset of the COVID-19 pandemic. Findings from the analysis revealed considerable promise for inner transformation approaches to support skills and competencies such as empathy and compassion that are needed to foster more sustainable mindsets and practices. The case study analysis also found that many requirements for outer sustainability were overlooked in the interventions and that inner transformations, if approached from the perspective of individual development and wellness, can worsen conditions for collective flourishing. Results of the case study analysis inform how approaches to inner and outer sustainability might be contextualized anew to enhance synergies between the inner and outer dimensions and reduce potential trade-offs. Lastly, the study explored emerging themes and opportunities future research in this novel field of study.

Outcomes of the research should inform future interventions for inner transformation as well as conventional approaches to sustainability assessment practices. While the case study analysis focused largely on mindfulness-based offerings, the results are of relevance to systemic transformations more broadly.

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This dissertation was written during the COVID-19 pandemic. It is with immense gratitude that I dedicate this work to those who continue to help relieve suffering during these challenging times. Thank you for hearing the silenced, seeing the invisible, and comforting those in pain.

May all beings be happy, healthy, and free.

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LIST OF ABBREVIATIONS

FAO	Food and Agriculture Organization
IDG	Inner Development Goals
IPCC	Intergovernmental Panel on Climate Change
MBCT	Mindfulness-Based Cognitive Therapy
MBI	Mindfulness-Based Intervention
MBSR	Mindfulness-Based Stress Reduction
MDG	Millennium Development Goals
SDG	Sustainable Development Goals
SES	Social and Ecological Systems
VUCA	Volatile, Uncertain, Complex, and Ambiguous
WCED	World Commission on Environment and Development
WEIRD	Western, Educated, Industrialized, Rich, and Democratic
WHO	World Health Organization

Chapter 1: Introduction

“Hic sunt dracones” – here be dragons

1.1 Invitation to explore

Etched on one of the earliest copper globes from the early 1500s lies a warning – *“hic sunt dracones”* – “here be dragons” (Meyer, 2013). The Hunt-Lenox globe featured this marking along the southeast coast of the Asian continent to warn European seafarers that this territory was uncharted and may host danger (Van Duzer, 2014, 2021). For centuries, symbols of mythical beasts and their titles were carved into maps or globes as a means to discourage potentially dangerous exploration into *“terra incognita”* or unknown territories (Van Duzer, 2021). While these warnings were used to direct the navigation of foreign lands, they also informed exploration into the internal landscapes of heart and mind as well as their interconnected external territories that extend into culture, worldviews, and values (Le Tran, 2011).

In the spirit of exploration, this dissertation follows a journey into the examination of the uncharted territory at the nexus of inner and outer sustainability. Against a backdrop of a global health pandemic, mounting ecocrisis, profound inequities, and escalating armed conflicts, this research not only wades into unexplored epistemological territories but sets sail during a time of immense turbulence and uncertainty. The underlying aim for this research was to journey into unknown waters and begin mapping potential pathways towards long-term viability. Specifically, the goal is to produce a lens that encourages inquiry into the largely unknown liminal space where the veil between inner and outer sustainability is most permeable.

1.2 Dissertation Map: Study context, design, and approach

This chapter presents the conceptual and theoretical orientation of this transdisciplinary doctoral dissertation. Accordingly, it covers the study context, design, and approach, as well as the research questions that directed the exploration.

1.2.1 Study context

The intersection of inner and outer sustainability is a newly-recognized, though now increasingly attractive research topic (Woiwode et al., 2021). Given the limited existing literature in this space and the many associated gaps of understanding, this study proceeded as a primarily exploratory research project. Exploratory research seeks to develop hypotheses and propositions that can be further tested in subsequent studies (Yin & Campbell, 2018). While the research for this study is largely exploratory in its design, it has also drawn on some confirmatory approaches (Table 1.0). This hybridised approach attempts to bridge inductive data exploration with hypothesis assessment, which in this case, was the design (Chapter 5) and testing (Chapter 6) of a novel assessment framework.

The study was guided by the following overarching research questions: (i) what is the relationship between inner and outer sustainability, and (ii) to what extent and how do the selected case studies of online mindfulness-based programs and interventions address the requirements for inner-outer sustainability? To guide answering these questions, three objectives were established:

- I. to develop a conceptual framework for evaluating the extent to which interventions for inner transformation addressed core requirements for sustainability progress based on existing literature;
- II. to test the application of the framework in mindfulness-based interventions offered during a global health emergency and identify implications for sustainability transformations; and
- III. to examine how attention to sustainability matters might strengthen mindfulness and inner transformations more broadly, both as concepts and practices.

Table 1.0: Research approach

<i>Analytic approach to study (exploratory vs. confirmatory) and rationale</i>	
Research question or hypothesis driven	<i>Exploratory</i> The research analysis is driven by research questions with the intention to develop hypotheses for future studies.
Content driven approach to making sense of data	<i>Exploratory</i> The research question seeks to identify which sustainability requirements are being addressed in the events. It is not hypothesising which are anticipated to be included or excluded.
Codes and analytic categories are predetermined and derived from the data	<i>Both</i> Exploratory - The research aims to capture emerging themes from the data to enhance the theoretical model developed in Chapter 5. Confirmatory - Codes were developed a priori to analysing based on a literature review and a pairing of the well-established requirements for both inner and outer sustainability.
Using existing data	<i>Confirmatory</i> Analysing existing data generated from mindfulness-based events as captured in transcripts.
Purposive / random sampling	<i>Exploratory</i> All data are purposefully sampled instead of selective random sampling.
<i>Note</i> Table adapted from Guest et al., 2012, p. 6.	

Engaging with both exploratory and confirmatory research approaches was essential given the novelty of the field of study (Guest et al., 2012). Both the research questions and meta-framing were exploratory. This experimental framework was essential for sensemaking

purposes, specifically for identifying which sustainability requirements were present or omitted in the case study. The analytic categories and coding were exploratory in the sense that they were open to detecting emerging themes while also being confirmatory with a codebook developed a priori to the analysis. Existing data in the form of transcripts were analyzed in the case studies; however, all data were equally sampled without predetermined selection.

1.2.2 Study design

The primary contribution of this research is a framework for identifying and assessing how approaches to inner transformations might support or thwart progress towards sustainability. This framework was developed through a research agenda that can be broadly conceived as a four-step process consisting of: i) literature review centred on the intersection of inner and outer sustainability, ii) framework creation; iii) framework testing through illustrative application; and iv) framework revision (Figure 2.0). As previously addressed, the research was conceived as an exploratory study and was guided by emerging questions instead of through a process of analytic induction (Robinson, 2009; Robson & McCartan, 2016).

The first step of this research involved an integrative literature review at the intersection of inner and outer sustainability. This step extended iteratively from 2018 to 2023. Databases used to conduct this review included Google Scholar, Science Direct, and Scopus. A combination of peer reviewed journals and grey literature, including governmental and industry reports, was examined to identify areas of difference and congruence as well as opportunities for mutual support between inner and outer dimensions. Secondly, a preliminary assessment framework was developed from the insights generated out of the literature review. The framework identified core requirements for sustainability advancement from the perspectives of both inner and outer transformation. Thirdly, in order to test the comprehensiveness and suitability of the framework, a representative sample of public mindfulness events and workshops was selected. These events took place at the onset of the COVID-19 pandemic (2020) and were accessible for research purposes. Fourthly, upon

receiving ethical clearance, these events were attended, and data were collected and analysed as a case study using a modified version of grounded theory and contemplative inquiry. Lastly, the results of the analysis were used to identify the strengths and limitations of the events, as well as opportunities for enhancing the inner-outer sustainability assessment framework.

1.2.3 Study approach

My approach to this study was inspired by my years of participation in different transdisciplinary networks investigating transformative pathways for collective wellbeing. These groups are composed of members from academia, business, government, non-government, and community groups. Progress towards sustainability requires on-going collaboration across scientific disciplines as well as among actors from business, industry, government, public interest organizations, religious and spiritual groups, and local communities (Felt et al., 2016; Fritz et al., 2019; Hirsch Hadorn et al., 2006; Karrasch et al., 2022; Lang et al., 2012; Plummer et al., 2022). The involvement of diverse stakeholders is essential for deepening understanding, increasing capacities for analysing complex problems, and preventing and mitigating emerging threats to social and ecological systems (Baumgärtner et al., 2008; Bergmann et al., 2021; Funtowicz & Ravetz, 1993; Gibbons, 1994; Hirsch Hadorn et al., 2006; Lang et al., 2012; Spangenberg, 2011; Tajudeen et al., 2022; Talwar et al., 2011; West et al., 2019; Wiek & Walter, 2009). Additionally, broad engagement is essential for increasing “legitimacy, ownership, and accountability” for problems and solutions (Lang et al., 2012, p. 26).

1.3 Research questions

The research questions that directed this study centred around identifying key sustainability requirements and themes prevalent in inner transformation modalities (Yin & Campbell, 2018). The purposes of this inquiry were to explore the relationship between inner transformation and outer change, as well as to determine how and to what extent inner and

outer sustainability could progress synergistically towards lasting wellbeing, and to identify where inner transformation interventions might thwart sustainability progress. Table 1.1 describes how the research questions contribute to the overarching research agenda, as well as the methods used to answer specific questions. The following chapter addresses the methodological approaches undertaken throughout each part of the research process.

Table 1.1: Specific research questions, contributions, and methods

<p>Overarching research questions: <i>To what extent and how can inner sustainability support outer sustainability transformations? How can attention to sustainability matters strengthen mindfulness as a concept and practice? How can attention to mindfulness matters strengthen understanding of and commitment to sustainability progress?</i></p>		
Specific research question(s)	Research contribution	Methods
<p><i>Chapter 3: What is the relationship between mindfulness and sustainability, and why is their pairing of interest to researchers? How can attention to sustainability matters strengthen mindfulness and other approaches to inner transformation?</i></p>		
<ul style="list-style-type: none"> • What is mindfulness? • What is sustainability? • What are the overlapping areas of interest between mindfulness and sustainability that are conducive to enhancing collective wellbeing? 	<p>Chapter 3 offers historical insights and modern context for understanding mindfulness and sustainability both as independent and linked phenomena.</p>	<ul style="list-style-type: none"> • Integrative literature review
<p><i>Chapter 4: How might greater attention to the inner dimensions of sustainability support conditions for lasting wellbeing for all?</i></p>		
<ul style="list-style-type: none"> • What are the inner dimensions of sustainability and how might these be leveraged to enhance sustainability progress? • What are the linkages between inner transformation and compassion, empathy, and ethics? • How might mindfulness practices support practices that align social 	<p>Chapter 4 examines the neglect of inner dimensions in sustainability discourse and the associated implications for meeting present social and biophysical challenges. The chapter also considers the role of transitions, transformations, and resilience in systemic change and how different development paradigms can support and undermine conditions for lasting viability. Additionally, this chapter surfaces synergies, complementarities, and tensions at the nexus of mindfulness and sustainability and implications of their pairing progress towards lasting wellbeing.</p>	<ul style="list-style-type: none"> • Integrative literature review

and ecological flourishing?		
<i>Chapter 5: How can requirements for inner and outer sustainability be assessed to maximise benefits and reduce trade-offs?</i>		
<ul style="list-style-type: none"> • What do requirements for inner and outer sustainability entail? • How do these criteria align to enable mutually reinforcing benefits? • How might requirements for inner-outer sustainability function as evaluative criteria for online programs and interventions? 	Chapter 5 presents a novel assessment framework that identifies requirements for inner and outer sustainability. The integration of these approaches bridges gaps of understanding in the relationship between the cultivation of various inner skills and capacities and their influence on external systemic change.	<ul style="list-style-type: none"> • Integrative literature review • Development of conceptual framework
<i>Chapter 6: Which sustainability requirements are online mindfulness events addressing or overlooking during a global health emergency?</i>		
<ul style="list-style-type: none"> • How are mindfulness-based offerings addressing or neglecting sustainability considerations? • What are the implications of including or excluding specific sustainability requirements in offerings addressing inner development? • What novel inner/outer sustainability themes are emerging in these online offerings? 	Chapter 6 examines how online mindfulness-based offerings are addressing sustainability criteria. Accordingly, this section tests the framework developed in Chapter 5 through case study analysis using modified grounded theory and contemplative inquiry.	<ul style="list-style-type: none"> • Testing application of conceptual framework • Case study analysis • Modified grounded theory • Contemplative inquiry
<i>Chapter 7: How can attention to sustainability matters strengthen inner transformation approaches? How can attention to inner transformation approaches strengthen understanding of and commitment to sustainability progress?</i>		
<ul style="list-style-type: none"> • How might conceptions of inner transformation be recontextualized to best support progress towards collective wellbeing? 	Chapter 7 provides reflections on the inner-outer sustainability assessment framework as informed by the illustrative testing in Chapter 6. The chapter explores how mindfulness and inner transformations might be enhanced with greater attention to sustainability	<ul style="list-style-type: none"> • Review of conceptual framework

<ul style="list-style-type: none"> • How can understandings of outer sustainability enhance prospects for lasting viability in inner transformational contexts? 	<p>requirements as well as how sustainability might be enhanced with greater attention to mindfulness and inner dimensions. The chapter concludes with a review of the limitations of the current research as well as areas for future direction.</p>	
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1.4 Chapter Summary

Interest in the leveraging of inner dimensions of sustainability is increasing as conventional approaches to systemic change are recognized as insufficient for meeting the urgent demands of interdependent socio-ecological crises. This research investigates the largely uncharted territory at the nexus of inner and outer sustainability, specifically how attention to the broad requirements for sustainability progress might help to maximize benefits of interventions for inner transformation and vice versa. Conceptual and theoretical contributions of this study include a thorough review of current knowledge in this field, development of a novel inner-outer sustainability assessment framework, a case study of an illustrative application assessment a set of inner sustainability events that also test the framework, identification of implications for the events and the framework, and insights for future research.

Chapter 2: Methodology

2.1 Chapter overview

This chapter presents the conceptual and theoretical orientation of this transdisciplinary doctoral dissertation. Accordingly, the chapter covers:

- Study context, design, and approach
- Research questions
- Methodological terminology
- Methods of data collection and analysis (event selection, data collection, document analysis)
- Research positionality, potential biases, and validity considerations
- Study limitations and future directions

2.2 Methods of data collection and analysis

One of the main goals of this dissertation was to determine how online offerings for inner transformation addressed sustainability progress during a global health emergency. Inquiry into this topic led to the examination of online mindfulness events that were free and open to the public at the height of the COVID-19 pandemic. A mixed methods approach was used to explore the nexus between inner and outer sustainability. The purpose of using multiple methods of inquiry (or mixed methods) is to develop an analysis that leverages the joint strengths of several methods that together are more insightful together than they would be as separate approaches (Denzin & Lincoln, 2017). The use of different conceptual perspectives and methodologies was seen as essential for triangulating data and cross-referencing findings (Carter et al., 2014; Denzin, 1978; P. Fusch et al., 2018). Accordingly, this study brought together insights from a review of the literature, case study analysis, and grounded theory to triangulate analytical insights, add validity, and achieve analytical data saturation (Denzin & Lincoln, 2017). Data collection was an iterative process that occurred throughout the duration of the research process, as is common in the qualitative field (Creswell, 2014). A list of common methodological terminology and processes is presented in Appendix A.

2.2.1 Integrative literature review

Mounting interest in the inner transformation space has increased the need for deepened understandings of historical practices such as mindfulness to critique and reconceptualise them within a modern (and sustainability informed) context. Additionally, increasing attention has surfaced emerging themes and novel topics that have yet to be thoroughly explored. The intersection of inner and outer sustainability spans many disciplines and represents a diversity of approaches to transformation. Furthermore, there is currently no specialized body of research at this nexus. Because integrative literature reviews are well suited to study novel and emerging, as well as mature topics (Krnjic Martinic et al., 2019; Torraco, 2005, 2016), it was chosen as the most appropriate method to explore the nexus of inner and outer sustainability. As Torraco (2016) explains, “The *integrative literature review* is a form of research that reviews, critiques, and synthesizes representative literature on a topic in an integrated way such that new frameworks and perspectives on the topic are generated” (Torraco, 2016, p. 356).

Integrative literature reviews tend to be broader in scope than systematic reviews and are characterised by their openness to include qualitative, quantitative, mixed methods, clinical, and non-clinical studies (Cottrell & Duggleby, 2016; Elsbach & van Knippenberg, 2020; Gough et al., 2012; Reynders et al., 2022; Whitemore & Knafl, 2005). Integrative reviews can also be seen as stand-alone research because they result in the development of new frameworks or theories that characterise the area of study under review (Callahan, 2010). As such, integrative literature reviews help by moving beyond summarising existing data towards synthesising and analysing with the intention of informing new understandings of specific phenomena or fields (Post et al., 2020). This approach places “careful examination and critique of the extant literature, with an eye towards identifying themes, patterns, relationships, and gaps in understanding” (Elsbach & van Knippenberg, 2020, p. 1284). Furthermore, as Elsbach and van Knippenberg (2020) note, integrative reviews are evidence-driven yet also generate value for adding novel insights while being more nuanced than many popular meta-analysis models.

2.2.2 Case study

This research consists of two broad levels of case study analysis. At the macro level, the study broadly examines the potential of mindfulness as an intervention for inner transformation. More specifically, the study also examines how a suite of mindfulness-based events address core requirements for sustainability during a global health emergency. Case study analysis was deemed as an appropriate approach for comparing and contrasting the individual events and testing the application of the inner-outer sustainability assessment framework (R. Bogdan & Biklen, 2003). The intention in using case study analysis was not to generate generalizable evidence (Achenbach et al., 2015; Thomas, 2011) for all inner development offerings, but rather to develop a picture of a sub-sample of mindfulness events that took place during a specific timeframe. As Yin and Campbell (2018) explain, the objective of case study research is to understand the nature of the case in question – what the case is, how it functions, and how it relates in a real-world context. Because of the emphasis on context, activity, and real-world application, the case study approach demonstrated clear epistemological advantages over other research methodologies (Creswell, 2014; Stake, 2009; Yin, 2003).

By directing the inquiry via case study analysis, it was possible to focus on specific and contemporary events (Yin & Campbell, 2018). A “snapshot” approach was applied as an additional lens to make sense of the temporally significant nested criteria and other elements that together shaped mindfulness events during the onset of the pandemic. This temporal framing bound the case study as a system and helped to ensure that the narrative unfolded “as a Gestalt over a tight time frame” (Thomas, 2011, p. 517). It is through the systematic and holistic framing that cases make sense beyond the aggregation of their separate characteristics (Yin & Campbell, 2018). In this study, nested thematic elements were compared to inform a broader and more integral picture of what sustainability considerations the mindfulness events addressed. The framing of events, including target audience and different versions of mindfulness that were evident in the sessions (Buddhist, post-Buddhist,

etc.), was also taken into consideration for its contextual influence on the kinds of data that emerged in different offerings.

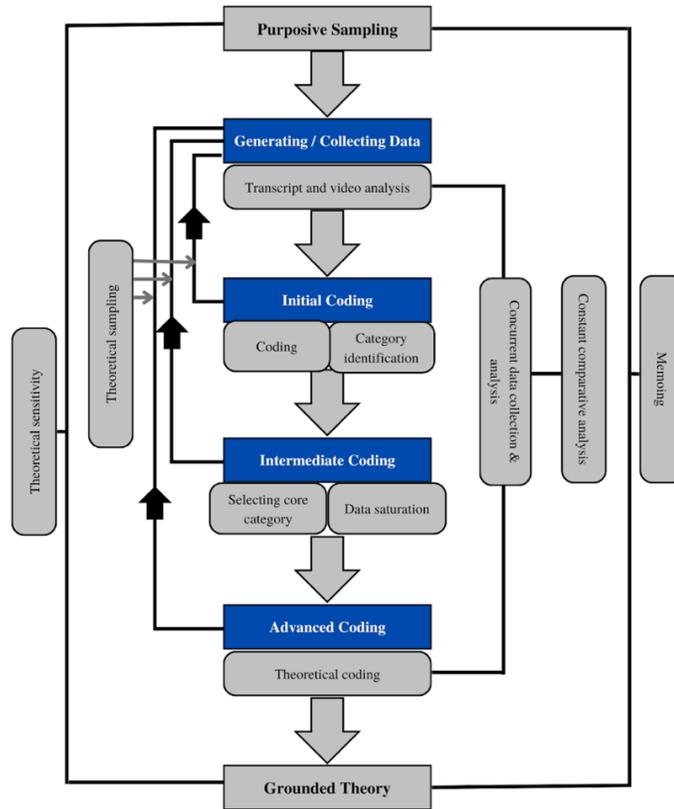
While case studies are well aligned with exploratory research, they often result in more questions than answers (Stake, 2009). As Stake (2009) explains, case studies are generative for “adding to existing experience and humanistic understanding” and their essential qualities “match the ‘readiness’ people have for added experience” (p. 5). This was seen as an added benefit to the research design, especially given the need not only to determine what sustainability themes were being addressed in the events, but also to test the design and application of the framework. As clearly demonstrated in the data analysis, the case study approach did in fact reveal more questions than originally anticipated, and consequently widened the aperture of considerations for future work in the nexus of inner and outer sustainability.

2.2.3 Grounded theory

This research drew on grounded theory to guide the development of a conceptual theory reflective of patterns identified in the data (Glaser & Strauss, 1967; Strauss & Corbin, 1998). “Grounded theory sets out to discover or construct theory from data, systematically obtained and analysed using comparative analysis” (Chun Tie et al., 2019, p. 1). In this case, the conceptual structure to be tested was an evaluative framework that also doubled as the codebook for the data analysis. The purpose of testing the conceptual framework was to construct a well-informed conceptual structure that would be helpful for assessing the processes and implementation of future inner-outer sustainability offerings (C. Robson & McCartan, 2016). As others have noted, sustainability research is well aligned with the inductive analytical process of grounded theory given how they are both iterative processes influenced by social actions and inactions (Birks & Mills, 2015; Buckley, 2019; Charmaz, 2003).

Grounded theory offers advantages in research focusing on topics related to lasting wellbeing (Baid et al., 2021; Buckley, 2019) by “providing a fuller understanding of complex problems, placing actions in context, demonstrating how people experience or impose inequities, involving stakeholders in the research, and explicating connections between actions and events” (Denzin & Lincoln, 2017, p. 753). Additionally, grounded theory has demonstrated benefits for exploratory research to test and refine research instruments; in this case an assessment framework (Denzin & Lincoln, 2017; Lahsaeizadeh & Yousefinejad, 2012). Grounded theory (Figure 2.0) was useful for identifying emerging themes that had not been addressed directly by either the inner or outer sustainability requirements. Data analysis, combined with memos from events and reflexive journaling, together supported analytical sufficiency and deepened understanding of how the different interventions were addressing inner or outer dimensions of sustainability. Analytical saturation was determined when data analysis no longer provided novel insights into the theoretical categories nor their descriptions (P. I. Fusch & Ness, 2015).

Figure 2.0. Grounded theory research design framework: Identification of the interactions between research methods and processes.



Adapted from (Chun Tie et al., 2019, p. 3)

2.2.4 Contemplative inquiry

“Qualitative research can be helped with mindful activities” (Konecki, 2019, p. 13).

I engaged in *Contemplative Sits & Walks Through The Data* – a modified contemplative inquiry practice to conduct the data analysis (Acosta, 2020). Contemplative inquiry refers to qualitative techniques “that place a deep and serious emphasis on thought in every component of a study of the social world” (Janesick, 2016, p. 34). The modified approach consisted of using a combination of seated and walking meditations to sort, cluster, refine, and analyse data codes (Acosta, 2020). This approach was very useful for helping me stay present and move beyond the robotic task of data analysis towards a more experiential and

“real world” understanding of the events (C. Robson & McCartan, 2016). Additionally, contemplative inquiry helped me recognise subtle nuances in the rhetoric. As Konecki (2019) explains “Contemplative research serves to understand the Other and the social worlds, not to prove or verify hypotheses. It is necessary here to keep full openness and realize our own assumptions. Then we can be as close as possible to social reality, to touch it in a direct way, because we also have insight into our own cognitive apparatus and identity of the researcher” (p. 12). From an analytical perspective, I utilised this approach to clear my mind from distractions, reduce unconscious assumptions and judgements, and more discerningly attune to my observations as they were emerging during the analysis process. The practice of stopping, reflecting, and clearing my mind before and after examining data was extremely valuable both to reduce bias and increase my capacity to observe subtle nuances in the materials.

Zajonc (2006) identifies several stages and qualities of contemplative inquiry that nurture critical capacities of researchers and a more holistic pedagogy of exploration:

- respect - holding space for the object of inquiry to speak its truth and safeguard its integrity;
- gentleness - being gentle so to not distort the object of our attention;
- intimacy - to become intimate with phenomenon in a way that is delicate and respectful;
- participation - shifting experiential awareness to the other;
- vulnerability - becoming comfortable with uncertainty, ambiguity, and not knowing;
- transformation - recognising how the contemplative object is internalised;
- education as formation - relearning how to see the world as the very act of seeing influences the world; and
- insight - insight that arises from participating in existence.

As someone with a long-term contemplative practice, I felt confident that adding a contemplative dimension to the research would enhance the rigour of the study while supporting my wellbeing during the process. Research has shown that there are “clear signs of traumatic symptoms among environmental researchers. The most common reactions include psychic numbing, compassion fatigue, and burnouts” (Pihkala, 2020, p. 86). As Pihkala (2020) notes, “environmental researchers also suffer from forms of secondary trauma

or vicarious trauma related to environmental problems when they become affected by hearing or reading about the suffering of others. Unfortunately, however, very little support structures exist for students and researchers who experience secondary trauma” (p. 86). The COVID-19 pandemic was also a source of shared trauma (Dahan et al., 2022). In addition to buffering some of the negative effects that can arise from both witnessing and studying social and biospheric suffering, contemplative praxis helped to develop more embodied ways of knowing that extend beyond traditional scientific pedagogies and nurture regenerative conditions for inner-outer flourishing (Moser & Fazey, 2021).

I was inspired by Acosta (2020), who demonstrated that this contemplative methodological approach was beneficial both for data analysis purposes and for deepening enjoyment of the research process that is otherwise “arduous and bereft of joy” (54). The value of contemplative inquiry for enhancing the rigour of the research process, they argue, is linked to its richness in maintaining transparency and objectivity while engaging with data (Acosta, 2020). Others have expressed similar concerns that in the academy there is not only a lack of joy but also a lack of heartfulness. “We are well-practiced at educating the mind for critical reasoning, critical writing, and critical speaking, and for scientific and quantitative analysis. But is this sufficient? In a world beset with conflicts, internal and external, isn’t it of equal if not greater importance to balance the sharpening of our intellects with the systematic cultivation of our hearts? Do not the issues of social justice, the environment, and peace education all demand greater attention and a more central place in our universities and colleges? Yes, certainly” (Zajonc, 2006, p. 1744).

Given the high incidence of adverse mental health in the academy (Brailovskaia et al., 2021; CDC, 2022; Harrer et al., 2019; Kaparounaki et al., 2020; Lipson et al., 2022; C. Wang et al., 2020; WHO, 2022), growing concerns around environmental issues such as climate change (Clayton, 2020; Cunsolo et al., 2020; Hickman et al., 2021), social injustice, and turbulent global events at the time of writing this dissertation, contemplative inquiry also became a protective mechanism for my own wellbeing as a researcher. I regularly engaged in practices including mindfulness meditation, walking meditation, yoga, and forest bathing to

decompress from the research process. Additionally, through these reflective techniques, I cultivated compassion, empathy, resilience, stamina, and hope—all necessary to continue my studies.

2.2.5 Journaling and memoing

Throughout the duration of the research, I maintained a research journal, detailed memos, and an audit trail to document steps taken during the data analysis. The research journal was used to log observations, insights, questions, assumptions, and thought processes that shaped my conceptual and theoretical understanding of the research project at large. It also helped me keep track of my positionality as a researcher, and note any biases, assumptions, limitations, or possibilities that I noticed arising (Konecki, 2019). The second kind of note system I used was a memo book. Memoing helped me systematically record all thought processes, decision making, and insights throughout the data analysis process as part of my approach to grounded theory. In the memo book, I summarised each transcript for content, highlighted key and emerging themes, asked clarifying questions (if required), and provided reflections after viewing the event recordings. Together, the research journal and memos helped me maintain an audit trail to ensure research replicability. Having an established framework helped to reduce biases when developing codes and assigning these descriptors to the data. Still, some analytic rationale was required to choose between similar codes and discern new patterns of emergence (Charmaz, 2015).

2.3 Research positionality, potential biases, and validity considerations

Some scholars suggest that “one’s knowledge is inevitably incomplete and situated because information about the world always reaches one through a channel that is constituted by four epistemic gaps: (1) ‘possible worlds *versus* realized world’, (2) ‘realized world *versus* witnessed situation’, (3) ‘witnessed situation *versus* remembered situation’, and (4) ‘remembered situation *versus* confessed situation’” (Simandan, 2019, p. 129). Together, these considerations attest that one’s knowledge base and sensemaking capacities are

inherently situated, adding to a profound problematic of discerning what constitutes objective and rational research (Simandan, 2019). While often perceived as the gold standard for scientific investigation, maintaining objectivity in research is a common challenge across disciplines (van Dongen & Sikorski, 2021). As others have noted, “Researchers are a sum of all they have experienced” (Birks & Mills, 2015, p. 12). As such, researchers approach their studies through the lens of their worldviews, knowledge systems, practices, and lived experiences (R. C. Bogdan & Biklen, 2007). Reflexivity, in the context of research, involves making visible the epistemological assumptions that have shaped how studies are approached from initial conception to completion (Ruby, 1980). One way to bring subjectivities to the fore and increase reflexivity and accountability throughout the research process is through the inclusion of positionality statements (Holmes, 2020; Mason-Bish, 2019; Massoud, 2022; Sybing, 2022).

It should be noted that while stating one’s positionality in research can add credibility and context to the study, it can also deepen vulnerabilities and increase burden and is therefore not possible for all scholars (Massoud, 2022). Accordingly, I would like to recognise the privileges afforded to me by my social position as a white, able-bodied woman in a WEIRD (Western, Educated, Industrialized, Rich, and Democratic) nation, as well as my entanglements with the research subject I investigated (Henrich et al., 2010). Specifically, I would like to make visible my personal mindfulness and contemplative practices, sustainability background, as well as my association with international organisations that explore the use of various kinds of inner transformation approaches, which together, introduced several sources of bias to my work.

Leadership roles in the inner development space, especially the mindfulness industry, are primarily occupied by individuals with immense privilege and social power sometimes referred to as *elites* (C. L. Davis & BehmCross, 2020; Kucinskas, 2019; Olzman, 2022). As Kucinskas (2019) explains, surfacing the strengths and weaknesses of this movement is essential for “understanding more broadly how elites can organize across institutions to initiate social reform, while also unintentionally abetting a status quo that privileges some at

the expense of others” (p. 10). In the inner transformation networks with which I am connected, the majority of participants are scholars and practitioners from WEIRD backgrounds, like myself. My membership with these groups means that I am privileged in my connections to many prominent thinkers and facilitators in this space and that I have an intimate relationship with the subject matter (Mason-Bish, 2019). Such associations, including serving on the Scientific Advisory Committee of the Inner Development Goals, have made me informationally situated in a position where I have direct access to novel insights, gaps of understanding, and potential benefits and dangers around the use of inner transformative approaches to solve sustainability challenges.

In addition to the privileges accrued from my identity as a researcher, I would also like to recognise the possible drawbacks of this positionality. As a WEIRD scholar, working primarily with other WEIRD individuals, there are likely many unspoken frameworks and shared forms of “common sense” suffused throughout my research. These understandings are often interpreted as natural and universal despite having originated in specific cultural experiences. While I have made a conscious effort to engage in contemplative practices to deepen my capacities for self-reflexivity, it is likely that a non-white or non-elite investigator might offer additional critiques to the research that I have overlooked. This need for critical awareness of positionality within the inner transformation space is clearly articulated by studies that have investigated the intersection of mindfulness and “race” (Rose Black & Switzer, 2022). For example, there are subversive themes of individualism and oppression present in programs explicitly aimed at increasing equity and racial justice (Davis & BehmCross, 2020; Torres, 2019). Accordingly, some have cautioned that “Mindfulness is molded to fit colonial ontologies of values and knowledge and perpetuates oppressive realities for minority cultures” (Ishikawa, 2018, p. 107).

My experience in various inner transformation spaces as well as personal practices guided my methodological approach to data gathering and analysis. Recognising that in many online inner transformative workshops and programs there are breakout rooms and discussion boards where people describe personal experiences including trauma, I did not think it ethical

to collect any primary data that could reveal any personal experience shared by others in a “safe space” (Sykes & Gachago, 2018; E. Thompson, 2020). I also did not want participants’ interaction with the event to be negatively impacted with the fear that anything they shared could be captured for research purposes. Instead, I chose to analyse only the transcripts and associated video recordings of speakers that had been made publicly available. The available secondary data provided sufficient richness to address the research questions in detail without having to control any study conditions (Denzin & Lincoln, 2017). The use of recordings and transcripts was also useful for validity considerations, specifically referential adequacy, whereby results could be tested for replicability and further explored, if required (Guba, 1981).

Scholars working at the intersection of mindfulness and sustainability have expressed tensions and challenges associated with maintaining objectivity when they themselves have experience with inner transformation modalities such as mindfulness (Thiermann & Sheate, 2022). Consequently, I took several precautionary steps to mitigate these effects and hold myself accountable to a high level of research rigour throughout the study. As previously noted, I meticulously documented my analytical processes including thoughts, observations, questions, and assumptions in a reflexive journal (Guba, 1981; Lincoln & Guba, 1985). This on-going exercise systematically mapped my introspections and decision making and provided an audit trail. Additionally, I took detailed memos, which were developed into thick descriptions throughout the duration of the data analysis process (R. Bogdan & Biklen, 2003; R. C. Bogdan & Biklen, 2007). I also cross referenced my transcript analyses with video recordings to account for additional insights that were more obvious through interactions than text alone. To ensure coding consistency, I conducted member checks with two of my supervisors (Guba, 1981). In advance of analysing the transcripts, I circulated my framework to researchers and practitioners both within the inner development and sustainability space for feedback. This step was seen as an opportunity to recognise epistemic gaps and misconceptions that were overlooked in the initial iteration of the framework that could influence my data analysis.

2.4 Study limitations

Given the breadth of offerings for inner transformation, a single case study on one modality (mindfulness) offers a small sample from which to draw representative conclusions. While the three events chosen for the case study analysis are unlikely to cover all the subtle nuances and differences across different offerings, they are not meant to provide a base for broad generalizations. Instead, the research examined events that were representative of a range of the mindfulness offerings available at the peak of the pandemic. It should be noted that at the time of the case study analysis, there were no equivalent sustainability-based events to examine how inner dimensions were addressed in these spaces. The future availability of parallel events in the sustainability space represents an unexplored opportunity to enrich understandings, approaches, and processes for outer transformations. Furthermore, it should also be noted that while sustainability-based events likely would have enriched the understanding of inner-outer dimensions, such comparison would have resulted in a significantly larger study – beyond the scope of research expected in a doctoral dissertation. A follow-up study looking at the prevalence of inner dimensions in sustainability events is therefore highly encouraged.

As scholars have expressed, Buddhism and various mindfulness practices have endured because of their capacity to adapt and stay relevant to the times (J. Wilson, 2014), which was highly apparent during the pandemic and the variety of mindfulness-based interventions that were offered. The resilience of mindfulness as a social movement is important to recognise, especially given the strong market hold and prominent positions (e.g., in military and politics) held by leaders and proponents of mindfulness and other personal development modalities. It is very likely that the content of these mindfulness offerings will change, as informed by global events and associated market demands. Additionally, while I was transparent in my adoption and application of selection criteria and process, I was also constrained by temporal and fiscal constraints imposed by the doctoral program. This limited the kinds and number of interventions I could include in the analysis, especially those that did not have transcripts. This is reflected in the fact that only meditative forms of

mindfulness were addressed as opposed to more socio-cognitive approaches. Further research should therefore explore non-meditative models of mindfulness and their unique contributions to sustainability.

Furthermore, as social and ecological events evolve and complexify, offerings for inner transformation will need to adapt to stay relevant to the times. For example, the skills and capacities needed to cope during a global pandemic differ in context from the skills and capacities needed to cope with a war in Europe. It is therefore quite likely that some of the content, including how mindfulness practices are conceived, will vary year-to-year. This adds further emphasis on the urgency for an assessment framework to guide the organisation of these offerings through a more sustainable approach that considers both the needs of present and long-term, as well as individual and collective.

Frameworks refer to “integrated and structured procedures, akin to protocols, which contain a number of prescribed stages that ought to be followed in order to meet a pre-determined objective” whereas tools refer to “various analytical techniques that can be used to conduct analyses/comparisons within frameworks” (Gasparatos, 2010, p. 1640). The assessment framework I developed is itself an experimental construct and was wholly anticipated to be further enhanced and recontextualized. The framework was designed to be dynamic and flexible enough to adapt to changing contexts. By circulating the framework in advance of testing its application, I invited feedback and humbly acknowledged that there are vital and emerging insights in this field of study that need to be continually constellated.

The adoption and application of mixed methods discussed above provide a solid foundation for delivery of reliable findings. This exploratory study provides a snapshot of how a selection of mindfulness events addressed sustainability requirements during the pandemic without generalising findings beyond the examined case studies. The fact that different versions of mindfulness were used to test the framework during a global health emergency further demonstrates the adaptability, strength, and utility of the framework.

2.5 Chapter Summary

The transdisciplinary research reported here utilized a mixed methods approach to investigate how online offerings for inner transformation addressed core sustainability requirements at the onset of the COVID-19 pandemic. The methodological approach to this study employed a detailed integrated literature review, a case study analysis, and a modified version of grounded theory. Contemplative inquiry was also utilized to strengthen processes of data analysis and to enhance researcher mental health through the dissertation process. Research positionality was taken into consideration throughout the duration of the study with specific attention to WEIRD conceptions of mindfulness and sustainability.

Chapter 3: Mindfulness & Sustainability

3.1 Introduction

Human history is fraught with stark reminders of the perils and suffering that befall unsustainable societies – the Fall of Rome, collapse of the Maya, and destruction of Easter Island, to name a few (Wright, 2004). What remains constant amongst these lost civilisations is a failure to respect and live within ecological limits, and to recognize the true cost of progress (Beck, 1992; Bostrom, 2014; Gibson, 2017b). Modern notions of progress and development perpetuate unsustainable systems of violence and inequity (Machado de Oliveria, 2021). Given the urgency to address pressing and complex sustainability challenges, and the fact that established methods are not driving sufficient progress, non-conventional approaches to fostering ecocentric behaviour are worth exploring. However, blindly turning to one potential solution, without thoroughly examining its limitations as well as potential benefits and drawbacks, is insufficiently precautionary at such critical times. Remaining humble to what we do not know and cannot predict, respecting complexity, and embracing change are essential to sourcing alternative pathways to lasting transformations (Gibson, 2005).

This chapter reviews the literature concerning mindfulness and sustainability. The purpose is to provide a basis for identifying the nexus between mindfulness and sustainability and considering whether means of assisting positive transformations towards lasting wellbeing may be found there. Additionally, this chapter helps to surface the rich yet, until recently, overlooked potential that exists in the nexus between mindfulness and sustainability for positive transformations towards lasting wellbeing. The first section provides a broad overview of mindfulness in historic and current conceptions. It examines the traditional roots, modern movement, select practices, and characteristics of mindfulness. Additionally, it explores some of the criticisms of and concerns about post-Buddhist mindfulness conceptions, particularly related to issues such as equity, complexity, and resilient socio-ecological systems. The second section, in contrast, examines the origins of sustainability (pre- and post-Brundtland Commission) and how the idea and its elaborations are linked with

thinking about complex systems, resilience, and transformations. Furthermore, this section investigates major barriers to sustainability progress, especially relating to the lack of awareness regarding the interdependencies of human and natural systems. This chapter concludes with an examination of how sustainability considerations could enhance post-Buddhist mindfulness conceptions, by nurturing capacities for empathy, compassion, interbeing, nature connection, mindful consumption, and inner transformations. Similarly, it examines how sustainability progress could be enhanced through greater mindfulness, particularly within the context of building the capacities, mindsets, and commitment to approach lasting wellbeing through a lens of collective responsibility.

The nexus of mindfulness and sustainability is an emergent field. There is no clearly defined body of literature that examines this area specifically. Instead, the review here will rely on a constellation of interconnected areas of inquiry. The literature surveyed in the following section provides an overview of this space and reflects the growing interest in mindfulness as a mechanism for personal and collective healing in ways that could serve and be served by the sustainability agenda.

3.2 Mindfulness

3.2.1 What is mindfulness?

In English, the term *mindfulness* is closely associated with the Pali word *sati* which implies “calling to mind” (Wallace & Bodhi, 2006), “memory or remembrance”, and refers to “awareness, attention, or alertness” in Buddhist meditation (Wilson, 2014; p. 15). In relatively traditional contexts, mindfulness is embedded in ethical and soteriological frameworks set out in robust scriptural and commentarial lineages that are concerned with morality, concentration, and wisdom (Jinpa, 2019). Newer approaches to mindfulness—largely divorced from such contexts—focus predominantly on present moment awareness, attention, non-judgment, acceptance, and prevention of distraction; they frequently omit ethical guidelines and frameworks (Murphy, 2016). To clarify, the term “traditional” as used here refers to “a context of explicit orientation toward systems of training and practice that

are deliberately oriented around teachings derived from the Buddha,” whereas “modern” or “contemporary” to “refer to all forms of mindfulness programs that are not explicitly based in Buddhist practice” (Monteiro et al., 2015, p. 1). Neither term – traditional or modern – is sufficiently nuanced to capture the heterogeneity of different expressions of mindfulness, and this definition falsely fosters the attitude that Buddhism (a dynamic assortment of ever-changing practices, ideas, and groups) is somehow not contemporary or part of the modern world. Nonetheless, with careful use, these terms are helpful for identifying different applications and conceptions of mindfulness teachings, especially in non-Buddhist settings.

By reducing or eliminating focus on the ethical conduct and moral behaviour such as the Eightfold Path and Four Noble Truths, which are practiced in order to attain enlightenment and achieve Nirvana (Mitchell & Jacoby, 2014), some mindfulness proponents have increased accessibility to non-Buddhist audiences (Van Gordon, et al., 2016; Wilson, 2016). Growing interest in mindfulness in the West has invited new opportunities for Buddhist discourse and its recontextualization (Sun, 2014). The surge of interest coupled with a widespread and recontextualized application of mindfulness interventions during the COVID-19 (SARS-CoV-2) pandemic, demonstrates both the malleability and adaptability of the practice to suit the needs of a diverse population (see Chapter 6 for more information on mindfulness practices during the pandemic).

3.2.2 Defining mindfulness

The mindfulness literature is broadly divided into two schools concerned with either meditative or psychological approaches (Hart et al., 2013). Meditative mindfulness is generally associated with the works of Kabat-Zinn and associates whereas the psychological mindfulness with Langer (Ibid.). Given the broad range of understandings and applications, there is no universal definition for mindfulness. Below are a few definitions for context:

- Mindfulness is a way of cultivating awareness by “paying attention in a particular way: on purpose, in the present moment, and non-judgmentally” (Kabat-Zinn, 2013, p. xxvii);

- “Mindfulness is a state of conscious awareness in which the individual is implicitly aware of the context and content of information. It is a state of openness to novelty in which the individual actively constructs categories and distinctions” (Langer, 1992, p. 289);
- “Mindfulness can be defined as a moment-to-moment purposeful attentiveness to one’s own physical and mental processes with the goal of clarity and compassion” (Epstein, 1999, 2021, p. xx);
- “Mindfulness is the basic human ability to be fully present, aware of where we are and what we’re doing, and not overly reactive or overwhelmed by what’s going on around us” (Mindful Magazine, 2020).

Mindfulness is frequently induced through various forms of meditation. Often, these practices are concerned with extended periods of “conscious thought about a specific topic, usually a religious ideal or scriptural passage (Gunaratana, 2011, p. 23). In the context of mindfulness meditation practice refers to “the actual engagement in the discipline, the inward gesture that invites and embodies it” (Kabat-Zinn, 2003, p. 147). There are hundreds of different meditation techniques that vary in approaches to “focused attention” (maintaining attention on a specific object) and “open monitoring” (maintaining present-moment awareness without the tether to a specific object) (Matko & Sedlmeier, 2019; Wielgosz et al., 2019). While meditation is often associated with Buddhist and Hindu faiths, Abrahamic traditions are also imbued with meditative practices concerned with transforming consciousness (Fisher, 2021). Mindfulness is often characterized by an “inner experience” attuned to awareness, attention, and acceptance, as well as an “outer experience” observant of incongruity, impermanence, and identification (King & Badham, 2019). Traditionally, mindfulness has been cultivated through meditative practices geared towards refining and regulating attention (Bodhi, 2011; Hanh, 1997).

Meditation can be loosely divided into three broad cognitive classifications: deconstructive (vipassana or Insight meditation), attentional (mindfulness), and constructive (loving kindness) (Dahl et al., 2015; Schlosser et al., 2019). Mindfulness meditation training is typically focused on strengthening cognitive function, especially: i) meta-awareness (monitoring thoughts and noticing distractions as they arise), ii) decentring (non-reactivity to

experience), iii) present-focus awareness (maintaining focus on events as they arise instead of thinking retrospectively or prospectively), iv) interoceptive awareness (attuned to internal sensory signals), and v) dereification (recognizing thoughts as mental constructs and not the phenomena they appear to represent) (Dunne et al., 2019; Price & Hooven, 2018; Wielgosz et al., 2019). There are several self-assessment tools for quantifying mindfulness including the Mindful Attention Awareness Scale (Brown & Ryan 2003), Toronto Mindfulness Scale (Lau et al., 2006), Langer Mindfulness Scale (Pirson et al., 2015), and Five Facet Mindfulness Questionnaire (Baer et al., 2006).

Existing parallel to meditative approaches to mindfulness, are more psychological and socio-cognitive versions (Langer, 1989, 1992, 2014, 2014; Lee & Jang, 2021). Research in this space is primarily focused on mindfulness as a mental mode that influences wellbeing, health and overall cognitive function (Langer 2005; Hart et al., 2013). The seminal work in socio-cognitive mindfulness is attributed to Langer (1989, 1992, 2005), who has demonstrated the value of enhanced and sustained sensitivity to one's environment for the purposes of drawing novel distinctions. By continually attuning to novelty, one increases their awareness of the constantly changing context of the present moment. Moreover, by sustaining awareness in this manner, one can hold a more nuanced and flexible perspective as opposed to defaulting to outdated categorical understandings or distinctions established in the past (Langer and Moldoveanu, 2000).

Shifting thoughts and behaviours away from habitual and automatic patterns is associated with greater capacities for cognitive flexibility (Khoury et al., 2014; Langer, 1989), reduced stereotype-activated reactions (Djicic et al., 2008), improved health and vitality (Haller et al., 2017; Hsu et al., 2010; Pagnini et al., 2018; Poquérousse et al., 2021), pain management (Tsur et al., 2021), and cognitive performance (Rahman et al., 2020). While this study recognizes the value of psychological mindfulness for cognitive and behavioural flexibility, especially within the context of sustainability progress, this research focuses primarily on the more popular meditative mindfulness approaches (Hart et al., 2013; Lee & Jang, 2021).

3.2.3 Mindfulness practices

Humans spend nearly half of their waking hours engaged in mind wandering (Killingsworth & Gilbert, 2010). Practices such as mindfulness are increasingly endorsed for reducing the automatic engagement with decoupled self-referential thought and its associated suffering (Feruglio et al., 2021; Lin et al., 2018; Nayda & Takarangi, 2021; Xu et al., 2017). As an evolutionary capacity, some argue that the ability of the human brain to contemplate that which is not happening in the immediate experience is both a curse and a blessing (Killingsworth & Gilbert, 2010). In Buddhist traditions, the flowing stream of mental chatter or spontaneous thoughts is referred to “monkey mind” (Gunaratana, 2011). Scholars such as Killingsworth and Gilbert (2010) assert that “a human mind is a wandering mind, and a wandering mind is an unhappy mind” (Killingsworth & Gilbert, 2010, p. 932). The pathologization of mind wandering is consistent with many pro-mindfulness arguments that argue that greater capacities for attention regulation are needed in an increasingly distracting age (O’Donnell, 2015; Sörqvist & Marsh, 2015). While there are tremendous benefits to reducing distraction, especially in dangerous situations, many mindfulness advocates are so focused on attentional regulation that they tend to overlook the benefits of unguided awareness such as insight, creativity, and problem solving (Irving & Glasser, 2020) and disregard the fact that “no human mind is capable of shutting out all distracting thoughts all the time” (Cuddy, 2015, p. 24).

Mindfulness has been described as “the mindset of meditation applied to the rest of life” (Michaelson, 2018). Different religious and spiritual traditions have unique styles and approaches to mindfulness (Davidson & Kaszniak, 2015). Generally, these practices are divided into “focused attention” (such as paying attention to breath or sound), and “open monitoring” (broadening attention without focusing exclusively on one item) (Lutz et al., 2008). Mindfulness is cultivated through experiences of body, feeling-tone, mind and heart, and “broader patterns of experience” (Rothberg & Kornfield, 2006, p. 38). Phenomenological experiences vary among the many mindfulness practices and have different effects on the brain, body, and behavior of meditators (Singer & Engert, 2019). For example, body scan

meditation increases bodily awareness and attention, loving kindness meditation increases positive thoughts and reduces sensitivity to social stressors while “boosting ethical and social qualities of the heart (e.g., altruism, compassion and feelings of love, warmth and concern)”, and observing-thoughts meditation improves perspective-taking and overall awareness (Singer & Engert, 2019). Through meditation practices, individuals can cultivate self-transcendent qualities, which promote capacities such as empathy and compassion that are essential for positive social transformation (Kang, 2019).

Common examples of mindfulness practices include loving-kindness meditation (*metta*), mindful eating (Hanh & Cheung, 2010; Fung, Long, Hung, & Cheung, 2016), mindful breathing, and yoga (Stahl, Goldstein, 2010). As previously mentioned, different practices have different foci and in turn, different offerings for sustainability. Loving-kindness meditation for example emphasizes “sustained focus on the merits and benefits of wishing, unconditionally, that all beings experience genuine happiness and that they are free from suffering,” and extends from the individual practitioner to include all other beings (Gunaratana, 2011; Salzberg & Goldstein, 2011; Paulson & Kretz, 2018, p. 326). This practice has demonstrated benefits for enhancing compassion (Condon, 2019) and ethics (Paulson & Kretz, 2018), both of which are essential for broader sustainability transformations.

Central to Buddhist teaching is the intention to relieve suffering, both for self and for others (Gethin, 1998). Enhancing compassion is particularly important for advancing commitments to lasting wellbeing as current trends towards unsustainability represent immense suffering for planetary life. Compassion is also essential to breaking down old ways of thinking that project blame and guilt on others, while building awareness of our mental models (habitual ways of thinking and doing) that influence our thoughts and interactions with the world (Senge, 2008). Mindfulness practices and programs that explicitly focus on compassion are more likely to nurture desirable qualities such as benevolence than programs that focus exclusively on the cultivation of present moment awareness (Hildebrandt et al., 2017). Similarly, the kind of mindfulness individuals engage in, their reason(s) for practising,

setting, teacher's qualifications and tradition, among numerous other factors, influence the trait and state effects of their practice and complementarity to sustainability. If the intention of the practice is to foster deeper commitment to conservation through nature connection, it might be effective to practice forest bathing (*Shinrin-yoku*) in a natural setting. Similarly, to increase awareness about food systems, to practice mindful eating on a farm; to increase empathy and compassion, practice loving-kindness; and to improve body awareness, practice body scan, etc. This is not to imply that different mindfulness practices are limited to singular effects, which is not the case (Condon, 2019). Rather, if practitioners are looking to advance a particular element of sustainability, it might be more effective to engage in the practice most correlated with the intention (if available), while also reaping the additional benefits such as reduced stress and increased awareness.

Mindful practices such as forest bathing demonstrate extensive benefits for human health such as reduced stress, blood pressure, tension, anxiety, and increased mood, immune system, and mental clarity (Tsunetsugu, Park, & Miyazaki, 2009; Song et al., 2016; Li, 2018). In contrast to indoor meditation halls or classrooms, outdoor settings possess interesting stimuli in the form of natural features that pique fascination while maintaining a physical space from routines and daily demands. As such, natural spaces help develop a lasting mindful practice by holding the tension between attentional regulation and effortlessness, which is a common challenge for novice meditators (Lymeus, Lindberg, & Hartig, 2019). Additionally, the therapeutic and regenerative benefits of forests (Huynh & Torquati, 2019) deepen intrinsic valuation of these natural areas, and in the process, incentivizes land conservation, thus representing a mutually beneficial pathway for conservation (Noss et al., 2012). Forest bathing is a widely recognized practice in Japan, and has been increasing in popularity in the West, much like the Mindfulness Movement (Corazon et al., 2012; Li, 2018).

3.2.4 Mindfulness and the West

“The surface of the earth is soft and impressible by the feet of men; and so with the paths which the mind travels” (Thoreau, 1958, p. 239).

Prior to the 20th century, dedicated mindfulness practices were mostly confined to the small circles of ordained monks and nuns in Asia who were engaged with them to achieve enlightenment, and very little was known about such practices in the West (J. Wilson, 2014). While this may seem preposterous given mindfulness’ near ubiquity in secular western spaces today, this popular post-Buddhist version is very much in its infancy compared to the rich 2,500-year-old tradition from which it emerged. The relevance of this becomes clearer as we explore its applications in sustainability—however, for now, it is important to recognize that mindfulness, much like Buddhism at large, has adapted and continues to adapt out of necessity to stay relevant to the times (J. Wilson, 2014). A detailed history of how mindfulness made its way to the West is beyond the scope of this dissertation and has already been eloquently described in *Mindful America* (J. Wilson, 2014). Instead of reciting a full history, the following section will discuss some of the key catalysts that brought a Buddhist world-renouncing practice from Asia into predominantly Christian societies in the West, and the resulting implications for sustainability progress in the twenty-first century.

In the late nineteenth and early twentieth century, British schools were replacing Buddhist schools in colonial Burma. In an effort to preserve Buddhism amid Imperial pressures, monks began to teach lay people, who were previously not considered fit for the practice, Vipassana meditation – a form of insight meditation that has evolved into what is known as mindfulness today (Caring-Lobel, 2016; Kucinskis, 2019). This version of Buddhism was presented as compatible with the scientific rationalism of the West (E. Thompson, 2020). As such, Britain’s imperial interests in resource-rich Myanmar catalyzed a “non monastic meditation movement” that would eventually pave the way for Westerners to dabble in what had been until then relatively inaccessible traditions (Caring-Lobel, 2016, p. 195). This gave rise to “modernist” forms of Buddhism" drawing on traditions from China, Tibet, Sri Lanka,

Japan, and Thailand which were more concerned with meditation than with other traditionally religious elements of Buddhism (e.g., rebirth, mantras, ethics, etc.) (Arnold & Turner, 2018). The calving of mindfulness practices from Buddhism drew inertia from the West's growing interest in Eastern spirituality and exoticism (Carrette & King, 2005).

More than 100 years before the advent of Vipassana training in the United States, American transcendentalists and environmental icons Henry David Thoreau and Ralph Waldo Emerson were already early sympathizers of Buddhist (Wilson, 2014) and Hindu traditions (Kucinkas, 2019), and have been described as the “Founding Fathers” of “New World Mindfulness” (McCown & Micozzi, 2012). Thoreau's contemplations at Walden Pond, along with his relinquishment of some material comforts and profound connection with nature, have been rebranded as a form of American mindfulness (McCown & Micozzi, 2012; E. Stahl & Goldstein, 2010). Through a process of Americanization, mindfulness continues to be demystified, and its Asian lineage (dating back thousands of years) uprooted and reassigned to more modern western spiritual and environmental heroes (J. Wilson, 2016). One could argue that mindfulness has experienced a “colonization of the imaginary” in which the practice has been fetishized to fit within “Western ideological fantasies” as an opiate to the challenges of modernity (Žižek, 2001).

By the 1960s, growing interest in an ecological conscience (Carson, 1962) and concerns for the destructive impacts of war and materialism drove a surge of interest in Buddhist teachings in the West, particularly among counterculturalists who had increased access to Asian teachings through commercial air travel (Bodhi, 2011). The transmission of Buddhism continued through the 1970s as Theravāda, Mahāyāna, and Vajrayāna schools of Buddhism emerged in the United States (Slott, 2015). Vipassana (insight) meditation was particularly popular (Kucinkas, 2019), and incubated at the Insight Meditation Society founded by Sharon Salzberg and Joseph Goldstein in 1976 (Insight Meditation Society, 2021). Around this time, other Western-born Buddhists such as Ñāṇapoṇika Mahathera rose in prominence and taught their own versions of mindfulness. For Ñāṇapoṇika, like many Western teachers,

mindfulness was distilled to a form of “bare attention” that was instrumental for mastering one’s mind and achieving liberation (Thera, 1968, p. 3).

In the 1980s, mindfulness entered into western medical settings, largely due to the work of Jon Kabat-Zinn, an American physician and founder of the Mindfulness Based Stress Reduction (MBSR) Clinic at the University of Massachusetts (J. Kabat-Zinn, 1994). Kabat-Zinn’s definition of mindfulness, “paying attention in a particular way: on purpose, in the present moment, and non-judgmentally” (Kabat-Zinn, 2013, p. xxvii), is one of the most widely recognized (Booth, 2017). While emphasizing that mindfulness is not *just* a Buddhist practice, and that it is *both* scientifically *and* medically supported, secular mindfulness teachers, such as Kabat-Zinn, emphasize a utilitarian definition of mindfulness that draws on Thera’s (1968) notion of bare attention with limited but strategic Buddhist affiliation (Wilson, 2014). The intention of MBSR, according to Kabat-Zinn (2019) was to introduce dharma wisdom and mindfulness to “a new soil” through medicine without any cultural or traditional attachment. As he describes it, the intention behind MBSR was: “To have a meditation practice be framed and taught in a way that was commonsensical and wholly American, as an adventure of exploration of one’s own mind, body, and life through paying close attention from moment to moment, and out of that attention and the awareness that emerges from it, possibly learning, growing, healing in multiple ways, and thereby transforming one’s relationship to experience” (Kabat-Zinn, 2019, p. xv).

MBSR programs consist of meditation practices including seated practices, body scans, (which are typically done lying down), slow and contemplative walking, and yoga postures (E. Stahl & Goldstein, 2010). The sessions usually take place over the course of eight weeks and involve a 2.5-3.5 hour session once per week as well as homework and self-directed study (Kabat-Zinn et al., 1985, 1992; Lao et al., 2016; B. Stahl & Goldstein, 2011). Practices often begin by focusing on the breath as a point of focus. Individuals are encouraged to non-judgmentally recognize distractions as they arise and to allow them to pass without attachment. Mindfulness Based Cognitive Therapy (MBCT) is another “first generation”

mindfulness-based program (MBP) that entered the psychotherapeutic realm (Crane et al., 2016; Hayes & Hofmann, 2017; Lao et al., 2016; Z. V. Segal et al., 2013).

Since MBSR and MBCT there has been a boom in second generation MBPs in a variety of fields (Crane et al., 2016; Zhang et al., 2021). Programs have now spread into other areas such as: depression (Gómez-Odriozola & Calvete, 2021; Remmers et al., 2018; Vøllestad et al., 2012; Williams et al., 2008), anxiety (Keighley et al., 2020; Syeda & Andrews, 2021), trauma (Kearney & Simpson, 2020; Treleaven, 2018), eating disorders (Roos et al., 2021), substance use disorders (Slomski, 2014; Trujols, 2020), and consumerism (Dhandra, 2019, 2020). Informal interventions are also being adapted and implemented in workplaces (Gauthier et al., 2015; Roche et al., 2020), schools (Malboeuf-Hurtubise et al., 2021; Müller et al., 2021; Wen et al., 2021), politics (Bristow, 2019), and militaries (Best et al., 2020; W. R. Marchand et al., 2021; L.-N. Sun et al., 2021). Despite the growing application and enthusiasm for mindfulness-based interventions (MBIs) and MBPs there is also mounting concern that mindfulness as a social movement may undermine individual and collective wellbeing.

3.2.5 Modern mindfulness

“Shorn of rituals and abstracted from communal structures, modern Buddhism became a spiritual philosophy for a secular age” (Elverskog, 2020).

Mindfulness, when associated with terms such as “modern,” “secular”, or “contemporary,” generally implies a pragmatic and therapeutic practice focused on reducing suffering in the present moment, via mindfulness-based stress reduction programs and their derivatives (Watt, 2017). Approximately one quarter of American companies—including major corporations such as Monsanto, Nike, and Goldman Sachs—have implemented mindfulness programs (Huffington, 2015; Van Gordon, et al., 2016). These “pop capitalist spirituality”

programs raise numerous concerns specifically around *what* version(s) of mindfulness is/are being taught and the extent to which they are strengthening unsustainable systems (Purser, 2018, p. 105). Accordingly, Cannon asks, “Are the mindfulness practices being taught to Google and Monsanto executives, to military personnel, the same mindfulness practices being used by social work practitioners and public school educators?” (J. Cannon, 2016, p. 397). Others have raised concerns that mindfulness has been decontextualized so that it might be more easily wielded to conform to dominant worldviews. For example, “In a secularised and modern world view, the tendency has been to extract and abstract foundational practices such as mindfulness meditation and contemplation within an objectivist or scientific prejudice” (Blom & Chunlei, 2016, p. 1266).

The most widely recognized corporate mindfulness program, “Search Inside Yourself” (Google), offers to “teach practical mindfulness, emotional intelligence, and leadership tools to unlock your full potential at work and in life” (Search Inside Yourself Leadership Institute, 2021). These programs are frequently offered in workplaces to help reduce occupational burnout (Alrawashdeh et al., 2021; A. Marchand et al., 2018; Y. Sun et al., 2021; WHO, 2021a), a condition described as “chronic workplace stress that has not been successfully managed” (WHO, 2021a). In these secular spaces, MBIs are generally concerned with reducing employees’ psychological burden (anxiety, depression, disengagement, etc.), increasing their coping capacities, and boosting work performance (Kucinskas, 2019; Tan, 2012). Unhappy and unproductive workers are often not only unpleasant to work with but also an organizational liability. A disengaged employee, someone who is unhappy and unproductive, is more likely to spread negativity through the organization and is estimated to cost the company approximately 34% of their annual salary (Gallup Inc., 2013).

Early management consultants were among the first to recognize that placating workers by integrating human concerns, including giving people meaning and purpose, was an effective way to quell unrest without changing working conditions or remuneration (Caring-Lobel, 2016). Along these lines, ethical considerations have been raised around the offering of mindfulness programs in the workplace. As Caring-Lobel (2016) notes, Buddhist meditation

garnered interest in the workplace not to improve conditions for labourers, but to help them acquiesce to such conditions—in essence, to enable them to cope with the physical and psychological tolls of capitalism. Furthermore, as Kucinkas (2019) explains, in corporate environments mindfulness, though once seen as a luxury, has become a mainstay treatment for unhappy and unhealthy employees. Similar concerns have been raised regarding the instrumentalization of mindfulness to increase academic performance in school systems where, instead of focusing on social conditions that systematize inequities and create “troubled communities” with distressed students, the focus is on helping pupils achieve higher grades, regulate their behaviour, and reduce rates of stress and anxiety (Cannon, 2016; Forbes, 2015; Hsu, 2013).

"On one side, meditation is seen as raising awareness and cultivating the kinds of virtues that are essential to a reformed society. On the other side, some suspect that meditation leads to passivity and undermines social struggle" (Gleig, 2021, p. 774).

The medicalization and psychologization of stress and anxiety, which became prominent since the 1800s through the works of psychologists such as Sigmund Freud and Carl Jung (Carrette & King, 2005; Schaffner, 2016), remains integral to the modern mindfulness movement today. The framing of mental health chiefly as an individualized problem requiring personalized treatment (Haidt & Lukianoff, 2018; Rieff, 1966) overlooks external conditions, such as social and ecological systems, as contributors to wellbeing. As R.D. Laing once professed, insanity is “a perfectly rational response to an insane world” (Harris, 2012). Some psychologists and psychotherapists have drawn parallels between the Buddha’s teachings (particularly those related nonduality and enlightenment) with the works of Jung (Katsky, 2021; Odajnk, 2011), as well as the similarities of meditation and Freud’s notion of “evenly hovering attention” (Freud, 1912, p. 111; Katsky, 2021; Van Waning, 2002). Modern psychology and neuroscience have further legitimized and scientifically validated many facets of Buddhism, particularly mindfulness (Brewer, 2019; Purser & Lewis, 2021; Sezer et al., 2022; S. Stanley, 2012). It is important to note that the interjection of spirituality into

organizations is neither static nor limited to mindfulness or even Buddhist practices. “The incorporation of spirituality into management practice constantly changes and adapts, appropriating whatever might be useful along the way: Native American traditions, Buddhism, Shamanism, or generally described “tribal spirituality” – whatever might already have resonance in the wider culture is often retrofitted for human management purposes while steering clear of religion proper” (Wrenn, 2022, p. 156).

With increasing rates of mental health conditions (WHO, 2021a) and a declining capacity of mental health services and providers to meet the demand (Kuehn, 2020; WHO, 2020), there is urgent incentive to explore alternative approaches to support individual wellbeing (Singh Bhandari et al., 2020). Mindfulness-based interventions (MBIs) delivered by telephone and digital mediums have rapidly increased in popularity due to the COVID-19 pandemic (Gardner-Nix et al., 2014; Kwon et al., 2020; Kwon & Lee, 2020; Lucas-Thompson et al., 2019). These digital MBIs demonstrate moderate (Lahtinen & Salmivalli, 2020) to significant benefits for patients suffering from a variety of mental and physical conditions (Ainsworth et al., 2020; Kennett et al., 2021; Ritvo et al., 2021). Additionally, the demand for accessible mental health interventions has created a lucrative market for mindfulness-based applications on track to exceed USD \$4.2 billion by 2027 (Polaris Market Research, 2020).

3.3 Critics of modern mindfulness movement

At the core of criticisms surrounding the modern mindfulness movement (MMM) is a concern related to sustainability – that without a recontextualization or contextualization anew, the movement will impede positive transformations. Mindfulness critics can be loosely divided into three camps: those who regard mindfulness as a Trojan horse for neoliberalism; those who decry the universalism, secularization and ‘deBuddhification’ of mindfulness; and those who assert that Buddhism has a long exploitative and colonial history and is therefore not well aligned with sustainability progress. This section briefly explores these different

perspectives and shines light on some potential roadblocks to mindfulness' contributions for sustainability.

3.3.1 Mindfulness – The new Trojan Horse of Capitalism

Concerns have emerged regarding the use of spiritual practices in secular and often profit-driven institutions (Monteiro, Musten, & Compson, 2015; Caring-Lobel, 2016). Here, corporations are accused of offering mindfulness programs under the guise – as in the Trojan Horse – of wellness to maximize employee efficiency (Brazier, 2016b), improve competitive advantage (Carrette & King, 2005), and more generally, drive change from within (Van Gordon et al., 2016). Carrette & King (2005) explain that mindfulness and commodified spirituality or conscious capitalism, although marketed as transformative, rarely inspire radical change in either lifestyle or behaviour aside from increasing work productivity and can inhibit social progress that would have organically arisen from the original religious traditions from which the spiritualities emerged.

Torres (2019), for example, criticizes the growing interest in framing mindfulness and other interventions for inner transformation as a “be-all-end-all solution” to systemic problems linked to education for oppressed communities. While optimistic that these approaches can benefit systemically oppressed communities, Torres sees limited potential for them to solve deeper inequities. As Torres explains,

Mindfulness is a tool for emotional regulation, not a solution to systemic inequalities ... Teaching students to meditate will help manage their anger or frustration, but it won't remove a system that mass incarcerates their neighbors and family members. Giving students skills in social [sic]-emotional learning can help students better process and express their opinions, but it won't erase a system that was built not only to their disadvantage, but also sometimes actively set up to see them fail. Yoga can help a child feel present in their

body, but it won't change the fact that our society places different values on different bodies... (Torres, 2019).

Contemplative mind-body practices such as meditation and yoga are increasing in popularity (GWI, 2018) and are both praised and taught by an elite group of highly educated, wealthy, and most commonly, white individuals who occupy privileged positions in society (Kucinkas, 2019; Rose Black & Switzer, 2022). In 2017, the international wellness industry was valued at over USD\$4.2 trillion, with \$595.4 billion in the fitness and mind-body sector (GWI, 2018). Headspace, a popular meditation app for example, generates an annual revenue exceeding USD\$100 million (Dodds, 2019). The mindfulness industry, along with many other capitalist spiritualities, emerged in response to a larger cultural shift that was driven by neoliberal pursuits of privatisation and commodification, through powerful institutions such as multinational corporations (Carrette & King, 2005; Davies, 2015). The mindfulness movement, particularly in the American context, has been dubbed *McMindfulness* (Fisher, 2010; Hyland, 2016) and is the recipient of considerable criticism related to issues such as insufficient scientific rigour, cultural appropriation, commodification, and overall unsustainability (Farias & Wikholm, 2016; Forbes, 2019; Greenberg & Mitra, 2015; Hyland, 2017; Ishikawa, 2018; Joiner, 2017; Lomas et al., 2015; Michalak & Heidenreich, 2018; Neale, 2011; Purser & Loy, 2013; Van Dam et al., 2018).

The separation of mindfulness from traditional Buddhist moral guidelines has raised concerns that modernized versions may impede social and environmental justice efforts (Brazier, 2016b) by encouraging self-enhancement (Gebauer et al., 2018) and prioritization of personal wellness above collective wellbeing (McCartney, 2019). Similarly others have argued that the selective focus on non-judgmental awareness separate from ethics, can also have a pacifying effect whereby instead of working to liberate themselves from suffering, people find ways to cope with it (Wallace & Bodhi, 2006). Additionally, there are concerns that the prescriptive model of self-help used in many organizations undermines employee wellbeing instead of supporting it (Barton et al., 2022; Henderson, 2022). Some scholars have also warned that without an ethical model for guidance, the pursuit of path elements

such as right action “can and do lead to suffering” (Greenberg & Mitra, 2015, p. 76). Consequently, Brazier (2016a) cautions that devoid of a tether to traditional ethics and values, modern mindfulness practitioners can easily fall into a narcissistic rut of self-love and solipsism endorsed by the self-help industry. Furthermore, versions of mindfulness that focus exclusively on cultivating present moment awareness can unconsciously emphasize immediate gratification instead of lasting transformation through spiritual enrichment (Brazier, 2016b).

"An ethical life is one that is mindful, mannerly, and has style. Of all moral failings and flaws of character, the worst is stinginess of thought, which includes meanness in all its forms. Rudeness in thought or deed toward others, toward nature, reduces the chances of conviviality and interspecies communication, which are essential to physical and spiritual survival"
(Snyder, 1990, p. 22).

Some scholars such as Greenberg and Mitra (2015) argue that without directly addressing ethical dimensions, modern notions of mindfulness are “incomplete” and offer

an inadequate curriculum for living a mindful existence or for the construction of interpersonal or organizational interventions aimed at reducing suffering or eliminating inequity. At the level of cognition, this broader view of mindfulness reflects movement from attention and awareness through the related mental factors of discernment, intention, imagination, and reason toward the ends of developing wise understanding and engendering beneficial or wholesome outcomes (Greenberg & Mitra, 2015, p. 75).

Others bemoan that in these cases, mindfulness is diluted from a rich moral and ethical practice to a personal meditation technique (S. Chen & Jordan, 2018; K. T. Jackson, 2018; Jinpa, 2019; Neale, 2011; Stanley, S.; Longden, 2015).

Similarly, it has been stressed that when mindfulness is approached as a kind of “religion of the self,” it risks strengthening a sense of individualism, separation, and apathy (Purser, 2019, p. 10). Furthermore, it neglects concern for the livelihoods, sufficiency, and

opportunity of others, as well as consideration for the consumption (or overconsumption) of resources, which undermines the wellbeing of both present and future populations. As Purser (2019) notes, the instrumentalization of mindfulness as a self-discipline tool has made it vulnerable to exploitation: “Void of a moral compass or ethical commitments, unmoored from a vision of the social good, the commodification of mindfulness keeps it anchored in the ethos of the market” (Purser, 2019, p. 17). Moreover, without a tether to the long-term Buddhist goal of liberation, modern mindfulness practice helps people develop the skills they need to *cope* with or avoid their immediate situation instead of encouraging them to *transform* it (Brendel, 2015; Loy, 2016; Purser & Loy, 2013; Safran, 2014). As Brendel (2015) cautions, “Mindfulness practices should be used to enhance our rational and ethical thinking processes, not limit or displace them. And mindfulness practices should never be imposed on other people, especially in the workplace”.

3.3.2 Mindfulness – The universal phenomenon available to and beneficial for “all”

Mindfulness traditions, which were once limited to the confines of Buddhist monasteries and retreat centres, have permeated non-religious institutions and mainstream culture (Stanley & Longden, 2016). In the public sector, mindfulness often undergoes a process of *mystification*, which, as described by Wilson (2014), reduces the extent to which mindfulness is associated with Buddhism to increase its target audience and market (p. 44). Buddhist modernism is thus characterized by a decoupling of mystical, metaphysical, and ceremonial elements from Buddhism and a strong emphasis on its association with individual meditation practice and scientific rationalism (Thompson, 2020). Research has found that approximately 40 percent of Americans across almost all religious denominations (including atheists) meditate at least once per week (Pew Research Center, 2014). Similar studies corroborate the growing interest in alternative medicines for health and wellbeing including yoga and meditation both for adults (Clarke et al., 2018) and children (Black et al., 2018).

Mindfulness in the West is validated through phenomenological approaches such as science, including in medicine, and in the process, has undergone a form of “de-Buddhification”

through which it has been stripped of its religiosity (Wilson, 2014, p. 73). Separated from Buddhism's "emotive, ethical and imaginative dimensions" (Brazier, 2016, p. 64), modern utilitarian forms of mindfulness are commonly administered in a prescriptive manner to reduce stress and anxiety (Stahl & Goldstein, 2010; Goldstein, 2011; Kabat-Zinn, 2013; Gebauer et al., 2018). Positive results from research on mindfulness and meditation in fields such as health (Hazlett-Stevens, 2018), human performance (Hanson & Hanson, 2018), interpersonal skills development (J. Kabat-Zinn, 2013), psychopharmacology (Smigielski, Scheidegger, Kometer, & Vollenweider, 2019), and education (Powietrzynska et al., 2015) tend to further legitimize its application in secular settings such as hospitals and schools, and even in controversial institutions such as the military (Meland et al., 2015) and politics (The Mindfulness Initiative, 2019). There are concerns that Western clinicians overly emphasize the similarities between Buddhism and psychoanalysis, while glossing over their vast differences to legitimize the use of mindfulness and other meditative practices in their field (Mayer, 2020).

The marketing of mindfulness as a universal phenomenon not only increases its audience, but also fails to recognize the complexities and potential harms of the practice. As Britton cautions "very few, if any, psychological or physiological processes are universally beneficial" (pg. 159). Scholars including Treleaven (2018) express similar concerns that without context-specific considerations, mindfulness can worsen an individual's suffering and can even re-traumatize. Concerns have similarly been raised regarding the prescription of MBIs for individuals with mental health conditions or pre-existing psychological comorbidities because distressing responses leading to psychosis, mania, anxiety, depression, and suicidal ideation have been noted as side effects of mindfulness practices (Britton, 2019; Cheetah House, 2022; Farias, 2022; Lindahl et al., 2017, 2021; Montero-Marín, Allwood, Ball, Crane, De Wilde, et al., 2022; D. Robson, 2021; Rose Black & Switzer, 2022; Schlosser et al., 2019; Treleaven, 2018; Van Dam et al., 2018; Wielgosz et al., 2019). Mindfulness apps for example, while broadly prescribed, have been found to both increase and decrease user wellbeing depending on factors such as underlying conditions, frequency and duration of use, and app interface (Clarke & Draper, 2020). In a recent £6.4 million study involving over

8,000 children between the ages of 11-14, researchers found that mindfulness did not improve practitioner mental health while compared to a control group, and that the practice might actually have detrimental effects on certain populations (Farias, 2022; Montero-Marin, Allwood, Ball, Crane, De Wilde, et al., 2022).

In a recent study, Schlosser et al. (2019) found that approximately 25% of meditators experience adverse experiences linked to their meditation practice. They noted that this was less common for religious meditators, and more common among men and people with repetitive thinking (Schlosser et al., 2019). Similar research found that 32% of study participants had disturbing experiences including fear, terror, and dread as a result of their meditation practice (Vieten et al., 2018). As one scholar cautions “Not everybody benefits from concentrative and/or mindfulness-oriented meditation practices” (Masís, 2002, p. 154). Given the potential for adverse reactions to mindfulness, concerns have been raised regarding the qualifications of mindfulness teachers to recognize and treat mental health issues as they emerge in practices (Masís, 2002). Similarly, therapists with extensive mindfulness experience have also raised concerns that those who teach secular mindfulness without a personal practice risk teaching a reductionist version that only serves as techniques (Gill et al., 2020). Furthermore, when mindfulness is taught in medical settings it could endanger clients by exploiting vulnerabilities and creating an idolized or guru image of the therapist (Gill et al., 2020).

Studies have also pointed out the lack of diversity in MBSR and MBCT control trials and that to increase the safety and effectiveness of these interventions, there needs to be more inclusive representation in research (Waldron et al., 2018). This reflects deeper concerns regarding the generalizations of human behaviour and psychology made by studies involving only WEIRD (Western, Educated, Industrialized, Rich, Democratic) populations (Henrich et al., 2010). One need not look further than the cover of Time Magazine’s special mindfulness editions (2003, 2014, and 2018) to see that mindfulness has taken on a distinctly westernized image. Mindfulness products are frequently modeled by and marketed to wealthy, white, well educated, non-Buddhists (Kucinkas, 2019). It has also become common practice for non-

Buddhists to teach other non-Buddhists meditative practices originating in Buddhism, raising further concerns regarding appropriation (J. Wilson, 2014).

3.3.3 Mindfulness – An unsustainable past, present, and future

For nearly two thousand years, Buddhism was a powerful influence in many social, political, and economic systems across Asia (Cotterell, 2011). Reflecting on Buddhism’s colonial history, in particular its valuation of wealth as a sign of good karma, raises many questions related to sustainability, specifically ambiguous and inconsistent positions on wealth and money in Buddhist societies. Money has played an important role in Buddhism for thousands of years. In the *Sīgālovāda-sutta* of the Pāli Canon for example (DN III 180, *Dīgha Nikāya*), the Buddha advises families to accumulate wealth “like bees gather honey” to achieve peace and equanimity (Abrahms-Kavunenko & Milligan, 2021, p. 273). Wealth is also associated with merit which enables a person to provide *dana* (gifts) and make donations to the sangha that will in turn help them gain higher status in Buddhist hierarchies and acquire better karma that will serve them in both in this life and the next (Abrahms-Kavunenko & Milligan, 2021). As Abrahms-Kavunenko & Milligan (2021) explain, “for individuals, kingdoms, and religious institutions to prosper, much Pāli Sutta literature directed towards an expanded audience, including the laity, counsels that economic prosperity should be pursued, albeit cautiously and mindfully” (Abrahms-Kavunenko & Milligan, 2021, p. 273). While money was not prohibited by the Buddha, there are specific codes of conduct for monks, who for example in the Theravāda tradition, cannot handle gold, silver or coins (Ibid). Paper money, credit cards, and crypto currency remains a grey zone as they are not technically coins or metals but still represent ‘money.’

Buddhism, much like Christianity, is a missionary religion (Sharma, 1986), which is one reason why it has endured for thousands of years (J. Wilson, 2014). As Elverskog (2020) notes, the historical conquest and accumulation of Buddhist wealth was dependent on the large-scale exploitation of Asian natural resources, especially from 500-1500 CE.

Furthermore, he argues, Buddhism’s pursuit of this resource frontier played a significant role

in transforming much of the continent's environment through processes including urbanization, deforestation, commodification, and landscape alteration. The consequences of this conquest continue to endanger the natural world and vulnerable populations particularly throughout Asia (ESCAP, 2018; FAO et al., 2021).

The decoupling of meditation from spiritual practice and its reconfiguration into a tool for social change in modern America is both reformative (linked to progressive change for social and ecological justice), and assimilative –(spreading meditative practices into public and secular domains for wellbeing) (Gleig, 2021). The proliferation of modern conceptions of a pro-environmental and pro-social version of Buddhism, projects a green, peaceful, and equitable vision (Davis, 2016) that obscures its destructive potential (Elverskog, 2020). Some scholars have noted that meditation has been used to perpetrate extreme forms of violence and that traditional teachings have served as “get out of (karmic) jail free card” for perpetrators (Victoria, 2021, conclusion para 1). Others have noted that Buddhist nationalism in Sri Lanka's civil war (1983-2009), engagement in political violence in Thailand, participation in Japanese nationalism during World War II, attacks on rival monasteries in Tibet, and ethnic cleansing of Rohingya in Burma are further reminders that Buddhism is not above fanaticism nor is it as peaceful as it is often portrayed in modern times (Arnold & Turner, 2018). Emerging reports of slavery, abuse, and violence perpetrated by Buddhist monastics are slowly challenging conceptions that both Buddhists and meditation are always morally good (L. S. Davis, 2016; Halafoff, 2021; S.-E. T. Kim, 2016; M. Lempert, 2012). The prevalence of “Buddhist exceptionalism” in the West maintains an image of Buddhism being a rational, empirical, scientific tradition that is superior to other world religions (Thompson, 2020, p. 24). This widespread and influential exceptionalist lens is especially apparent when Buddhism is framed as a “science of the mind” (His Holiness the 14th Dalai Lama, 2006) or a philosophy complementary to science as opposed to a dogmatic religion (Thompson, 2020).

3.4 Response to criticisms

3.4.1 Mindfulness – The Trojan Horse of capitalism

It is important to consider the rich complexities surrounding the criticisms of modern mindfulness within the context of sustainability transformations. In one sense, mindfulness certainly models a Trojan horse – a spiritual trophy that first appears as a gift in a time of crisis but later reveals itself as a container for destruction – in this case, by perpetuating capitalistic and neoliberal systems. In another sense, the same Trojan horse model could be seen as a container for innovation, healing, and positive change. An example of this can be seen in corporations, where mindfulness pays a triple dividend benefit by supporting individual wellness and inner transitions, bottom-up ethical transformations in the organization, and by extension, a ripple effect of these ethics into society (Bahl et al., 2016; Wolever et al., 2018). Even a seven-minute secular mindfulness intervention has been associated with increased prosocial behaviours in organizations including greater helpfulness and empathetic response (Hafenbrack et al., 2019; Malinowski & Lim, 2015).

Studies have found that mindfulness is a key strategy for organizations to maintain a sustainable competitive advantage (Krishnan, 2021; Yu & Zellmer-Bruhn, 2018) and enhance capacity for social innovation (Steidle, 2018). However, attempts to force adoption of sustainability values in institutions from top-down approaches are ineffective at driving lasting change unless organizations consciously act from their values and remain accountable to their commitments to SES (Bernal et al., 2018). Accordingly, Bernal et al (2018) suggest that organizations need to nurture Buddhist ethical principles (e.g., Noble Eightfold Path) and values to foster an environment where members are encouraged to act from a mindful and value-driven mindset. In an extensive review, Sajjad and Shahbaz (2020) demonstrated that the benefits of mindfulness likely extend beyond their application in individual and organizational settings, however, there remains a significant deficit of empirical evidence. Additionally, they suggest that more analyses are needed to explore the potential of

mindfulness to support social issues such as collective wellbeing and justice as current understandings are fragmented (Sajjad & Shahbaz, 2020).

3.4.2 Mindfulness – The universal phenomenon available to and beneficial for “all”

Responses to the burgeoning mindfulness industry caution that greater effort should be made to ensure that the essence and wisdom of Buddhist mindfulness in its original context (Right Mindfulness) not be lost amongst the doctors, scientists, organizational leaders and secular teachers saturating the field (Vu & Gill, 2018; Watt, 2017; Wojciechowski, 2017). Right mindfulness (*samma sati*) is described as “a clear intention to generate well-being at both the individual and at the universal, species-wide level” (Greenberg & Mitra, 2015, p. 75). The fact that mindfulness has been largely secularized and separated from particular religious institutions and state processes (Sharma, 1986), enables its practices to transcend cultural and dogmatic barriers thereby increasing the range of interventions that may cultivate compassion and empathy (Greenberg & Mitra, 2015).

It has also been suggested that “contemplative practices may enhance social outcomes even when the explicit goal is self-serving (e.g., practicing compassion to improve one’s own mood... if the process induces self-transcendence (operationalized as positive other-focus), whether the practitioner initially intended or not, this can still increase plasticity of self, social, and reward processes, which can enhance social outcomes” (Kang, 2019, p. 117). Similarly, while there are concerns that mindfulness has been diluted to “bare attention,” some scholars argue that this alone can help bring awareness to automatic and reactive sensemaking schema and in the process, create more “analytical space between interpretative response and conceptual explanation” (Whitehead et al., 2016, p. 564). Some suggest that more benefit would come from the movement if post-Buddhist mindfulness interventions were grounded in compassion as a primary objective and tied to a larger ethical framework that is concerned with eliminating suffering (Jinpa, 2019). Furthermore, a clearly articulated definition, set of techniques, and practices could help reduce misrepresentations and scientific quandaries (Anālayo, 2019b; Van Dam et al., 2018).

Another key element that has been lost in the criticisms of mindfulness is that while mindful practices encourage present moment acceptance, at least in a traditional context they do not teach practitioners to agree with or want things to be the way they are. Rather, mindfulness teaches people to recognize and accept the present reality as it is unfolding (Shapiro, Siegel, & Neff, 2018). Accept in this instance refers to being at peace with what is happening in the moment-to-moment experience. Only by first cultivating a clear perception (seeing things as they are instead of wishing they were somehow different), can one take skillful and appropriately take action (Shapiro et al., 2018). Transformational change towards sustainability is therefore paradoxically dependent on recognition and acceptance of things as they are.

Critics have argued that mindfulness can be employed as a coping mechanism or balm that legitimizes an ethically-devoid or questionable individualized practice, but have largely failed to consider how this balm might actually be beneficial for individuals contending with the harsh realities of the ecocrisis including victims, first responders (Kaplan, et al., 2017), rescue workers (Argentero & Setti, 2011; Wamsler, 2018), and activists (Doherty & Clayton, 2011). The Covid-19 pandemic has expanded the reach of mindfulness practices and has demonstrated that in certain contexts mindfulness offers protective and therapeutic benefits to frontline workers, such as reduced stress, anxiety, and compassion fatigue (Tindle & Moustafa, 2021). Similarly, in war-torn regions, where exposure to danger and terror is more the norm than the exception, practitioners have noted that mindfulness helps to increase capacities including stress management and self-compassion (Litvak-Hirsch & Lazar, 2020). Mindfulness has also been used in refugee camps to reduce effects of post-traumatic stress disorder, shame, guilt, and stress (Hinton et al., 2013; Kalmanowitz & Ho, 2016; Oren-Schwartz et al., 2022).

As Kucinskas (2019) notes, the sheer scale of the mindfulness movement prohibits its clear distillation into either *good* or *bad*. Moreover, attempts to reduce such a complex social movement into a set of binaries misses its inherent richness and overlooks its potential to effect change in society. Others have also cautioned that opposition to mindfulness has

become another movement on its own with a whole host of epistemic challenges (Anālayo, 2021).

3.4.3 Unsustainable past, present, and future

While recognizing the colonial pressures that were imposed on and by Buddhist populations throughout Asia is important for understanding the context from which mindfulness emerged, an unbalanced focus on its unsustainability risks overlooking many of the positive characteristics and endeavours Buddhism has championed. The work of Thich Nhat Hanh for example, was committed to efforts to end the war in his home country of Vietnam. While exiled, he created a global network of training centres such as Plum Village in France to support both the spiritual and material needs of refugees (Wilson, 2022 pers. comm.). Hanh also explained that mindfulness practice involved a reverence for all life through a state of interbeing, and accordingly, a commitment to protecting others from harm (Hanh, 2012). Examples of such engaged Buddhism can be seen in Thailand where trees have been ordained to sanctify entire forests in order to increase awareness of ecological degradation and inspire commitment to ending the suffering of the natural world (Darlington, 1998) and the Buddhist Peace Fellowship that arose in response to militarism and nuclear war in the United States (Gleig, 2021). Buddhists have also been actively engaged in nonviolent protests opposing nuclear and pipeline projects that endanger both present and future wellbeing (Macy, 2007). More recently, monks supported changemakers who are working to bring desirable system transformations at COP26 (UNCC, 2021). Many ‘Engaged Buddhists’ see their involvement with initiatives that bring positive change to social, political, and economic systems as an expression of their Buddhist tradition rather than a separate task (Gmuzdek, 2000; Kaza, 2008; S. King, 2009; Rothberg & Kornfield, 2006). Engaged Buddhism is sometimes expressed as a way to take meditation off the cushion and into the world (Peterson & Dutton, 2022).

3.5 Sustainability

The pursuit of lasting wellbeing is a perennial concern but has become increasingly difficult due to added pressures of a growing population, shrinking resource base, and needs for planetary responses. Issues that were once contained locally now have global repercussions, and ecological systems that were once resilient and resource rich are now over-exploited and degraded, and despite greatly increased global wealth, profound inequities and want persist (Gibson, 2017). Accordingly, this section examines the evolution, requirements, and challenges of sustainability. It also explores the complexities and barriers to aligning social and ecological systems towards lasting wellbeing (Hone, Aaron, Schofield, & Duncan, 2014) through transformation, adaptability, and resilience building.

Sustainability is complex in nature, requiring attention at broad scales from local to global, present to long-term, and individual to collective (Weiser, Lutz, Lang, & Kümmerer, 2017). Approaches to advancing sustainability progress including action on climate change vary, and the lack of a formally accepted definition and set of assessment and implementation criteria has made the concept vulnerable to appropriation and misuse (Hughes, 2001). For the purposes of this dissertation, sustainability is broadly defined as “*the possibility that human and other life will flourish on the planet forever*” (Ehrenfeld, 2008; p. 6). This definition looks beyond the basic survival of all life on Earth, towards the thriving of SES. The essential characteristics of sustainability are summarized by Gibson et al. (2005) as follows:

Sustainability...

- Is a challenge to conventional ways of thinking and doing;
- Is concerned with immediate and long-term wellbeing;
- Must be at the core of decision-making;
- Requires that links and interdependencies between social and ecological wellbeing are recognized;
- Requires that stochasticity and complexity are recognized and approached with precaution;
- Demonstrates firm limits and infinite possibilities for innovation;
- Is a dynamic and constantly evolving open-ended set of principles and processes;

- Requires governance and relationships that mutually support social and ecological wellbeing; and
- Is a universal concept, but also context-dependent (p. 62).

3.5.1 Old and new sustainability

Our early hominid ancestors lived relatively sustainably by upholding tradition and maintaining connection with nature and the divine (Gibson, 2005). Stories, rituals, and symbols arose from experience in the world and oriented humans in time and space (Peterson, 1999). These rich traditions offered stability, comfort, and knowledge, while providing guidance to codify what worked and warnings against what did not. Change was feared as it represented something unknown and potentially dangerous (Gibson, 2005). Similarly, progress and innovation were met with suspicion and skepticism, and those in pursuit of wealth and power were considered dangerous (Wright, 2004).

Traditional knowledge provided the “how-to” cultural guidebooks for survival – hunting skills, farming practices, cultural rites of passage, military organization – all of which were overseen by elders who carried on the wisdom from previous generations (Brody, 1988; Davis, 2009). Coinciding with the rise of Buddhism 2,500 years ago, the concept of linear time emerged in Ancient Greece, as a way to help humans understand and attempt to control time and ultimately our future (Gidley, 2017). The notion of linear time has been accelerated by technology and is reflected in the “speed addiction” of the modern age (Gidley, 2017, p. 206). The idea that time is linear and can be reduced into a one-dimensional unit of measurement contrasts with approaches such as the thousand-year-old Iroquois Confederacy that exemplifies early concerns for intergenerational equity, and decision-making foresight which extends seven generations into the future (Caradonna, 2014). This notion of *old sustainability* endured for thousands of years because of its emphasis on respecting tradition, connection with land, relationship with the spiritual realm (Caradonna, 2014; Gibson, 2017), and keeping things as they had been for millennia (Wright, 2004, 2019).

A new sustainability emerged in response to the rise of science, technology, and market economics in Europe during the Renaissance and thereafter, which reduced nature from a living source of wonder and awe to an object of study and limitless resource for consumption (Sarton, 1956; Kearney, 1971; Merchant, 1980). Combined with a simplistic economic view of humans, this reduction of nature gave rise to expectations for inevitable “tragedy of the commons,” behaviour wherein each individual aims to appropriate nature’s utility to the full extent regardless of the long-term implications for the collective (Hardin, 1968; Kennedy, 2003). This multipolar trap reflects a model whereby individuals will race to exploit finite resources regardless of the potential for adverse long-term effects on the assumption that if they do not reap the rewards themselves, others surely will (Alexander, 2014; Schmachtenberger, 2020). A prominent example of this is the exploitative use of forestry products which resulted in a timber scarcity in 18th century Germany, from which the concept of sustained yield (*Nachhaltigkeitsprinzip*) emerged (Peters & Wiebecke, 1983; Rubner, 1992). This utilitarian approach to resource management sought to maximize the use of forest resources in a manner that would benefit both present and future generations (Schmutzenhofer, 1992; Wiersum, 1995; Warde, 2011; Grober, 2012; Purvis et al., 2019). Forest conservation efforts implemented under sustained yield management were driven by capitalist interests, instead of preservationist or stewardship values (Callicott & Mumford, 1998; Purvis, Mao, & Robinson, 2019). The new sustainability movement deplored the dominant “industrial-growth-as-progress” model and encouraged a deeper concern and reverence for the natural world beyond its economic value (Lumley & Armstrong, 2004; Caradonna, 2014).

The post-World War II era, known as the *Great Acceleration* (Hibbard, Crutzen, & Lambin, 2006), witnessed an unprecedented increase in human enterprise centred on economic development, resource extraction, and consumption (Steffen, 2015). The initial enthusiasm for new comforts and luxuries was rapidly joined by fears of nuclear annihilation (Commoner, 1971) and growing awareness of issues concerning land management (Leopold, 1966), overconsumption (Hardin, 1968), population explosion (P. Ehrlich, 1968), long-range transport of contaminants, and persistent organic pollutants (Carson, 1962). Ecological

economics began criticizing modern conceptions of progress (Mishan, 1967; Schumacher, 1973; Daly, 1977), particularly as it concerned biophysical limits (Meadows et al., 1972). By 1987, increasing awareness that the decades of development had failed to eliminate poverty and ecological destruction while widening inequalities (Caldwell, 1984; Arndt, 1987) prompted establishment of the World Commission on Environment and Development (WCED) chaired by Gro Harlem Brundtland.

The most notable product of WCED was the release of the Brundtland Commission publication *Our Common Future* (OCF). This document defined sustainable development briefly as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987, p. 43). This definition has been widely applied to sustainability in general, not just within the context of development. In *Our Common Future*, a sustainable version of economic growth is presented as essential for eradicating poverty and environmental degradation (WCED, 1987). Much criticism has emerged regarding this paradoxical collocation and the very implications of sustainable development, particularly its failure to implement sufficient changes to interrupt unbridled economic growth (Bendell, 2022; Caldwell, 1984; Du Pisani, 2006; Kim & Bosselmann, 2015; Redclift, 1987; Robinson, 2004; Tulloch & Neilson, 2014).

3.5.2 Critics of new sustainability

By 2001, a “three pillars” approach to sustainability, which considers social, economic, and environmental categories as largely separate elements of SESs, was normalized (Giddings, Hopwood, & O’Brien, 2002; Purvis et al., 2019). This fragmented approach raises concerns for failing to recognize that sustainability is not stasis to be met nor can it be achieved by balancing social, economic, and ecological objectives, but requires interdependent improvements in all dimensions through integrated consideration and positive feedbacks (Gibson, 2005; Martinez-Alier et al., 2016; Tainter, 2006). Additionally, pillars-based approaches typically the fact that social and ecological systems interact across organizational,

temporal, and spatial dimensions (Liu et al., 2015). For this reason, sustainability is best conceived as an integrative process that links social, environmental, and economic elements with a long-term view, while simultaneously respecting complexity (Robinson, 2004), resiliency (Hodbod & Adger, 2014), and planning with adaptive design and management in mind (Holling, 1973; 1978; Walters & Holling, 1990; Memarzadeh & Boettiger, 2018).

Sustainability discourse has shifted from definitions to goal implementation, most notably with adoption of the Sustainable Development Goals (SDGs) (O'Brien, 2019), which represent an ambitious global call for action on issues such as climate change, poverty eradication, gender equality, and clean energy (UN, 2015). The SDGs consist of seventeen goals and 169 targets building upon the Millennium Development Goals to achieve present and future peace and prosperity by 2030 (UN, 2015). This “transformational vision” (UN, 2015, p. 5), while impressive in scope, much like *Our Common Future*, fails to identify transformative pathways, catalysts, or support structures for implementation (Linnerud et al., 2019). Additionally, the SDGs fail to demonstrate clear mechanisms to ensure commitment at both local and global scales (Fleming et al., 2017) and are founded on a model that prioritizes “development” as a form of progress (Thinley & Hartz-Karp, 2019). While the SDGs recognize the interactions and interdependence of goals, they are not very visible nor are they well elaborated with an eye to implementation. Consequently, the framework overlooks the interactions, tensions, and potential integration for multiple benefits between goals. Only 1% of companies surveyed in a 2015 study intended to assess their impacts on all of the SDGs, and instead planned to ‘cherry pick’ the goals that best aligned with their corporate priorities and culture (PwC, 2015, p. 12).

Trends (both local and global) towards deeper unsustainability raise feasibility concerns for achieving the SDGs, due to their scope, interactions, and mutually reinforcing nature. Some examples include:

- increased pressure on providing sufficiency and opportunity to a global population estimated to reach 11.2 billion by 2030 (the majority of whom will be concentrated in developing nations) (IPCC, 2022; UNDESA, 2017);

- worsening levels of global hunger, food insecurity, (FAO, 2021; WHO, 2021b), heat stress (Y. Zhang et al., 2021) and water scarcities (WHO, 2019);
- rising greenhouse gas emissions with 2018 holding the record high of 55.3 GtCO₂e (UNEP, 2019);
- planetary boundaries including biosphere integrity, climate change, biogeochemical flows, and land-system change have been transgressed (O’Neill et al., 2018; Rockström et al., 2009; Steffen et al., 2015);
- displacement of millions of people in coastal regions vulnerable to sea level rise (Kulp & Strauss, 2019); and
- increased rates of biodiversity loss, including one million species currently at risk of extinction (IPBES, 2019).

Presently, “no country meets [the] basic needs for its citizens at a globally sustainable level of resource use (O’Neill et al., 2018, p. 88) and climate change is becoming an increasing risk to present and future generations due to amplifying feedbacks (Ripple et al., 2023). Because SDGs are non-binding and represent inexplicit targets (Ekardt, 2020a), some scholars suggest moving towards a nexus approach where co-benefits between goals are prioritised to minimise negative trade-offs (van Zanten & van Tulder, 2021). Others suggest that imposing legally-binding commitments that act as a basic norm (*grundnorm*) such as the rule of law or basic human rights is necessary to advance progress towards sustainability (R. Kim & Bosselmann, 2015). Accordingly, it is essential to prioritize SDG actions that will have positive feedbacks in support of multiple goals while simultaneously mitigating existential risks by identifying key leverage points where negative feedback loops threaten planetary wellbeing (Cernev & Fenner, 2020).

Through a systems approach, Cernev and Fenner (2020) have identified foundational SDGs that are critical to realizing the other goals while simultaneously supporting human and environmental health: SDG1 No Poverty, SDG3 Good Health and Well Being, SDG 14 Life Below Water, and SDG15 Life on Land. Furthermore, they identify SDG13 Climate Action, SDG4 Quality Education, and SDG2 Zero Hunger as the most important leverage points to realize the other goals. However, while these goals are critical, in order to reduce catastrophic risks and advance sustainability transformations, all SDG initiatives need to interact synergistically and mutually reinforce each other (Cernev & Fenner, 2020). As

currently written, many of the SDGs are contradictory, placing targets for growth (SDG8) against sustainability-enhancing goals (e.g., SDG 12.2 and 13) (Hickel, 2019). This further compounds the challenge of meeting the need for growth in material sufficiency for the disadvantaged in poor nations while also reducing the biophysical footprints of wealthy nations in order to stay within planetary boundaries (Hickel, 2019). Additionally, the legacy responsibility for overshoot in wealthy nations and the ethical obligations of global burden sharing are further obscured (Baer, 2013). Furthermore, while violent conflicts persist, solving climate change will not be possible because of the complexities of the global governance systems (Thorp, 2022). As Thorp (2022) explains, “To win the climate war, we must win the climate peace” (p. 7).

3.5.3 Sustainability requirements

Historic inequalities both between and within nations remain a key challenge for achieving individual and collective wellbeing (Wilkinson & Pickett, 2009; Steffen et al., 2015). This is in part because until human needs are met, environmental concerns will largely be viewed as a “luxury problem” (Ericson et al., 2014; p. 75). Although economic growth is necessary in some cases to alleviate privation, it is insufficient on its own to reduce inequities, eliminate privation, protect the environment, or ensure lasting wellbeing for all (Shah et al., 2012; Steinberger et al., 2020; Uddin et al., 2017). Similarly, optimism for technological and economic solutions for sustainability progress, while common, often fail to respect planetary limits and naively assumes that human innovation will continually improve conditions, or at least, solve current problems (Kish & Quilley, 2017). Other posed methods of inspiring more sustainable ways of being and doing, such as transitioning to authoritarian top-down approaches and different kinds of green radicalism (including communitarian resilience, low-no growth, eco-socialism, and open-source economies) represent a range of acceptance, ignorance, and evading biospheric limits (Kish & Quilley, 2017). Recognizing that the world’s wealthiest 10% generated over half (52%) of global carbon emissions from 1990-2015 and depleted the planetary carbon budget by 31% in just 25 years (Oxfam, 2020), there

is need to question how the pursuit of power and status can be transformed into less oppressive and materially-focused ways.

The contrast of old and new sustainability serves to elucidate a pivotal departure from tradition towards progress. Where old sustainability maintained order by preserving the past, new sustainability has been focused on maximizing human ingenuity to its fullest potential. Current challenges facing SES are unprecedented in both scale and complexity. Furthermore, the stakes are no longer merely local or regional, especially as rivalries between nations escalate and multipolar traps extending from forests to technologies now have the potential to endanger or annihilate most existing life on the planet (Bostrom, 2014, 2019; Brokowski & Adli, 2019; Gent, 2020; Schmachtenberger, 2020). The core requirements for a lasting transition towards sustainability thus necessitate developing simultaneous and linked undertakings aimed at i) stopping unsustainable activities; ii) reversing unsustainable trends; and iii) identifying and implementing alternatives (Gibson, 2017). In sum, broader systemic changes are required for sustainability progress that encourage a greater appreciation for complexity, resilience, and the challenges of large-scale transformations across SES.

3.6 Complexity, transformations, and resilience

3.6.1 Complexity

There is overwhelming evidence of a deepening unsustainability crisis and urgent needs for transitions to reverse the trajectory (Butler & Montzka, 2019; FAO et al., 2021; IPCC, 2018, 2022; UNEP, 2019; WWF, 2018). How to establish and implement suitable governance structures at multiple scales while inspiring behavioural changes that mutually reinforce sustainability remains a complex challenge that demands examination of alternative paths that foster appropriate necessary transformations in problematic SESs and build resilience and adaptive capacity in valuable SESs. Much of our unsustainable behaviour has emerged from our “fragmented, narrow thinking and hubris” (Gaudreau & Gibson, 2010; p. 233). Suitable correctives include integrative thinking that can embrace complexity and ambiguity

while being fully present to what is emerging (Csikszentmihalyi, 1990; M. C. Jackson, 2000; Marty-Dugas & Smilek, 2019; Nakamura & Csikszentmihalyi, 2009; Sheldon et al., 2015; Tainter, 2006). This approach is also essential for understanding how SES transform, adapt, and respond to perturbations (Walker & Salt, 2006). SES are not only linked, but interdependent, complex systems that adapt to feedbacks from subsystems and from larger and adjacent subsystems (Folke, 2006; Armitage et al., 2012; Olsson, Galaz, & Boonstra, 2014). Interactions between and among multiple SES scales (Liu et al., 2015), constant state of change, non-linearity, and stochastic nature, characterize some of the complexities and challenges of pursuing sustainability transformations within these systems (X. Bai et al., 2016; Berkes et al., 2003; Finsterwalder & Kuppelwieser, 2020; Ripple et al., 2023).

Complexity scholarship recognizes the non-linear and sometimes stochastic interactions of complex systems, particularly those bridging a combination of social, ecological, political, and technical realms (Berkes et al., 2003; Fang et al., 2015; Holling, 1973, 2001; Liu et al., 2007, 2015; Loorbach & Wijsman, 2013; Ostrom, 2009; Willamo et al., 2018). Given the interconnections among these systems from the micro to macro scales, interventions that enhance or reduce wellbeing in one system are likely to influence all other systems (Gibson et al., 2020). Sustainability therefore requires that undesirable systems are transformed (Meadowcroft et al., 2019; Patterson et al., 2017; Scoones et al., 2020) and that the resilience of desirable ecosystems is simultaneously enhanced (Foxon et al., 2009; MEA, 2005; Olsson et al., 2014). Efforts to transform some entrenched systems and institutions while increasing resilience are faced with the added challenges of catalyzing change in a complex, dynamic, and uncertain world (Armitage et al., 2012; Blythe et al., 2018; Hammond, 2020; Hickel, 2019; Swilling, 2020). Moreover, steps to address needs for substantial changes in governance structures and cultures face the added challenge of changing worldviews, values, and mindsets that govern these systems (Berzonsky & Moser, 2017; Waddock, 2015). Changing systems is very much context dependent and needs to consider factors related to inequitable power distributions (O'Brien, 2012), associated vulnerabilities (Swilling, 2020; Swilling & Annecke, 2012), and the constant uncertainty that pervades complex systems (SAPEA, 2019).

3.6.2 Transformations

For decades, scholars have advocated for sustainability transformations (Clark, 2001; Kates et al., 2001; Raskin et al., 2002; Schellnhuber et al., 2011; Weinstein, Turner, & Ibáñez, 2013) that can drive “radical, systemic shifts in values and beliefs, patterns of social behavior, and multilevel governance and management regimes” (Olsson et al., 2014, p. 1). Transitions and transformations – terms often used interchangeably – describe pathways which align SESs towards desirable futures (Hölscher, Wittmayer, & Loorbach, 2018). Both terms connote “radical, non-linear and structural change in complex adaptive systems” (Feola, 2015; Patterson et al., 2017; Hölscher et al., 2018, p. 1). Subtle nuances exist between the terms. For example, transition generally implies “fundamental social, technological, institutional and economic change from one societal regime or dynamic equilibrium to another” (Rotmans, Kemp, & van Asselt, 2001; Hölscher et al., 2018, p. 1). Conversely, transformations refer to “fundamental shifts in human and environmental interactions and feedbacks” (Rotmans, Kemp, & van Asselt, 2001; Hölscher et al., 2018, p. 1).

The normative approaches for SES actors, such as resource users and managers, aim to limit or slow the movement of valued systems from moving towards (or further along) unsustainable trajectories and optimize efficiency and performance, instead of recognizing feedback effects on larger systems (Armitage et al., 2012). This hampers sustainability progress (Walker & Salt, 2006) by supporting conventional management approaches that generate narrowly-conceived and insufficient incremental transitions as opposed to larger systemic transformations (Markard, Raven, & Truffer, 2012; Gorissen et al., 2016) and structural change (van den Bergh, et al., 2011; Olsson et al., 2014; Eisenhardt, Graebner, & Sonenshein, 2016; Gaziulusoy & Ryan, 2017; Lahtinen & Yrjölä, 2019). Desirable transformations are concerned with identifying appropriate sustainability pathways and moving from problems to solutions (Rockström et al., 2009; Raworth, 2012; Burch et al., 2014; Bai, 2015; Patterson et al., 2017).

Sustainability transformations are complex; they occur across numerous scales and systems, and are both dynamic and political in nature (van den Bergh et al., 2011; Patterson et al., (2017). Furthermore, political and governance systems that influence transformations frequently use different and conflicting methods to frame, interpret, scope, and perceive the benefits and limitations of change processes (Stirling, 2011; O'Brien, 2012; Patterson et al., 2017). As such, these dominant structures need to be challenged and sometimes deconstructed to facilitate sustainability transitions and enhance resilience and adaptability (Fazey et al., 2018; Feola et al., 2021). As some have argued “Transformability is at the heart of sustainability” (Hammond, 2020, p. 174). Furthermore, Hammond (2020) attests that since the causes of unsustainability are dynamic, so too the transformations towards collective flourishing must be dynamic as well, necessitating more open-ended and reflexive processes.

Transformations within SES are commonly examined in combination with resilience and adaptability. Resilience thinking is based on the idea that systems are constantly changing and that failure to recognize change increases vulnerability and threatens future opportunities for adaptation (Walker & Salt, 2006). Resilience thinking emerged from an ecological context and tends to be concerned chiefly about maintenance of desirable systems. Resilience refers to “the capacity of a system to absorb disturbance; to undergo change and still retain essentially the same function, structure, and feedbacks” (Walker & Salt, 2006, p. 32). In SES, resilience studies often focus on “the amount of change the system can undergo and still retain its function and structure; the degree to which the system is capable of self-organization; and the ability to build and increase the capacity for learning, adapting, and where necessary, transforming” (Berkes et al., 2003; Folke, 2006; Armitage et al., 2012, p. 3). Adaptability refers to “the capacity of a system (or parts of a system) to learn and adjust within a range of variability, or within a stability domain” (Walker & Meyers, 2004; Folke, Carpenter, Walker et al., 2010; Armitage et al., 2012, p. 2).

3.6.3 Resilience

Advancing sustainability goals requires that the resilience of components and interacting systems that contribute to SES flourishing are strengthened and supported, while those factors that endanger it (such as fossil fuel production and consumption) are transformed (Berkhout, 2008; Bahadur & Tanner, 2014). Feedbacks in resilience building occur at multiple scales (Adger, 2008), and can both positively (Folke et al., 2010) and negatively impact other systems (Berkhout, 2008; Bahadur & Tanner, 2014; Patterson et al., 2017). Therefore, narrowly focusing on enhancing resilience without respecting complex interactions can make systems less adaptive and more resistant to long-term transformation (Smith & Stirling, 2010). Moreover, by strengthening resilience of unsustainable systems, especially in governance regimes, dominant structures can prevent conscientization (Freire, 2000), thus impeding underprivileged individuals from recognizing and challenging social, political, and economic systems that institutionalize their oppression (Pelling & Manuel-Navarrete, 2011).

Scholars including Hausknot (2020) and Hammond (2020) argue there can be a glass ceiling – an unseen and unrecognized barrier – that acts as a systems boundary limiting sustainability transformations. Breaking through the glass ceiling requires a reorientation of values, norms, and outlooks, nothing short of a full cultural transformation (Hammond, 2020). This is particularly relevant in wealthy nations, which would need to reduce their environmental footprints by 40-50% in order to bring their biospheric demands down to a level where all people could live in a safe and just space (Raworth, 2012, 2017) and experience the “good life” within planetary boundaries (Hickel, 2019). As explained by Hickel (2019), collective flourishing necessitates a broad shift in focus away from the material deficiencies of poor nations towards reducing the excess of the wealthy nations.

3.7 Chapter summary

Modernity is fraught with interdependent systems of exploitation that threaten the long-term viability of socio-ecological systems. Practices such as mindfulness are becoming increasingly popular interventions for social and ecological wellbeing. There is both support and critique for leveraging mindfulness to advance sustainability progress. Sustainability transformations are characterized by complexity, uncertainty, change, resilience, and interdependence. Mutually supportive positive feedbacks are encouraged where they can support conditions for social and biophysical flourishing without deepening unsustainability. Chapter 3 continues this exploration by investigating the complementarities of mindfulness and sustainability and the potential for integration.

Chapter 4: Integration and complementarities of mindfulness and sustainability

“When we no longer hold a rigid self/other distinction, then we recognize that the world mirrors the self; that to work on the self it is necessary to work in the world, and to work effectively in the world, it is necessary to work on the self” (Eisenstein, 2013, p. 87).

4.1 Introduction

For the past three decades, sustainability efforts have been primarily focused on exploring “outer dimensions” – interventions relying on technology and governance – to advance sustainability. While some progress has been made in areas such as medicine and climate science, humanity is still far away from reaching the SDGs and urgent climate targets (IPCC, 2022). In response, proponents of inner transformations for progress towards outer sustainability advocate that mindsets, values, and beliefs need to be reoriented to endeavour systemic change. Some even argue that without more engagement with inner dimensions, it is unlikely that sufficient progress will be made for lasting wellbeing at outer scales (Berzonsky & Moser, 2017; Edwards, 2015; Gifford, 2011; Hanh, 2021; Koger, 2015; Koger & Scott, 2016; Parodi & Tamm, 2018; Rauschmayer, 2019; Sister True Dedication, 2021). Accordingly, this chapter explores complementarities between current mindfulness research and requirements for sustainability transformations.

4.2 Neglect of inner sustainability

There is growing awareness that while sustainable development and the field of sustainability in general has focused on transforming systems and the “outer world,” there has been very little focus on “inner sustainability” (Ives et al., 2020; Parodi & Tamm, 2018; Redvers et al., 2022; Sol & Wals, 2015; Wamsler et al., 2021). As a result, the inter- and intra-personal aspects of the individual or micro level transformations have been largely overlooked,

leading some to believe that “half of the sustainability universe is still mainly unrecognised and unexplored” (Parodi & Tamm, 2018, p. 1). Important to note is that delineating inner from outer dimensions, though helpful as a heuristic tool, is not without challenge as the boundary between these fields is permeable and ever changing. Moreover, the different dimensions are constantly in flux and interacting; they inter-are. Some caution that without recognizing the psycho-cultural (inner) dimensions of sustainability transformations, namely values and worldviews, the most challenging and stubborn obstacles to collective wellbeing are overlooked (Berzonsky & Moser, 2017; de Witt, 2016; Horlings, 2015; O’Brien, 2012). Worldviews in this study broadly refers to the “internalized system of deeply held beliefs, values and related identity (self-image) that informs the perspectives and behaviors of individuals, and – collectively – the institutions, practices and artifacts of a culture” (Aerts et al., 2002; Berzonsky & Moser, 2017, p. 16; Hiebert, 2008; Sire, 2015).

Mindfulness is currently being examined as an alternative pathway to build deeper understanding and commitment and to mobilize action on urgent sustainability challenges. This emerging body of research suggests that at least some forms of mindful practices can contribute to more compassionate (Shapiro et al., 1998; Condon et al., 2013), empathetic (Berry et al., 2018; Ericson et al., 2014), and pro-environmental behaviour (Barbaro & Pickett, 2016; K. W. Brown & Kasser, 2005; Thiermann et al., 2020). To clarify, pro-environmental behaviour refers to “behavior that consciously seeks to minimize the negative impact of one’s actions on the natural and built world” (Kollmuss & Agyeman, 2002, p. 240). Inspiration for this inclination frequently comes from nature, manifesting as self-transcendent emotions such as awe and compassion, that are supportive of collective flourishing (Zelenski & Desrochers, 2021). While pro-environmental behaviour is often beneficial for nurturing environmental awareness and connection, it does not necessarily lead to pro-sustainability behaviour.

Research also suggests that mindful practices increase awareness of pressing issues such as climate change (Anālayo, 2019a; Grabow et al., 2018; L. S. Loy et al., 2022; Panno et al., 2018), while also deepening connection to and concern for nature (Wang et al., 2019).

Consequently, scholars across different fields are recognizing that sustainability progress requires a realignment of social values towards more humane, equitable, and ecologically conscientious ways of knowing, teaching, and being (Kapoor, 2007; Amel, Manning, & Scott, 2009; Mueller & Greenwood, 2015; Edwards, 2015; Fischer, Stanzus, Geiger, Grossman, & Schrader, 2017; Guckian, De Young, & Harbo, 2017; Geiger, Otto, & Schrader, 2018; Loy, 2018; Panno et al., 2018; Parodi & Tamm, 2018; Wamsler, 2018; Wamsler, 2019).

4.3 The inner dimensions of sustainability

“When the spiritual dimension of our being is underdeveloped, we turn into pleasure-seeking automatons, plundering the planet in a mindless race called progress. This makes us self-centered and greedy for material wealth which leads to social disharmony and over-exploitation of natural resources, ignoring a vital fact that unlimited growth on a finite planet cannot be possible. When we live a life of greater self-awareness, we tend to consume less and, more so, less mindlessly. With this understanding comes the liberating realization that there is no sustainability without spirituality” (Dhiman, 2016, p. 17).

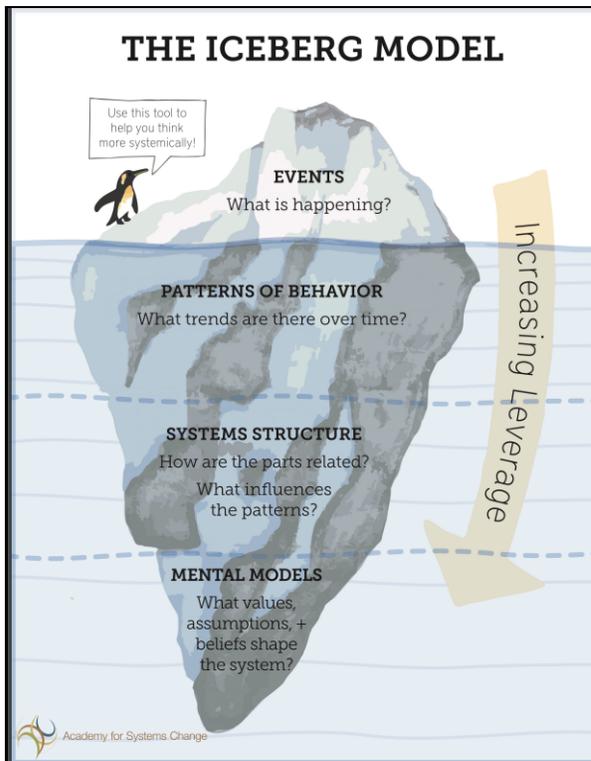
As noted, many trends towards deeper unsustainability continue to worsen despite technological advances and decades of warning (IPCC, 2022). Since sustainability progress requires changes at multiple scales – from individual to collective, from present to future, from local to global – it is vital to understand what encourages sustainable behaviours at the individual level. Research has found that pro-social and pro-environmental behaviours are shaped by a multitude of egoic (inner) and ecological (outer) considerations (Herziger et al., 2020; Kollmuss & Agyeman, 2002). As such, inner transformation requires a combination of individual capacities as well as supportive external environments to incubate change. These transformations are often initiated by practices such as mindfulness, and are becoming increasingly recognized as:

- strategic levers for systemic change (Kunstler, 2005; Koger, 2015; Wamsler, 2019);
- key practices for reducing emotional reactivity and worldview defence (Benedikter & Molz, 2011; de Witt, 2016; van Egmond & de Vries, 2011); and
- vital capacities for reflexivity and reflection (Cunliffe, 2004; Vu & Burton, 2020).

Scholars have long recognized that changing behaviours related to issues such as climate change does not transpire from merely providing people with more information (Mildenberger et al., 2019; Whitmarsh, 2009). Some scholars even caution that too much information, or information that is framed in ways that trigger emotional responses and worldview defence can actually prevent effective action and promote apathy, psychic numbing, anxiety, and denial (Grupe & Nitschke, 2013; Hathaway, 2017; Nelson et al., 1997; Park & Pyszczynski, 2019; Stoknes, 2015). Poorly framed messages can also prompt other undesirable effects such as consumerism (Akil et al., 2018; Kasser & Sheldon, 2000; Pyszczynski et al., 1999) while desensitizing individuals to planetary distress signals (Macy, 2007).

Accordingly, messages that appeal exclusively to biospheric reasons to reduce unsustainable tendencies such as consumption at the outer dimension fail to leverage inner dimensions including pre-existing values and mindsets, that are key for systems change (Abson et al., 2017; Herziger et al., 2020; Wamsler et al., 2021). Values, mindsets, and assumptions together form mental models that influence how one perceives and interacts with the world (Academy for Systems Change, 2022; Meadows, 2008; Senge, 2006). As represented in the classic Iceberg Model, these mental constructs, while integral to systems change, are often unconscious and poorly addressed (Figure 2.1).

Figure 2.1 The Iceberg Model



(Source: Academy for Systems Change N.D.)

Mental models are rarely made conscious despite being integral for catalyzing change as they influence how people perceive and interact in the world (R. J. Davidson & Kaszniak, 2015; K. M. Lempert & Phelps, 2016). Problematic values for long-term viability that shape mental models include anthropocentrism, dominion and separateness of humans and nature, individualism, limitless growth, and material-centred progress (Berzonsky & Moser, 2017; Butler et al., 2019; Eisenstein, 2018; Meadows et al., 1972; Scharmer & Senge, 2016). Within the context of climate change for example, mental models have often been homogenised by WEIRD scholars who fail to recognize the diversity of cultural influences on climate, conservation, and other sustainability challenges (Atkinson & Jacquet, 2021; Henrich et al., 2010; Simon, 2022). Some examples of this are the disregard for Indigenous knowledge in climate science including the SDGs and IPCC reports (Deluca, 2017; Ford et

al., 2012; Redvers et al., 2022), attempts to globalise and universalize WEIRD pedagogies (Hulme, 2010), and disregard for non-English research (Amano et al., 2021).

Since mental models are rooted in values, they both directly and indirectly influence decision making based on what and who people care about, as well as inform dominant values and beliefs surrounding modern Western culture (Henrich et al., 2010; Pirages & Erlich, 1974). Widening this circle of care to encompass others and the environment is crucial for sustainability progress, particularly when considering issues of equity (Kapuściński, 2008; Menton et al., 2020). Drawing on the field of depth psychology, supporting capacities for individual psychological transformation involves complex processes broadly conceived as “inner work.” Inner work for sustainability progress can be broadly conceived as a process of recognizing, investigating, and changing engrained patterns of thinking and doing in order to self-actualize in a more generative self-image that aligns inner and outer wellbeing (Hollis, 2018; Jung, 1970; McCallum, 2008; Plotkin, 2003; Vanier, 1998). Since providing people with more information often fails to elicit desired behavioural change, there is growing interest in mindfulness to increase awareness of and commitment to transformations at both inner and outer scales (Sheth et al., 2011). Mindfully surfacing mental models through reflexive practices engages a strategic and overlooked leverage point for sustainability progress.

Scholars have argued that mindfulness helps people see the world more reflexively by bringing awareness to subjective biases and habitual ways of being in the world much like “a map that helps us navigate life’s terrain” (Brewer, 2017, p. 13; Whitehead et al., 2016). Reflexive practices can encourage more critical reflection of the effects of unconscious assumptions, values, and actions (Cunliffe, 2004; Gunia et al., 2012) as well as the potential that lies in their reframing (K. L. O’Brien, 2016). Additionally, they can help bridge the disconnect between knowledge and action, and help people take responsibility for their actions (Hibbert & Cunliffe, 2015). However, while reflexivity can increase awareness of one’s complicity in systems that perpetuate unsustainability, it does not necessarily influence action.

In response, *moral reflexivity* offers insights into how one exists and engages in the world, with particular focus on ethical and responsible behaviours that are essential for sustainability (Vu & Burton, 2020). Chi Vu and Burton (2020) describe moral reflexivity as a combination of two mutually reinforcing elements: i) self-reflexivity—the capacity to examine one’s propensity to be and relate, and ii) critical reflexivity—the capacity to examine the foundational assumptions that underpin social and organisational systems (Gunia et al., 2012; Hibbert et al., 2014; Hibbert & Cunliffe, 2015). Moral reflexivity is aligned with traditional notions of Buddhist mindfulness that are concerned with nurturing both awareness of suffering and the desire to end it. Through mindful practices including loving kindness, individuals can develop skills to compassionately attune the lens through which they see and relate to self and others.

4.3.1 Wellbeing, resilience, and healing

The interdependence of human and environmental wellbeing represents a profound challenge and opportunity for sustainability progress. Humans are reliant on nature for all aspects of physical wellbeing (food, energy, shelter medicine, and materials), as well as cultural, spiritual, and immaterial components of the good life (IPBES, 2019; MEA, 2005). Moreover, how individuals interact, value, and recognize nature influences how institutions and governance systems operate and the kinds of relationship they have with the natural world (Abson et al., 2017). As previously mentioned, cultures that have sought a version of “progress” that comes at the expense of an exploited environment, deviating from practices of Old Sustainability, tend to collapse once they exceed the ecological capacity of their territory (Wright, 2004). With technological advances, this frontier has been extended both spatially and temporally. Despite technological advances, rapid population growth and increasing consumption rates exponentially outpace the regenerative capacity of the biosphere and that the effects of environmental despoliation tend to affect those least culpable for ecological harm (T. Cannon & Müller-Mahn, 2010; Ebi & Hess, 2020; Grunewald et al., 2017; Islam & Winkel, 2017; Kulp & Strauss, 2019; S. Schneider,

Sarukhan, et al., 2001). The small percentage of humanity that is profoundly undermining the ecological integrity of the natural world tends to be those who are most buffered from the adverse effects, including those of climate change (Crutzen, 2002, 2006; Schmeltz, 2021; Thiery et al., 2021).

There is robust literature supporting the numerous benefits of mindfulness experienced by many in terms of individual health and wellness, including reduced stress, anxiety, burnout, prevention of depression relapse, pain management, overall health (K. W. Brown & Kasser, 2005; K. W. Brown & Ryan, 2003; Sankar Sylapan et al., 2020; Wielgosz et al., 2019).

While it is beyond the scope of this section to review the impacts of mindfulness on individual wellbeing in detail, it is essential to recognize their cascading benefits at a systemic level. Furthermore, it is important to note how different perceptions of wellbeing impact sustainability progress and the benefits mindfulness has to offer for:

- increasing emotional regulation and awareness (Wielgus et al., 2020);
- strengthening individual autonomy and by extension pro-sociality by aligning actions with values (Ryan 2021)
- nurturing personal resilience and stamina necessary to work in fields susceptible to high levels of burnout and traumatization (Atti et al., 2017; Eriksen & Ditrich, 2015; Gorski, 2015; Y. Sun et al., 2021); and
- reducing suffering of those directly and indirectly affected by the ecocrisis and systems that perpetuate trends towards unsustainability (Hinton et al., 2013; Jaquette Ray, 2020).

Google Trends reveals that the term “mindfulness” saw sustained and increasing interest from the early parts of the millennium up until the end of the last decade. Searches peaked around February 2019, coinciding with the onset of the COVID-19 pandemic (Google Trends, 2022). Given the immense burden this global health emergency has placed on medical systems and the mounting adverse psychosomatic impacts of prolonged lockdowns on individuals (e.g., increased stress and anxiety), there is a growing need for accessible mental health interventions. There is research to suggest that practices such as mindfulness are effective for buffering against mental disorders by increasing resilience, psychological

flexibility, and overall wellbeing (Wielgus et al., 2020). Some have even considered meditative practices “essential tools” for helping people cope with emerging infections (Dalpati et al., 2022). Accordingly, interest in and adoption of mindfulness practices as an accessible, affordable, and scalable treatment for conditions such as stress, anxiety, and depression have expanded considerably since the beginning of the pandemic (Abbas, 2021; Behan, 2020; Tindle & Moustafa, 2021).

As previously noted, emotional regulation is foundational to wellbeing, particularly during times of distress (Berking et al., 2014; Katana et al., 2019; Kraiss et al., 2020; Vally & Ahmed, 2020). There is robust literature correlating meditation with emotional regulation (Bajaj et al., 2019; Basso et al., 2019; Heredia et al., 2017; Salcido-Cibrián et al., 2019; D. Wilson et al., 2022). Even short meditations (13 minutes per day) for eight weeks increased attention and memory while decreasing anxiety and stress response in people who were new to the practice (Basso et al., 2019). Similar results were found in yoga-based meditative practice over the course of two weeks (45 minutes per day) (Patel et al., 2018). Mindfulness based interventions, including MBSR and MBCT, utilize practices including breathwork and body scans to tether awareness to bodily sensations for the purposes of strengthening emotional regulation and reducing psychological disturbance (Kabat-Zinn et al., 1985; Z. V. Segal et al., 2013; E. Stahl & Goldstein, 2010). Emotional regulation is key for personal and collective change as it moderates how people attend, reflect, and react to stimuli (Brosch, 2021; Carlson et al., 2020; D. J. Davidson & Kecinski, 2021; R. J. Davidson & Kaszniak, 2015). As previously noted, it is important to understand how the emotional responses to sustainability messaging impact behaviours to effectively reframe messages, interrupt mindless reactivity, and nurture resilience.

Emotions represent both motivators and barriers to sustainability progress (Henderson, 2022; Jones & Davison, 2021; Marshall, 2014; Norgaard, 2011; Zelenski & Desrochers, 2021). Despite evidence that positive and hopeful messages are generally better motivators for rapid pro-environmental action and behaviour (Carlson et al., 2020; Ryan, 2016), the attention economy tends to exploit negative emotions that are more physiologically activating (Soroka

et al., 2019). Eco-anxiety, eco-anger, and eco-depression are some of the many reactions arising from dissatisfaction with global responses to climate change and the ecological crisis (Hickman et al., 2021; S. K. Stanley et al., 2021). Together, they refer to the general experience of solastalgia. Solastalgia broadly describes the “distress that is produced by environmental change” (Albrecht et al., 2007, p. 95). This feeling emerges when individuals witness distressing changes to natural and built environments that they love, disrupting their sense of place and home (Albrecht, 2020). Merely contemplating the ecocrisis can trigger immense grief and suffering (Clayton et al., 2017; Cunsolo et al., 2020; Cunsolo & Ellis, 2018; Ojala, 2017). Students for example have reported feelings of overwhelm, anger, and betrayal when learning about climate change and their lack of agency and power to influence the future (Jones & Davison, 2021). Similarly, Earth scientists engaged in climate communication are experiencing high levels of sustained stress and burnout (Gilford et al 2019). Limited resources and support to reduce the emotional toll of these and similar vocations concerned with climate are not only an individual mental health challenge, but rather an inter- and intra- generational wellbeing challenge. For example, in response to high levels of burnout, some environmental researchers leave the field and their “departures constitute a real cost to society, as valuable scientific expertise and institutional knowledge are being lost, precisely when they are needed most” (Gilford et al 2019).

Simply working in the sustainability field can also negatively impact wellbeing.

Environmental researchers have been found to experience traumatization by their direct and indirect exposure to damage inflicted on SES (Pihkala, 2020). Similarly, social and environmental activists are found to be especially susceptible to burnout (C. W. Chen & Gorski, 2015; Gorski, 2015). Not only are these experiences detrimental to wellbeing but they can also impede sustainability progress, especially when people develop maladaptive coping skills (Hickman et al., 2021; S. K. Stanley et al., 2021). In these cases, mindfulness practices that help promote acceptance, relaxation, and self-compassion are not only beneficial, but likely necessary to maintain resilience in high exposure professions or situations.

Some of the most obvious examples of high exposure to SES violence is in conflict and disaster areas. Here, mindfulness is approached as an intervention to inoculate against trauma (Hanley et al., 2015; Waelde et al., 2008), support victims and response workers who are suffering from stress, anxiety, PTSD, injury, and various forms of trauma (Atti et al., 2017; S. Chen et al., 2020; Eriksen, 2019; Eriksen & Ditrich, 2015; Fukushima et al., 2020; Hagen et al., 2016; Hechanova & Waelde, 2017). In these contexts, mindfulness is used to offer support for acute suffering and promote long-term healing during and post-disaster. One example of such an intervention is Mindfulness-Based Trauma Recovery for Refugees – a socially and culturally-attuned intervention that brings together mindfulness and compassion training for asylum seekers and refugees. The program is developed and delivered by members of affected communities and is also hosted within affected communities (e.g., East Africa and Israel) (Observing Minds Lab, 2022). Similar interventions in conflict or disaster areas utilize culturally adapted mindfulness and acceptance (CBT) programs to increase wellbeing and resilience, and promote healing through mechanisms of increased cognitive flexibility and emotional regulation as well as reduced somatic distress, rumination, and threat response bias (Hinton et al., 2013). The challenge, as many have cautioned, is skillfully navigating the “ethical responsibility of healthcare and trauma professionals to inform and develop a safe and sustainable practice” (Strand & Stige, 2021, p. 10).

This raises further questions surrounding the transformative capacity of mindfulness at an aggregate scale and what this could mean for sustainability progress. Evidence from Engaged Buddhist interventions (see below) and networks such as the Work that Reconnects offer insights into how activism grounded in Buddhist practices can endeavour positive change for the collective (Bhikkhu Thích Chân Pháp Án & Bhikkhuni Thích Nữ Chân Không, 2022; Hathaway, 2017; Kaza, 2008; S. King, 2009; Macy, 2007; Macy & Brown, 2014). Common to many of these practices is the rekindling of regenerative relationships with the natural world that support collective flourishing.

4.3.2 Mindfulness and nature connectedness

“One of the pre-eminent causes of the planet’s destruction is the collective loss of awareness of the interconnectedness that exists within Nature. Humans have lost their identity as organisms within a larger system and thus have lost awareness of how to live sustainably with Mother Earth. Ecological demise points to an impaired human relationship with its inner self (ie, humans are Nature and not apart from it). In the broader sense, there is evidence of the loss of an ecologically bound cultural identity. The disconnect from Nature manifests as a fragmented and dissociated identity that cannot recognise itself as part of a system, making it easier to project predatory and abusive impulses onto the environment. Thus, an ideology of independence has resulted in a sense of entitled ownership, a kind of utilitarian perception of the natural world that relates to it through transactional relationships that do not have a sense of responsibility, care or love. This worldview will only continue to perpetuate planetary harm”
(Redvers et al., 2022, p. e159).

Through the provision of goods and services, as well as having cultural and spiritual significance, the natural world plays an integral role in shaping human wellbeing (Keniger et al., 2013; Kibria et al., 2022). Individuals’ connections with nature influence their perceptions, values, and behaviours (Louv, 2008; Wells & Lekies, 2006). Accordingly, there is increasing support that a root of sustainability issues originates from a fragmented worldview whereby humans perceive themselves as separate entities—separate from other people and the natural world (Zylstra et al., 2014). This narrative of separation refers to the active distancing of humans from nature in an effort to control, dominate, and exploit it. History is replete with cautionary tales warning against the unbridled pursuit of material gain and teaching that efforts to control nature can lead to civilizational collapse and immense suffering (Wright, 2004, 2019). In stark contrast to 99.99% of human history, modern humans now live primarily in urbanized settings where they are physically separate from natural spaces (Li, 2018; Song et al., 2016). It has been argued that nurturing an emotional bond with nature happens through physical connection with the natural and that these connections are vital for human health and wellbeing (Ito et al., 2020; Kals et al., 1999; Keniger et al., 2013; Louv, 2008; Lumber et al., 2017, 2017; L. Martin et al., 2020; Song et

al., 2016; J. W. Zhang et al., 2014). Compounding challenges including environmental degradation and deepening inequities are accelerating biodiversity losses and increasing barriers to nature access (Colléony et al., 2022; IPBES, 2022).

The landmark Millennium Ecosystem Assessment Report (MEA) identified five core elements that link human wellbeing with the natural world: security, basic material for a good life, health, good social relations, and freedom of choice and action (MEA, 2005). These elements are closely tied to ecosystem services that support, provide, and regulate biospheric components that provide cultural value. As the MEA cautioned nearly two decades ago, humans have altered ecosystems at an unprecedented rate and scale in the pursuit of wellbeing. While certain populations have benefitted immensely from material gains, these improvements have come at great expense to the natural world and exacerbated rates of privation for many (Oxfam, 2020). As Vandemoortele (2018) notes, the Millennium Development Goals resulted in “Progress for people, regress for the planet” (page 84).

How we see ourselves and connect with the world around us are critical elements that influence how we understand and act on sustainability (Rauschmayer, 2019). Furthermore, our connection to nature often informs our biospheric values and how we enact these values (C. Martin & Czellar, 2017; Navarro et al., 2017). The late renowned entomologist Edward O. Wilson coined the term *biophilia*, which describes “the innate tendency to focus on life and lifelike processes” (E. O. Wilson, 1984, p. 1). Wilson advocates for deep contemplation in nature as a valuable part of the self-actualization process. Albrecht (2022) presents a similar notion of *soliphilia* to describe our love of place and our primal instinct to be in kinship with these nourishing spaces. Similar sentiments are echoed by scholars including deep ecology pioneer Arne Naess, who states that self-realization requires an understanding of the “deeper and broader self,” which encompasses the entire human and biospheric community (Naess, 1997, p. 24). Celebrated primatologist Jane Goodall also shares similar sentiments and attests that without a connection to nature, we become selfish as we are starved from something essential to our being (Taylor, 2010).

Progress for lasting wellbeing requires a shift in the exclusionary worldview that separates people from the emotive, moral, and spiritual elements of the natural world, and greater acceptance for alternative and more inclusive pedagogical approaches to Western science for collective sensemaking (H. Bai, 2015; Bostic & Howey, 2017; Chinn, 2015; W. Davis, 2009; Galafassi et al., 2018; Haarstad et al., 2018; Hensley, 2020a; Mueller & Greenwood, 2015; Pierce, 2015; Sameshima & Greenwood, 2015; Sol & Wals, 2015; Wodak, 2018). An important step in this transition involves a bioregional “reinhabitation” (Taylor, 2010), which re-contextualizes the concept of environment, and more locally, the landscape, as a communal place of abiotic, biotic, and cultural elements including religion, myths, and tools instead of lines on a map, or resources to exploit and consume (Snyder, 1990). Mindfulness practices such as Earth Scans (Cooper, 2021) are one way to increase both awareness of and connection to the natural world through contemplative means and may serve as a bridge in bringing people closer to the natural world especially when they are physically separate.

Scholars such as Koger (2015) suggest that mindfulness is likely a requirement for the transition towards a more sustainable society, and that spiritual practices that encourage a sense of community and interconnectedness represent a “recovery movement” to the ecocrisis (Kunstler, 2005). Connecting with nature through the senses via mindful practice expands the notion of self to encompass the natural world and deepens commitment to pro-environmental values and behaviour (Barbaro & Pickett, 2016; Dong et al., 2020; Dutcher et al., 2007). Additionally, through mindful practice, the benefits of nature exposure—including improved mood—can be augmented (Nisbet et al., 2019). Positive emotions such as compassion, awe, and appreciation often arise from interactions with nature (Dutcher et al., 2007; Lumber et al., 2017; C. Martin & Czellar, 2017; J. W. Zhang et al., 2014). Interestingly, these experiences also inspire pro-environmental behaviour, which positively influences social systems and supports collective wellbeing (Zelenski & Desrochers, 2021). Theoretical research summarizes six core arguments linking mindfulness and pro-environmental behaviour: 1) more awareness; 2) greater subjective wellbeing; 3) deeper connection with nature; 4) more pro-environmental behaviour; 5) awareness of intrinsic

values; 6) openness to novel experiences (Thiermann et al., 2020; Thiermann & Sheate, 2020, 2021).

Through a perspective of interbeing, mindfulness can enhance both social and ecological determinants of sustainability through mechanisms of compassion and empathy. By strengthening these relational and motivational capacities to reduce the suffering of others, there is an opportunity to enhance the therapeutic and regenerative qualities of the natural world for all beings (L. Martin et al., 2020; Richardson et al., 2020; Tam, 2013; Van Gordon et al., 2018). Accordingly, scholars describe mindfulness as a promising pathway of engagement for cultivating pro-environmental behaviour and attitudes through an increased connection with the natural world (Schutte & Malouff, 2018; J. Wang et al., 2019) Further studies support these findings, suggesting that mindfulness promotes environmentally-friendly behaviour, and that further research is warranted to explore the “self-serving, personal, and planetary health benefits which might be a more fruitful approach to promote ecological behavior than mainly cognitive, moral, or normative appeals” (Geiger, Otto, & Schrader, 2018, p. 9). Mindfulness offers some preliminary direction for how to conceptualize a new kind of sustainability ethic that recognizes the interbeing or interdependence of all life on the planet (Hanh, 2013; Lion’s Roar, 2016; Macy, 2009; Rauschmayer, 2019).

4.3.3 Collective flourishing through practices of Interbeing

The late Zen Master Thich Nhat Hanh was the most widely recognized engaged Buddhist and mindfulness leader in the West (Fitzpatrick, 2019). Hanh coined the term interbeing as a synonym for *sunyata*, the central Buddhist insight which is often translated as emptiness. As utilized by Hanh, deep awareness of interbeing produces and supports a holistic and systems view of the world that emphasizes the relatedness and interconnectedness of all things, and attests that nothing occurs in isolation (Hanh, 1987). Hanh’s work emphasizes the notion that humans are co-responsible for the care and protection of the planet, and that human and biophysical flourishing are intrinsically linked (Hanh, 2013). To overcome the environmental

challenges of today, Hanh (2013) suggests we need a spiritual revolution to cultivate awareness of our interconnectedness with all life and recognize that any assaults on nature inflict harm on us as well for we inter-are.

Interbeing has recently emerged in sustainability discourse as a viable pathway for achieving lasting wellbeing through individual and social transformation (Rauschmayer, 2019). Since interbeing dissolves barriers that separate us from them; me from we; humans from nature, it represents an ethical paradigmatic shift (Rauschmayer, 2019). Moreover, because sustainability challenges require the collaboration and participation of diverse stakeholders, practices such as mindfulness that encourage interbeing are increasingly important for overcoming barriers that thwart perspective taking and respectful dialogue (Capel, 2014). Furthermore, practices that foster ecological mindfulness can increase awareness of the entanglement of humans within the natural world (Chinn, 2015; Greenwood, 2015; Nyaema, 2017; Pierce, 2015). Eisenstein summarizes interbeing as a way to experience oneself in relationship with the rest of the world, including other beings and the land. Accordingly, he too attests that interbeing reminds us that whatever we do to the world, we do to ourselves (Eisenstein, 2013, 2018).

The concept of interbeing extends beyond just human-to-human relationships. When people see themselves as separate from nature and other persons, they are more likely to value the utility of the Other over their intrinsic worth, such as the valuation of trees as timber products instead of fellow living beings (Loy, 2018). This reductive worldview is a stark contrast from many Buddhist and Indigenous perspectives that hold an interdependent view of the world (Marrero and Mattei and Johnson et al 2015), as well as diverse place-based ontologies and epistemologies (Redvers et al., 2022). It is important to note that there are movements within the Buddhist tradition that utilize traditional teachings to inform actions on the ecocrisis. Engaged Buddhism for example is concerned with the cessation of collective suffering (King, 2009) and relies on support from the Sangha (community) to collaborate and support transformative collective action in a non-violent manner (Slott, 2015). Numerous Engaged Buddhists recognize that responding to the ecocrisis is essential in honouring tradition,

keeping relevant, and taking responsibility for the greatest challenge that both humanity and Buddhism have ever faced (Loy, 2018).

Some Buddhists even see the ecocrisis as a consequence of collective planetary karma (J. Stanley & Loy, 2009) and view climate change as an assault on the planet (Abels, 2016). In 2015 for example, Hanh, alongside His Holiness the Dalai Lama and several prominent Buddhists issued a statement at the Conference of Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) expressing the need for collective action on the ecocrisis (Global Buddhist Climate Change Collective, 2015). For the Dalai Lama (2009), the climate emergency is a lesson from Mother Earth, urging us to recognize our *universal responsibility* and moral imperative to care for the planet and other species. Without taking universal responsibility for the welfare of all beings, and accepting our interdependence and interconnectedness, he argues, we will not realize global peace and happiness. The Dalai Lama, for example, explains that wisdom, compassion, and moral education are foundational to collective flourishing and a more humane and just world—an ethical worldview rooted in interbeing (His Holiness the Dalai Lama, 2009).

Interbeing is only one expression of this systems approach to the vast complexity of the world and the wicked challenges humanity faces. More recently, the notion “fabric of life” is being used by leading environmental agencies including IPBES to articulate the interwovenness of humans within the natural world (IPBES, 2019; Larigauderie & Mooney, 2010). The fabric of life expression reflects all that has been “woven” by a combination of millions of years of natural processes and thousands of years of human habitation (Díaz, 2022; Díaz et al., 2019). Díaz et al (2019) argue that while addressing the direct drivers of nature destruction is essential to prevent more losses, urgent transformative change is needed to address indirect drivers and deeply-rooted causes including inappropriate and/or neglected values and worldviews. Greenberg and Mitra (2015) suggest that “universal and species-friendly” ethical principles are necessary for sustainability and could draw on 1) the Hippocratic Oath to do no harm, 2) notions of interdependence and commitment to reduce egotism (Scharmer & Senge, 2016), and 3) the Golden Rule of treating others as one wishes

to be treated. These ethical qualities are concerned with supporting the wellbeing of self and others through mechanisms of compassion and empathy.

4.4 Compassion, empathy, and ethics

“The cooperative and caring emotions, particularly those that are directed at conserving and preserving life on Earth, have been part of human experience from our beginnings as a species. However, they are now being masked and sublimated by the overwhelming forces of the Anthropocene”
(Albrecht, 2020, p. 22).

While the planet is experiencing a phenomenon of global warming, Ferrucci (2006) argues that humanity is experiencing a “global cooling” (p. 7). “Human relations are becoming colder. Communications are becoming more hurried and impersonal. Values such as profit and efficiency are taking on greater importance at the expense of human warmth and genuine presence” (Ferrucci, 2006, p. 7). Nurturing nourishing states of mind are therefore essential to grappling with social and ecological challenges. The cognitive capacity to feel into the suffering of others (empathy) and the desire to end their suffering (compassion), are deeply entwined with Buddhist ethics. In certain cases, mindfulness practice has demonstrated numerous benefits for enhancing commitments to more equitable and ethical ways of being and doing. Some of these benefits include:

- increasing capacities and states for individual and collective wellbeing;
- cultivating greater compassion and empathetic responses to suffering; and
- living by an ethical code that is concerned with reducing suffering.

Traditionally, mindfulness was practiced as part of the Eightfold Path. This ethical path outlines the journey from ignorance to awakening that liberates an individual from unwholesome states of mind that create suffering (Mitchell & Jacoby, 2014). Each step in the path is mutually supportive and mutually reinforcing of other path elements. As such, it is meant to be approached as an ethical package as opposed to individual self-help processes.

While nirvana—a state reached via complete spiritual awakening— is regarded as the ultimate emancipatory freedom from rebirth, the Eightfold Path (Table 2.0) is essentially the route to lasting happiness and peace in this life (Mitchell & Jacoby, 2014).

Table 4.0: The Eightfold Path

Eightfold Path		
Proper View [wisdom] <i>Way of thinking that orients a person towards awakening and nirvana</i>	Right Understanding	Clear understanding of things as they are, cultivation of wisdom that leads towards awakening and nirvana
	Right Thought	Clear insight into the nature of reality, pure and wholesome thought that is motivated by concern for the wellbeing of others
Proper Conduct [morality] <i>The path towards moral purity and living</i>	Right Speech	Sowing peaceful seeds by speaking only in compassionate ways that support the dignity of others
	Right Action	Practice abstention from harmful behaviours by adherence to the Five Precepts (do not kill, steal, commit sexual misconduct, lie, or consume intoxicants) in order to avoid creating suffering and bad karma, and to cultivate a stable foundation for carrying out other right practices
	Right Livelihood	Pursue a living that does not undermine the wellbeing of others (intended for lay people)
Proper Practice [concentration]	Right Effort	Prevent and abandon unwholesome states of mind while producing and cultivating wholesome states
<i>Practices to align view towards wisdom that leads to awakening and align behaviour towards an awakened life</i>	Right Mindfulness	An awareness of one’s mental, physical, and emotional states in the present moment that helps people discern wholesome and unwholesome patterns of thoughts and behaviours. Right mindfulness also brings a clarity of how one must live with compassion and respect to skillfully contribute to bettering the condition of the world to reduce suffering

	Right Concentration	Concentration attuned to the cultivation of insight and transformation from suffering to nirvana
(Adapted from Mitchell & Jacoby, 2014, pp. 52–58)		

4.4.1 Compassion

Through the cultivation of Right Insight, one develops the skills and capacities to nurture Right Thought and through this, compassion and empathy. Both states are correlated with prosocial (Klimecki et al., 2014; Leiberger et al., 2011) and pro-environmental behaviour (Berenguer, 2007; Dickinson et al., 2016; Pfattheicher et al., 2016). Compassion is defined as “feeling genuine concern about the suffering of another and the desire to improve that one’s welfare” (Halifax, 2018, p. 206). Or as His Holiness the Dalai Lama explains, it is “the wish for others to be free from suffering” (His Holiness the 14th Dalai Lama & Chodron, 2014, p. 215). In this context, the notion of Others extends beyond people to the more-than-human world. Compassion is comprised of both cognitive and emotional / somatosensory elements and can be operationalized and strengthened by practices such as mindfulness (Khoury, 2019) Through compassion, one is motivated to tend to *both* their own suffering *and* the suffering of others in a sustainable and responsible manner (Halifax, 2018). If an individual slips into despair when concerning themselves with the suffering of others, this is not true compassion in the Buddhist sense (His Holiness the 14th Dalai Lama & Chodron, 2014).

The benefits of compassion are shared at both the individual and collective level since those who give, receive, or bear witness to compassion are all positively affected (Greenberg & Turksma, 2015; Penttinen, 2016; Singer & Klimecki, 2014). Mind-body practices including mindfulness meditation and yoga are correlated with pro-environmental behaviour through mechanisms of self-compassion and global identity (L. S. Loy et al., 2022). These practices are also associated with the concept of “global identity” (L. S. Loy & Reese, 2019). Loy and Reese (2019) suggest that

the hype of practicing yoga and meditation in our society might indeed bear hope for positive societal outcomes that go beyond individual well-being and self-interest, such as identification with all humanity and engagement in environmental protection... we specifically suggest that teachers of mind-body classes could more often explicitly discuss the idea of a global identity, namely connectedness of all humans (or even all living) and similarities between people, in order to promote its cultivation (p. 101340).

Researchers have found that mindfulness practices can increase compassion and bridge theory with action in ethical education programs (Paulson & Kretz, 2018). RAIN is a 4-step mindfulness practice developed by Brach (2020) to help cultivate compassion. The process involves:

- **Recognizing what is happening:** taking notice of your sensations
- **Allowing life to be just as it is:** accepting what is currently unfolding without judgment
- **Investigating with a gentle, curious attention:** kindly attune to your experience and its resonance in your body
- **Nurturing with loving presence:** sensing into what is needed, gently offer yourself inward care and healing

Adapted from: (Brach, 2019, 2020, pp. 48–49)

4.4.2 Empathy

Understanding the experience of others, whether sharing emotions or postulating their thoughts, is essential for smooth social interaction and increasing commitments to reduce the suffering of others (Kanske et al., 2015; Tam, 2013). Empathy is a socio-affective process whereby an individual shares in the feelings of another (de Vignemont & Singer, 2006). Defined as “the ability to form an embodied representation of another’s emotional state, while at the same time being aware of the causal mechanism that induced the emotional state in the other,” empathy is important for fostering cooperation and altruism (Gonzalez-Lienres et al., 2013, p. 1538). The evolutionary benefits of empathy are therefore not only

prosocial, but also correlated to increased survivability of offspring born to mammalian self-aware species and reflects a higher complexity of child rearing that extends beyond feeding to encompass nurturing and comforting (Gonzalez-Liencrez et al., 2013). While empathy is concerned with feelings, the socio-cognitive process referred to as Theory of Mind (ToM) is concerned with understanding the thoughts and intentions of another (Preckel et al., 2018; Saxe & Kanwisher, 2003; Tholen et al., 2020). Both empathy and ToM are vital capacities for positive social interaction and skillfully navigating conflict. Absent practice and sustained awareness, incidents of conflict can diminish empathic concern, leading to an erosion in trust and interpersonal skills (Hanson, 2009).

While empathy is “an important feature of compassion,” it needs to be stewarded to avoid slipping into empathetic distress (Halifax, 2018, p. 83). Part of this stewardship involves holding two paradoxical truths: 1- that there is no Other (interbeing), and 2- that there is also a difference between self and the Other (Ibid.). Left unchecked, maladaptive resonance leading to emotional exhaustion, compassion fatigue, and empathic distress can cause moral injury and immense suffering (C. W. Chen & Gorski, 2015; Cohen-Serrins, 2021; Dean et al., 2019; Gorski, 2015; Grimes, 2020). Important to note is that it is not feelings of empathy that lead to compassion fatigue, but instead insufficient resources, lack of positive feedback, and high stress, reflecting systemic barriers to cultivating sustainable levels of these caring capacities (Coetzee & Laschinger, 2018). These experiences are commonly experienced in professions or lifestyles that are conducive to caring for others (e.g., medicine, social and or environmental justice) (Best et al., 2020; Coetzee & Laschinger, 2018; Heshmati & Caltabiano, 2020; McVety, 2021). Rescue workers for example are often faced with high levels of occupational stress and exposure to vicarious traumatization (Argentero & Setti, 2011).

Compassion training can help reduce suffering and burnout (Klimecki et al., 2014) and has been described as “an emotion-regulation strategy” (Preckel et al., 2018, p. 4). Furthermore, compassion is positively correlated with ethical sensitivity and that mindfulness along with shared humanity further support this heightened sense of morality (Bilgiç, 2022).

Mindfulness-based interventions have been found to increase prosocial responses to suffering (Best et al., 2020; Condon, 2019; Condon et al., 2013; K. T. Jackson, 2018; Jazaieri et al., 2013; Jinpa, 2019; Neff & Germer, 2013; Patel et al., 2018; Trautwein et al., 2020).

However, not all mindfulness programs are effective at increasing empathy and compassion. MBSR for example was found to be relatively ineffective compared to Cognitive Behavioural Group Therapy for improving affective empathy levels for individuals suffering from Social Anxiety Disorder (SAD) (Morrison et al., 2019). GRACE is a 5-step active contemplative practice developed by Roshi Joan Halifax to help people cultivate empathy. The process consists of:

- **Gathering our attention:** pausing and grounding attention
- **Recalling our intention:** connecting with the motivation to be of service to others by acting with respect and integrity
- **Attuning to self and then other:** reflexively noting our inner landscape before sensing into their experience
- **Considering what will serve:** discerning wise and compassionate action to take that will be of best service
- **Engaging and then ending the interaction:** taking ethical action and then reflecting on what transpired before moving on.

Adapted from: (Halifax, 2018, pp. 54, 240–243)

4.4.3 Ethics

Sustainability and ethics are interdependent – sustainable behaviour necessitates an ethical mindset which in turn supports more sustainable behaviours (Marques, 2016). Furthermore, sustainability challenges are ethical in nature given that environmental degradation emerges from a worldview that legitimizes human control, dominion, and exploitation of nature (Kim & Bosselmann, 2015). By disproportionately burdening the most vulnerable, while also compounding inequalities, issues such as climate change require ethical considerations and commitments that encompasses a broad concern for those with the fewest resources and least amount of resilience to face emerging hazards (Ebi & Hess, 2020; Islam & Winkel, 2017).

Accordingly, some suggest that through discernment and secular ethical principles, right

mindfulness can move the sustainability agenda from “what is not” → “what is” → “what could be” → “what is beneficial” (Greenberg & Mitra, 2015, p. 77). Expanding from a triple bottom line model of people-planet-profit to a model that encompasses an ethical framework that informs decision making in an ethical manner is vital in this process (Ramanan & Taback, 2016). Many modern integrative worldviews share a common concern for ethical commitment and aim to braid spirituality and traditional ways of knowing with scientific realism, thereby opening pathways for both inner and outer change (Benedikter & Molz, 2011).

Through an intergenerational equity perspective, it is important to recognize that sustainability knowledge shared with younger generations has a ripple effect into society and future generations. Unfortunately, not all schools engage in sustainability discussions and therefore fail to leverage the potential impact students may have within their homes and communities to share knowledge and best practices (Fabbrizzi et al., 2016). Fabbrizzi et al. argue,

“A policy that has sustainability as its regulating principle should have school as the stepping stone to face this challenge, as school is the p[l]ace [*sic*] invested in the growth of cultural capital and, as a consequence, in the improvement of individual abilities to make conscious choices coherent with sustainability” (Fabbrizzi et al., 2016, p. 600).

4.4.4 Mindful consumption and green citizenship

How to best prompt action on meeting the SDGs in a manner that does not elicit unsustainable responses while simultaneously strengthening commitments to engaged responsible behaviours is a daunting task. Human consumption remains a significant barrier for meeting the SDGs, particularly action on climate change (Dietz et al., 2007; Ehrlich & Holdren, 1971; Frank et al., 2019; Goleman, 2011; Guckian et al., 2017; A. K. Moser, 2015). Researchers have found several benefits of mindful practice for promoting more mindful

consumption while also promoting green citizenship including:

- reduced reactivity and compulsions towards short-sighted material gratification (Amidon, 2000; Kaza, 2008; Macy, 2009);
- more ecological and socially conscious purchasing (Dhandra, 2020; H. J. Park & Dhandra, 2017; Y. C. Park & Pyszczynski, 2019);
- recontextualized version of the “good life” (Koper 2007); and
- non-material sources of meaning, fulfillment and joy (Chu & Mak, 2020; Crego et al., 2021; Dhandra, 2019; D. Fischer et al., 2017; Hunecke & Richter, 2019).

As the global middle class grows, so too does the demand for resources, further stressing an already exploited biosphere (Ericson et al., 2014a). Changes in individual behaviour are therefore required to reduce resource consumption, extraction, pollution, and waste. Beyond those necessary for material sufficiency, possessions do little to contribute to overall happiness and wellbeing, and in excess, can be detrimental (Easterlin, 2001; Jensen, 2009; Kasser, 2002). Despite the rising popularity in alternative lifestyles and economic models such as degrowth (Büchs & Koch, 2019; Dengler & Seebacher, 2019; Martinez-Alier et al., 2016; Schneider et al., 2010), Transition Towns, Rights of Nature (Escobar, 2015), circular economy (Velenturf & Purnell, 2021), minimalism (Herziger et al., 2020), and environmental resistance groups (Pelenc et al., 2019), consumption levels intensify, further stressing an over-exploited biosphere (Dhandra, 2019).

To shift away from destructive materialistic habits, people are encouraged to make more eco-conscious purchases and reduce overall consumption (Dhandra, 2019). Consumerism is a cultural phenomenon whereby individuals attempt to acquire meaning, satisfaction, happiness, and acceptance through consumption beyond items of necessity (Assadourian, 2010; Chancellor & Lyubomirsky, 2011). Ecological economists have long grappled with the challenges of exponential growth and consumption on a finite planet (Meadows et al., 1972; Raworth, 2012, 2017). A common response to this challenge involves efforts to green the economy while maintaining current levels of consumption with minor attempts to mitigate damages and reduce material growth (Guckian et al., 2017). Greening the economy and

similar interventions fail to examine the underlying psychological drivers that prompt consumer impulses and therefore overlook key leverage points for transformation.

Mindful consumption—an approach to consumption in which impulsive acquisitiveness is tempered by building a deeper commitment to the wellbeing of the individual, community, and environment at large—is a relatively unexplored and promising pathway for sustainability progress (Dhandra, 2019; Hunecke & Richter, 2019; Richter & Hunecke, 2022; Sheth et al., 2011). Scholars suggest that by enhancing the valuing of one’s inner life instead of personal possessions, mindfulness has the potential to contribute to pro-environmental norms by encouraging non-materialistic notions of wellbeing (S. Chen & Jordan, 2018; Y. S. Chen et al., 2015; Jacob et al., 2009; Khoury et al., 2017) and deepening nature connection as described above (Howell et al., 2011). Through the cultivation of awareness and non-reactivity, mindfulness buffers emotional impulses in consumer society (Fischer, et al., 2017) and instead nurtures more generative behaviours and understandings (LeDuc, 2016; Maté, 2009). By bringing awareness to reactions driven by greed and desirousness, mindfulness practices have been linked with reduced non-essential purchasing (Abels, 2016).

A recent systematic review found that mindfulness offers several potential beneficial pathways for sustainable consumption including disrupting routines, harmonization of attitude and behaviour, pro-social and pro-environmental behaviour, eudamonic wellbeing, and health (Geiger et al., 2019). However, as the authors were careful to note, while there are some links and potential pathways, direct causal evidence linking mindfulness with sustainable lifestyles is very limited. Other studies have found that mindfulness offers some tempering effects on materialism and overconsumption (K. Brown et al., 2007; K. W. Brown & Kasser, 2005; Frank et al., 2019; Niemiec et al., 2010; Wang et al., 2017). Individuals with high levels of self-reported mindfulness are also associated with sustainable consumption, resource conservation, responsible purchasing, and support communal sharing (Helm & Subramaniam, 2019). Grabow et al., (2018) for example demonstrated the feasibility of integrating sustainability and climate information into an eight-week hybridized MBSR educational program to reduce greenhouse gas emissions. Thiermann et al (2020) found that

advanced meditators experience higher levels of happiness, motivation for pro-environmental behaviour, and consume less animal protein. In both cases, however, there are significant research limitations, particularly concerning causality and how much mindfulness practice was responsible for behaviour change (Barrett et al., 2016; Grabow et al., 2018).

Mindfulness has been recognized as a potentially “universal and effective instrument” for encouraging a shift away from unsustainable consumption patterns towards more sustainability-oriented perceptions and values (Lengyel, 2015, p. 36). Moreover, some argue that mindfulness practices offer a viable pathway to help individuals contend with complex, conflicting, and uncomfortable thoughts, which is essential for mobilizing action on climate change (Dickinson, 2009; Jorgensen, 2015). Scholars such as Ericson et al. (2014) suggest that mindfulness-based interventions could reduce the effects of the “hedonic treadmill” (p. 75) and diffuse the power of marketing and other materialism drivers (Milne et al., 2019). While the application of religious and spiritual practice in sustainable consumer behaviour appears promising it is a relatively novel area of inquiry (Lee et al., 2016; Fischer, 2017; Werner, Spiller, & Meyerding, 2019) and challenges to its operationalization remain (Milne et al., 2019; Werner et al., 2019). Furthermore, these practices are generally concerned with reducing overconsumption and neglect deeper systemic issues that perpetuate underconsumption – the inability of people to meet material sufficiency and basic needs (Celep & Diktaş, 2021; Clark, 2007). These interdependent complex challenges are amplified by the increasing demands of a globalized marketplace.

4.5 Navigating VUCA

“It’s not just that the world is changing exponentially and our ability to make sense isn’t keeping up. It’s that we’re witnessing a collapse of meaning all together. We experience that gap every day as uncertainty, anxiety, and confusion. Even our most familiar and trusted landmarks can’t tell us which way is up anymore” (Wheal, 2021, p. 10).

The rapid acceleration of technology and various forms of progress since the Industrial Revolution have thrust humanity into VUCA (volatile, uncertain, complex, and ambiguous) times (King & Badham, 2019). Rapidly transforming sustainability challenges are increasingly complex and now have global repercussions. As Albrecht laments, the rapid evolutionary change humanity is witnessing is unprecedented and as a result, the current era is one of “pervasive change, where the old languages, like the wisdom of the elders, have diminishing relevance and traction with respect to how we should live for the future” (pg. 10). In response to what has been described as a breakdown in the quality of collective sensemaking, skills that support metacognition and critical thinking are urgently needed to help individuals develop greater discernment, agency, and decision-making processes as the information ecology becomes increasingly polluted through mechanisms such as narrative warfare (Schmachtenberger, 2019). Mindfulness has demonstrated beneficial qualities for rehabilitating the collective “information ecology” and navigating VUCA territory including:

- attentional regulation (Basso et al., 2019; Heredia et al., 2017; Huang et al., 2019)
- reducing polarization (Alkoby et al., 2017; Simonsson et al., 2022);
- decreasing anticipatory anxiety that arises from uncertainty (Grupe & Nitschke, 2013);
- increasing complexity tolerance (Vanderlinden et al., 2020; Weick, 2015; Weick & Roberts, 1993; Weick & Sutcliffe, 2007); and
- nurturing capacities for greater discernment and agency (Greenberg & Mitra, 2015; Hanley et al., 2015; Vu & Burton, 2020).

King and Badham (2019) define mindfulness as “a quality of mind that attends to experience, avoiding or overcoming mindlessness by giving full and proper attention to presence, context and purpose” (p. 6). They explain that notions of “deep mindfulness” gesture towards a more generative conception of mindfulness beyond McMindfulness that can develop and nurture skills necessary to navigate VUCA environments through effective leadership training. Additionally, they recommend development of programs that together can transform organizational leadership through mindfulness, thereby nurturing:

- individual mindfulness: enhancing leadership capacities for awareness, attentiveness, and acceptance of experience;
- individual wisdom: enhancing leadership capacities for reflexivity, relationality, and purpose through individual and collective meaning making;
- collective mindfulness: enhancing the adaptability, reliability, and resilience of organizations; and
- collective wisdom: enhancing consciousness that supports responsibility, collaboration, and sustainability through governance.

Adapted from (E. King & Badham, 2019, p. 7)

4.5.1 Wicked problems, sensemaking, and complexity tolerance

Planetary challenges such as climate change are manifestations of VUCA and are often referred to as “wicked problems” – challenges characterized by having numerous “known unknowns, unknown knowns, and unknown unknowns” (Rittel & Webber, 1973; Sturmberg & Martin, 2020, p. 1). Often characterized by unbounded positive feedbacks, these challenges are fraught with complexity, yet tend to attract highly insulated, self-referential, and disciplinary-exclusive responses (Biggiro, 2012; Meppem & Bourke, 1999; Thompson, 2004). These responses lack what John Keats referred to as “negative capability” or the capability to be “in uncertainties, Mysteries, doubts, without any irritable reaching after fact & reason” (French et al., 2009, p. 2). This capability for complexity tolerance is linked to mental flexibility, which Bateson (2021) argues is essential for perceiving several descriptions of multiple variables in complex systems. “The ability to perceive paradox, and avoid the impulse to choose a path down one side or the other, is essential for our future interactions with complex systems” (N. Bateson, 2021, p. 170). Mindfulness has been found to increase complexity tolerance by enhancing cognitive abilities such as mental flexibility, discernment, and learnability (Gupta et al., 2021) and reducing barriers to communicating epistemic uncertainty (Epstein, 2021).

Given the urgency and scale of transformations needed to direct humanity towards a more sustainable future, a more deliberate, systemic, and inclusive broadening of perspective is required. Furthermore, for transformations to truly be sustainable, this process must also

invite opportunities to re-examine previously marginalized worldviews and sensemaking schemas (Milkoreit et al., 2015). Sensemaking is critical to survival, particularly in times of heightened stress such as in crisis situations. The manners by which rapidly unfolding and often incomplete information is processed impacts decision making and can have devastating consequences for collective wellbeing (Crayne & Medeiros, 2020; Ji et al., 2018; S. Segal, 2011; Weick & Sutcliffe, 2007). High reliability organizations (HROs) including nuclear, medical, and military bodies, have demonstrated that collective mindfulness is essential for preventing, detecting, mitigating, and adapting to emerging threats (Weick & Sutcliffe, 2007). Furthermore, when faced with disconfirming information that may be threatening or gesturing to a future challenge, both individual and collective mindfulness (rooted in wisdom) are essential (Aviles & Dent, 2015; Becke, 2014; E. King & Badham, 2019). In these life and death settings, mindfulness is attuned to complexity and concerned with failure, oversimplification, attentiveness, resilience, and deference to informed decision making (Vogus et al., 2014; Weick & Roberts, 1993; Weick & Sutcliffe, 2007).

Instead of conventional mechanized organization models, high reliability organizations recognize the entanglement of employees within complex systems and actively nurture an organizational culture that values collective awareness in a turbulent and impermanent environment. While not all groups are faced with the same high stakes as HROs, large-scale or planetary threats including climate change, natural disasters, conflict, or the COVID-19 pandemic, reinforce the importance of collective awareness. (For a comparison of individual and collective mindfulness see (Sutcliffe et al., 2016). In addition to greater reliability, scholars have also noted that mindfulness at the organizational level can increase environmental productivity through initiatives that reduce energy and water consumption and waste production, and also increase recycling initiatives (Umar & Chunwe, 2019, p. 454). The issues around sensemaking during VUCA times become even more important as we are increasingly “hypnotized by a host of human-made technologies that only reflect us back to ourselves” making it easier “for us to forget our carnal inherence in a more-than-human matrix of sensations and sensibilities” (Abram, 1997, p. 22).

4.5.2 Attentional regulation

A significant challenge for navigating VUCA with discernment is the growing influence of the “attention economy” – an industry based on the commodification of human attention (Mintzer, 2020). The plethora of distractions available at one’s fingertips is now unprecedented. As others have explained “we live in an era in which *human attention* has become the most important resource and the most widely traded economic good in the world (Benedikter & Giordano, 2011, p. 2). Distractions reduce cognitive capacity by increasing reaction times, errors, and response omissions (Damaso et al., 2022). The implications of distraction can be as benign as dropping a knit stitch or as perilous as nicking an artery in surgery or accidentally initiating a nuclear war (Gorvett, 2020). Distractions have become normalized and monetized via media platforms that promote continual consumption of both content and material goods (Bhargava & Velasquez, 2021). Consequently, mass media has become a powerful cultural force, acting as an “inversive” technology that infiltrates and shapes both the individual human body and broader social networks through consumption processes (Benedikter & Giordano, 2011, p. 2). The negative effects of social media, for example, are plentiful and include increasing polarization (Levy, 2021; van Bavel et al., 2019), promoting conspiratorial ideation (Bantimaroudis, 2021; Beene & Greer, 2021; Romer & Jamieson, 2020; Theocharis et al., 2021), as well as negative impacts on mental health (Braghieri et al., 2022) and self-image (Eldaly & Mashaly, 2022).

Linked to greater attentional regulation are capacities such as discernment (making sense of often incomplete or complex information) and agency (making more responsible and informed choices based on critical assessment and reflection). Increasing capacities for attentional regulation, through mechanisms such as mindfulness, are thus often seen as imperative for reducing the negative effects of competing stimuli (Basso et al., 2019; Moore et al., 2012) and rivalrous proclivities (Simonsson et al., 2021, 2022). The attention economy has not only increased addictive engagement with digital devices, but is also having detrimental consequences in society including the erosion of democracy, spreading of dangerous misinformation (Lewis, 2017), heterodoxical thinking and cancel culture (Daum,

2019). In the United States, the spread of misinformation is a lucrative business that is fueling increased polarization around controversial topics such as vaccination, evolution, and climate change (Scheufele & Krause, 2019). Climate change in the USA is an especially contentious partisan issue with opponents to climate action backed by a very strong and lucrative denial industry (Das, 2020; Wong-Parodi & Feygina, 2020). The purpose of this denial industry is not necessarily to disprove climate science, but rather to spread doubt (Scharmer, 2020).

4.5.3 Conspiratorial ideation and misinformation

Though the content varies, conspiracy theories have long been endemic across cultures (Beene & Greer, 2021). Technologies such as personal computers and cell phones have provided a largely unregulated global platform to create, share, and engage in misinformation. Most Americans now access information via social media (predominantly Facebook) despite concerns regarding accuracy (Shearer & Matsa, 2018). Because many individuals lack the skills necessary to validate the information they consume, particularly online (Beene & Greer, 2021), networks that spread misinformation are a significant challenge for sustainability transformations at scale.

Conspiratorial ideation, which thrives in environments that discredit science, metastasizes and spreads through the unregulated channels of the internet. Belief in conspiracy theories can have negative social (Leonard & Philippe, 2021) and environmental consequences (Lewandowsky et al., 2017; Linden et al., 2017; Sternisko et al., 2020; van der Linden, 2015). The internet has therefore not only radically transformed how people access information, but also how they make sense of it, or intentionally obscure sensemaking for others. Recognizing that most people prefer cognitive ease over strenuous processing, efforts made to simplify information uptake, via fewer words or repetition for example, generally lead to higher rates of acceptance (Kahneman, 2013). This, combined with characteristics that make information catch on, such as social currency (Berger, 2013), have made platforms

such as Twitter powerful advocacy tools. With just 280 characters, Twitter relies on emotionally charged rhetoric to disseminate information that, without context or nuance, almost instantaneously either reinforces or opposes cognitive biases.

Despite exponential increases in science and technology, many people believe in phenomena with little epistemic support (Šrol, 2022). Increasing technological capacity compounded by the impact per person in a growing population, means that “we’re making more and more consequential choices with worse and worse sensemaking to inform those choices. Which is kind of [*like*] running increasingly fast through the woods, increasingly blind” (Schmachtenberger, 2019, pt. 2:10). The capacity to discern accurate information with “high signal [and] low noise” is critical for both personal and collective transformations in VUCA. Since systems transformations require not only different technologies but also the nurturing of “emotional, behavioral, and spiritual—as well as cognitive—capacities” (Stroh, 2015, p. 213), practices such as mindfulness that help cultivate attentional awareness and more nuanced understanding are increasingly important for sustainability transformations.

4.6 Transitions, transformation, and resilience

“Transformations occur when agents become conscious of their roles in reproducing structures and elect to instead make new, imaginative choices to challenge dominant patterns” (Blocker & Barrios, 2015, p. 268).

Desirable sustainability transformations require the pursuit of non-extractive and non-violent sources of fulfillment and joy, as well as practices that encourage a shift in values, structures, and commitments (Gorissen, Vrancken, & Manshoven, 2016); Lahtinen & Yrjölä, 2019). Sustainability transitions at scale will not be adopted without a “shared recognition of the urgent need for change” (Jorgensen, 2015, p. 1009). Therefore, lasting transformation necessitates a heightened sense of awareness for one’s participation in unsustainable

activities and complicity in dominant systems, as well as a conscious change to collaborate with others to challenge these norms (Blocker & Barrios, 2015; O'Brien, 2019).

For sustainability purposes, the following benefits of mindfulness are of particular interest:

- disrupting automatic behaviours and aligning attitudinal-behavioural gaps to support personal and collective wellbeing (D. Fischer et al., 2017);
- supporting psychological (Wamsler et al., 2021) and spiritual (Plotkin, 2003) transformation that supports sustainable mindsets; and
- nurturing complexity capacity and unfolding present reality (Simpson & French, 2006; Shapiro, Siegel, & Neff, 2018).

Transformations occur in social structures and power relations, as well as through changes in individual consciousness that influence values, behaviours, and the transformation of others (Kapoor, 2007). As such, any large-scale transformation requires not only supportive governance but also critical consideration of “material, relational, and normative factors that hold the current systems in place,” re-examination of the values and beliefs surrounding the relationship between people and nature (Shi and Moser 2021, p. 1) and a coupling of institutional commitments that facilitate sustainable ways of being and doing. Transforming worldviews and value systems are therefore seen as paramount for catalyzing systemic shifts through dynamic mutual influences among new practices, ideas, problems, and possibilities (X. Bai et al., 2016; Berzonsky & Moser, 2017; de Witt, 2016; Dorninger et al., 2020; Feola, 2015; Fischer et al., 2022; Meadows, 2008; Moser & Fazey, 2021; O'Brien, 2021; O'Brien & Selboe, 2015; Wamsler et al., 2021).

Universities and institutions of higher education play a critical role in sustainability transformations as they not only curate the next generation of change agents but also inform the mindsets of these future leaders (Žalėnienė & Pereira, 2021). Some scholars have argued that scientific objectivity is threatened by value-driven research, as is slowly recognizing the need for pluralism and diverse ways of understanding that do not fit within a reductionist frame (Lahsen & Turnhout, 2021). Fundamentally, at the educational level, this speaks to teaching students how to cultivate awareness, agency, discernment, stamina, courage, boldness, fearlessness, and humility, so that they can attune to their inner world and skillfully

engage with the outer world while recognizing their own gifts, strengths, and inadequacies (Fazey et al., 2021; Moser & Fazey, 2021). Such a process necessitates that the university itself transitions from stagnant reductionist models of understanding towards that of a “psycho-social container for the process of maturation” (Moser & Fazey, 2021, p. 4). Additionally, as key transformational agents, places of higher education need to lead by example and demonstrate the kinds of sustainability principles and qualities they are trying to teach their students if positive transformations at a societal level are to be achieved (S. Stein, 2019; Z. Stein, 2019; Žalėnienė & Pereira, 2021).

Moser and Fazey (2021) explain that these places will need to fundamentally change both what and how they teach if they are to shift from “a place of technical, vocational, and intellectual advancement to a place... of societal reckoning, of grieving, and actively shedding and dismantling the modernist ways that have brought on the multi-pronged eco-social crisis we now face. Accordingly, they will need to become places where psychological adolescents (of all ages) stop conforming to and perpetuating a destructive, individualistic, narcissistic, materialist, competitive, growth-oriented culture” (pg. 4). Moser and Fazey (2021) and others argue that a psychological transformation is needed to nurture and prepare the kind of leaders and change agents that will support conditions for the healing and the flourishing of SES (Astin & Astin, 2000; Greenwood, 2015; Hensley, 2020; S. C. Moser & Fazey, 2021; Mueller & Greenwood, 2015; O’Brien et al., 2013; Pierce, 2015; Plotkin, 2003, 2021; Sterling, 2001; Žalėnienė & Pereira, 2021). Part of this transformation requires a fundamental shift in teaching philosophy, as well as the kinds of support available to help students make sense of the information they are processing. For example, instead of burdening pupils with memorizing materials and messaging that invokes climate despair, sharing knowledge in a way that is inspiring, empowering, supportive, and grounding for both student and educator (Godsmark, 2020). This transition will also require that educators reflect on their complicity – intentional or otherwise – in perpetuating injustices through the kinds of thinking that are replicated in their classrooms (Torres, 2019).

Since the ways by which information is developed, disseminated, and applied in society shape its transformative potential (Berkes, 2009), it is critical to re-think how sustainability knowledge must be curated if it is to support systemic change (Abson et al., 2017). Changes in education have immense potential to support intentional collective action by changing paradigms and worldviews – namely how challenges are both framed and acted upon (K. L. O'Brien, 2016). Part of this shift involves developing transformative learning pedagogies to recognize and interrupt hegemonic praxis and systems that undermine sustainability progress (Gardner et al., 2021; Green, 2021; Latter & Capstick, 2021; Lotz-Sisitka et al., 2015, 2016; Macintyre et al., 2018, 2019; Pisters et al., 2020; Rieckmann, 2018; Stewart et al., 2022). Another part involves transitioning towards more researcher and stakeholder-driven (bottom-up) processes that are co-produced, participatory, and oriented to solve pressing sustainability issues (Fazey et al., 2021; Hurth & Stewart, 2022; Reed & Fazey, 2021). In addition to shifts in education, O'Brien explains that it is essential to focus attention on the collective potential of humanity to effectively address systemic problems such as climate change and to stop prioritizing rational, deterministic, and techno-utopian solutions.

In organizations, values, meanings, and behaviours with systemic influence are shaped through interactions that one could dismiss as banal or insignificant (Lichtenstein & Plowman, 2009). These transformational shifts often emerge from interactions between and among peers of similar rank as opposed to leader-subordinate relationships (Lichtenstein & Plowman, 2009). As such, existing channels carved by mindfulness programs and interventions in institutions, schools, and medical settings represent potential pathways whereby individual practices could support sustainability progress at the organizational level through routine interaction (Lichtenstein & Plowman, 2009; Siqueira & Pitassi, 2016).

The effectiveness of mindfulness training and applications in organizations has been widely documented in high reliability organizations as previously mentioned. Since many decisions are based on a combination of learning from the past and planning for the future, the value of the present moment can be lost in the fray (Simpson & French, 2006). Effective leadership, especially in critical environments, requires that decision makers be fully present, while

being patient, tolerant of anxiety, open to possibilities, and humble towards the unknown (Simpson (Edmondson, 2018; Shapiro et al., 2018; Simpson & French, 2006; Weick, 2001). Consequently, mindfulness can sensitize decision makers to power structures and relations that otherwise go unquestioned and encourage a wider scope of consideration for underrepresented groups. In this context, mindfulness might help cultivate democratic engagement for new ways of thinking and behaviour that are both just and appropriate (Hammond, 2020; Senghaas-Knobloch, 2014).

4.7 Summary of complementarities of mindfulness for sustainability progress

In summary, this literature review has explored many of the complementarities of mindfulness for sustainability progress. It has also demonstrated that dominant ontologies and epistemologies have failed to support collective wellbeing and that to course correct the trajectory of many unsustainable issues, changes in mindsets, values, and worldviews are needed. It remains unclear whether mindfulness can be leveraged to produce sufficient transformation at individual and collective levels at this critical time to catalyze systemic change. Furthermore, despite the increasing interest in the inner dimensions of transformation, including the role of mindfulness as a transformative practice, there remain many fundamental gaps in both knowledge and operationalization. Similarly, the mechanisms by which worldviews, attitudes, and mindsets can be leveled to positively influence sustainability action remains uncertain (Moyer & Sinclair, 2020). Accordingly, the following chapter examines prominent mindfulness events of 2020 offered in the West and investigates whether or to what extent sustainability considerations emerge in these practices. Such an exploration has yet to be conducted and is increasingly relevant as humanity grapples with sustainability challenges compounded by a global pandemic.

4.8 Chapter summary

Conventional approaches to advancing sustainability progress have concentrated on outer dimensions, leaving the transformative potential of inner dimensions largely overlooked. Mental models, including values, worldviews, and beliefs, while typically overlooked, are deep leverage points for systems change. Effectively navigating the complex challenges that undermine conditions for long-term viability require competencies including empathy, compassion, complexity tolerance, attentional regulation, and sensemaking. However, how different worldviews, attitudes, and mindsets might be leveled to support progress towards sustainability safely and at scale remains unclear.

Chapter 5: A Novel Framework for Inner-Outer Sustainability Assessment

5.1 Introduction

Calls for systemic transformations have become prevalent throughout sustainability discourse. Increasingly, these calls point towards consciousness expanding practices and interventions, such as mindfulness, to support the development of individual understandings, skills, and capacities that are conducive to more sustainable ways of being and doing. The growing interest in leveraging inner capacities, including mindsets, worldviews, values, and beliefs for sustainability transformations emerges from concerns that conventional approaches are failing to align social and ecological systems towards long-term viability. Interest in these consciousness-driven transformations is spreading, particularly in governments and prominent organisations. Tempering this enthusiasm are concerns that when untethered from moral and ethical guidelines (as well as caring understanding of local and global prospects for lasting wellbeing), mindfulness programs, workshops, and interventions for inner transformation can inadvertently strengthen unsustainable systems and deepen inequities. Accordingly, this chapter presents an exploratory assessment framework to increase understandings of how events focused on interventions for inner transformation align with broad sustainability requirements. Findings from application of the framework should help to elucidate how these offerings can disrupt normative ways of thinking and doing, and in turn, positively influence multi-scalar transformations. Furthermore, use of the assessment process to plan and/or evaluate inner development offerings is anticipated to help strengthen progress towards sustainability and reduce adverse trade-offs that might undermine positive systemic transformations.

5.2 Background

As many trends towards unsustainability worsen (Botreau & Cohen, 2020; Mach et al., 2020; UN, 2021), there is growing interest and hope for driving positive systemic change more effectively through the leveraging of inner transformations (IPCC, 2022; WWF, 2020). This enthusiasm stems from the recognition that inner capacities, including values, mindsets, emotions, identities, intentions, sense of place, and beliefs have thus far been largely ignored as leverage points for positive change, and in some cases, insufficiently developed to meet sustainability challenges (Abson et al., 2017; Astin, 2004; Davelaar, 2021; Fischer et al., 2022; Grenni et al., 2020; Ives et al., 2020; Parodi & Tamm, 2018; Tröger & Reese, 2021; Wamsler, 2018, 2019; Wamsler et al., 2022; Wamsler & Restoy, 2020; Woiwode et al., 2021).

A growing field of study is hence emerging at the nexus of inner and outer sustainability that offers both contrast and complement to more reductionist scientific solutions that have so far predominated sustainability efforts. For example, while modern attempts to drive systems change—primarily through mechanisms of economic and technological development such as the introduction of hydrocarbon-based energy systems—have revolutionised many aspects of daily life, they have also entrenched a set of ideas and practices that can undermine conditions for sustainability (Webber & Page, 2022). Interests at the nexus of inner and outer sustainability have therefore begun to encourage inquiry into the role of inner dimensions for more conscious and deliberate cultural transformations (Adloff & Neckel, 2019; Moore & Milkoreit, 2020; O’Brien, 2021; Webber & Page, 2022; Woiwode et al., 2021).

The notion of transformation has become a buzzword in sustainability discourse (Blythe et al., 2018; McPhearson et al., 2021). For example, prominent organisations, including the United Nations, Intergovernmental Panel on Climate Change (IPCC), and World Wildlife Fund (WWF) have stimulated discussions around the need for systemic transformations to halt destructive activities affecting social and ecological systems at organisational and governmental levels (IPBES, 2019; IPCC, 2022; Ripple et al., 2023; WWF, 2018). Similarly, change agents in fields ranging from climate science to education to politics are advocating

approaches to inner transformation such as mindfulness to cultivate skills and capacities generative to sustainability progress (Brink & Wamsler, 2019; Hensley, 2020a, 2020b; Mueller & Greenwood, 2015; Panno et al., 2018; Wamsler et al., 2018; J. Wang et al., 2019). Increasingly, scholars are recognising that sustainability transformations are not only outer change processes, but also inner change processes linked to culture, values, worldviews, and mindsets (Bentz et al., 2022; Horcea-Milcu, 2022; Ives et al., 2020; Wamsler et al., 2020; Wamsler & Osberg, 2022; Woiwode et al., 2021). How these processes might support transformations in fundamental understandings, behaviours, and practices that could deliver more sustainable futures remains an exciting yet elusive mystery (Riedy, 2016).

Transformations can be both disruptive to existing systems—by interfering with and even destroying patterns of relationship—and creative—by giving rise to the emergence of new organisations and patterns (Otto et al., 2020). Positive sustainability transformations require significant changes that recontextualize, reconnect, and restructure relationships among people and between people and the environment (Abson et al., 2017; Moore & Milkoreit, 2020; Schreuder & Horlings, 2022). Such profound cultural shifts will require increasing tolerance for complexity to move away from binaries of either/or towards more integrated both/and ways of thinking (Johnson, 1992; Lees et al., 2016; Liu et al., 2015; Willamo et al., 2018). For example, the common delineation made between “humans” and “nature” reinforces a problematic narrative of separation between humankind and the biosphere (Eisenstein, 2013; Hendersson & Wamsler, 2020). By denying the entanglement and interdependence of inner and outer conditions for sustainability across culture, place, and time, this modern story of separation legitimizes systems of oppression and environmental degradation (Scott, 2016). Moreover, it perpetuates short-sighted individualized modern-colonial satisfactions and securities (S. Stein, 2021b). Shifting towards a more sustainable paradigm will thus require that collective motivations, capacities, and behaviours are aligned towards the long-term viability of interdependent socio-biophysical systems (Abson et al., 2017; Horlings, 2015; Palus et al., 2020).

While there is growing demand for solutions to unsustainability, its broad scope of wicked challenges precludes confident predictions as it is often unclear how complex systems will respond to interventions (Berkes et al., 2003; Folke et al., 2010; Meadows, 2008; Truant et al., 2017). Accordingly, as globalisation amplifies more systemic volatility, uncertainty, complexity, and ambiguity (VUCA), new understanding and skills are likely needed to navigate turbulence and emerging challenges (Bennett & Lemoine, 2014; Edmondson, 2019; Nilsson et al., 2016; S. Stein, 2021b; Truant et al., 2017; Weick, 2001; Weick & Sutcliffe, 2007; Yeo, 2020). Without deeper understanding and contextualisation, it is unlikely that inner development interventions will consistently support beneficial changes for collective wellbeing (Anālayo, 2021; Britton, 2019; King & Badham, 2020; Lindahl et al., 2017; Van Dam et al., 2018).

Wamsler and Restoy (2020), for example, have cautioned that tools, methods, and skills that support social and systemic change ought to be further researched and adapted to reduce potentially harmful impacts of inner transformation interventions including ways to ensure that benefits extend beyond just the individual, and account for context-specific conditions (Wamsler & Restoy, 2020). Thiermann and Sheate (2020) have similarly noted that there is a need for reflexive questioning of epistemological and ontological assumptions brought into this space by researchers, and to reassess how the hypothesised causal links between interventions targeting mindfulness and sustainability are evaluated (Thiermann & Sheate, 2020a). Others have cautioned that this “Inward Turn” of sustainability scholarship has over-emphasised individual contributions to both creating and solving global challenges such as climate change, and consequently overlooks structural drivers of environmental devastation (Boda et al., 2022). These concerns are consistent with broader critiques of interventions, especially mindfulness, that have been widely prescribed for self-help, inner transformation, and sustainability progress with varying levels of effectiveness and safety (Aizik-Reebs et al., 2021; Britton, 2019; Farias & Wikholm, 2016; Fucci, Pouban-Couzardot, et al., 2022; Geiger et al., 2019; Hafenbrack et al., 2021; Lindahl et al., 2017, 2021; Lomas et al., 2015; O’Brien, 2012; Treleaven, 2018; Van Dam et al., 2018; Van Gordon et al., 2016).

Developing a cohesive and critical body of research around what desirable inner transformations entail, how they relate to outer (behavioural, organizational) sustainability transformation and how these insights could translate from academic to social, political and environmental contexts is therefore of timely interest (Blythe et al., 2018; McPhearson et al., 2021; O'Brien, 2012; Sterling, 2011; Tobias Mortlock et al., 2022; Wamsler & Bristow, 2022; Westley et al., 2013). Furthermore, improved understanding would help to promote greater “equity, transparency, and accountability”, which have so far been overlooked in this field (Bentz et al., 2022, p. 49). Additionally, it could help to reduce harmful misconceptions of transformations as apolitical, inevitable and universally beneficial (Bentz et al., 2022; Blythe et al., 2018; S. H. Eriksen et al., 2015; Hammond, 2020; Pelling et al., 2015; Reo & Parker, 2013; Zografos & Robbins, 2020).

5.3 Objectives

Presented in this chapter is an initial evaluative model for assessing whether, how and the extent to which interventions for inner transformation contribute to lasting wellbeing for people and the biosphere. The framework draws on core requirements for sustainability progress from both inner and outer perspectives. The integration of these converging and mutually enhancing requirements seeks to identify synergies, positive feedbacks, and interdependencies to leverage transformations towards long-term viability. Additionally, it seeks to provide the generic criteria for assessment, evaluation, and decision making of inner transformation offerings. This assessment framework is meant to be complementary to other models that demonstrate the interlinkages between human and planetary health (Adloff & Neckel, 2019; Darnton & Horne, 2013; Davelaar, 2021; Gray & Manuel-Navarrete, 2021; Grenni et al., 2020; Leventon et al., 2021; Pisters et al., 2020; Rimanoczy & Klingenberg, 2021; Wamsler & Osberg, 2022; Woiwode et al., 2021). While these models have been enriching to the field, they are more focused on theories of change, mainstreaming responses, or mapping spheres of transformation (e.g., Wamsler & Osberg, 2022; O'Brien & Sygna,

2013) as opposed to evaluating the how interventions are addressing core requirements for inner and outer sustainability.

5.3.1 Materials and Methods

An integrative review of literature was conducted from 2018–2022 to identify overlapping characteristics, agendas, and opportunities for mutual support at the nexus of inner and outer transformation (Callahan, 2010; Elsbach & van Knippenberg, 2020; Post et al., 2020; Torraco, 2005, 2016). While there is a plethora of interventions to develop inner capacities for sustainability, the review process paid particular attention to mindfulness since it is one of the most widely accepted and popular approaches to bridging inner-outer transformation (Wamsler, 2018). The literature search occurred primarily across three databases: Google Scholar, Science Direct, and Scopus, and included both scientific papers and grey literature including governmental reports, press releases, and working papers. After scanning abstracts, reading materials, and snowballing sources, relevant publications were identified and analysed (Denzin & Lincoln, 2017). The results of this literature review, in combination with the generic criteria identified in the Inner Development Goals (IDG) model (Inner Development Goals, 2021), were contextually adapted under the broad categories of sustainability requirements (Gibson, 2005, 2017b; Gibson et al., 2020) into a working framework for integrated inner-outer transformation.

The framework was designed for application in case studies to evaluate how and to what extent both inner and outer sustainability criteria are addressed in deliberations and applications involving interventions for inner transformation (Yin and Campbell, 2018; Stake 2009). Functionally, the framework serves as a matrix to summarise findings and highlight interactions and trade-offs between criteria. The criteria represent interacting considerations and are meant to be used as a package to guide evaluations and decision making (Dalal-Clayton & Sadler, 2014). They are not intended for use merely as a checklist to measure progress to inner or outer sustainability targets as if they were independent of each other.

While objectives for inner capacities may be described as particular measurable goals, just as indicators of sustainability objectives have been described in the UN Sustainable Development Goals (SDGs) (Wood & DeClerck, 2015), the integrated framework presented here respects interactions. Moreover, it is meant to facilitate identification of overall as well as specific contributions and trade-offs in initiatives that aim to foster progress towards inner and outer sustainability. An additional benefit of the framework is that it can be used to evaluate the new and largely untested IDG model and its potential as a complementary approach to the widely recognized SDGs. Reasonably comprehensive evaluations of IDG applications requires a framework that combines inner and outer sustainability requirements and assesses the extent to which the IDG applications make valuable contributions to lasting wellbeing for all.

5.4 Rationale and Utility of the Framework

Making conscious the often internalized and implicit inner dimensions that guide decision-making processes is essential for systemic transformation (Meadows, 2008; Stroh, 2015). Sustainability assessments help to identify and challenge these mental models through a combination of explicit generic and context-specific criteria. Criteria specifications for the framework were developed for application in inner transformation events with specific attention to contributions to sustainability and take into consideration existing challenges for sustainability transformations, potential effects of interventions (including mindfulness), and implications for advancing or thwarting progress towards long-term viability (Gibson, 2017b, pp. 22–23). The combination of generic sustainability requirements with the IDG criteria inform a transsystemic understanding of the interrelations between inner and outer transformation including vulnerabilities, opportunities, potential effects, and feedbacks (G. Bateson, 1972; N. Bateson, 2016).

The framework presented here is for assessing whether and to what extent interventions to promote inner transformation (such as online mindfulness-based offerings, summits, and programs) address key requirements for long-term viability. Recognizing that both

sustainability and inner transformation practices such as mindfulness are aligned more closely with processes than end points, framework-guided assessments should illuminate where interventions could be strengthened, recontextualized, or contextualised anew to support progress towards sustainability. As others have noted “Most often, the products of sustainability assessments act as normative reference points for planning, decision, making and actions” (Wiek et al., 2017, p. 127). Accordingly, it is imperative for interventions that foster inner transformation to support a notion of “progress” that aligns with intergenerational collective flourishing.

Inner development initiatives, including mindfulness-based interventions, have been correlated with pro-social and pro-environmental behavioural changes that are conducive to sustainability, including reduced consumerism and increased pro-environmental behaviour (B. Barrett et al., 2016; Best et al., 2020; Dhandra, 2019; Frank, Sundermann, et al., 2019; Grabow et al., 2018; Helm & Subramaniam, 2019; Huang et al., 2019; Huynh & Torquati, 2019; Macaulay et al., 2022). Similarly, these interventions have been linked to the cultivation of skills and capacities that support collective wellbeing including compassion and empathy (Best et al., 2020; Condon et al., 2013; Conversano et al., 2020; Fuochi & Voci, 2020; Grapsa, 2020; Orellana-Rios et al., 2017; Paulson & Kretz, 2018; Trent et al., 2016). Despite the preliminary positive effects, concerns have been raised that the rapid dissemination and prescription of consciousness-expanding programs and interventions, particularly mindfulness, have vastly outpaced their scientific support (L. Brown et al., 2021; Fucci, Pouban-Couzardot, et al., 2022; Geiger et al., 2019; Hafenbrack et al., 2021; Kaplan et al., 2022; Kral et al., 2021; J. R. Payne et al., 2020; Purser, 2019; Van Dam et al., 2018). Moreover, there are concerns that when untethered from ethical and moral traditions, practices including mindfulness might undermine conditions for sustainability progress and weaken prosocial and pro-environmental orientations (Brazier, 2016; Gebauer et al., 2018; Hafenbrack et al., 2021; Jinpa, 2019; Joiner, 2017; Neale, 2011; Poulin et al., 2021; Purser, 2018). For illustration, at the onset of COVID-19, mindfulness demonstrated benefits for reducing stress and anxiety of health care workers but not for transforming the systemic causes of moral injury and burnout that undermined clinician, and by extension, patient

wellbeing (Cohen-Serrins, 2021a; Houtrow, 2020). These and similar tensions are further described in a case study where the framework is used to evaluate the sustainability contributions of online mindfulness offerings during the pandemic [Cooper and Gibson 2023 in review].

Applications of this framework would help to inform recommendations for planning, decision making, and applications for future interventions and assessment tools [Cooper and Gibson 2023 & (Kuzdas et al., 2016)]. These applications would also identify needs for new capacities, and further initiatives—for example, to foster the resurgence of traditional practices and knowledge that could support epistemically and ontologically diverse, accessible, ethical, and inclusive inner dimensions conducive to sustainability progress (Andreotti et al., 2021; Caniglia et al., 2021; Fazey et al., 2018; Hensley, 2020a; Leichenko & O'Brien, 2020; Machado de Oliveria, 2021; Moser & Fazey, 2021; Mueller & Greenwood, 2015; O'Brien, 2021; Rauschmayer, 2019; S. Stein, 2019, 2021b; Whyte, 2020).

5.5 Core Requirements for Inner-Outer Sustainability Transformations

The following two sections of the chapter set out the core understandings of sustainability and inner transformation that provide the foundation for the proposed framework and its criteria for designing and evaluating interventions at the nexus of inner and outer sustainability. Explicit assessment criteria and processes are used in many fields to improve the quality, consistency, and credibility of deliberations and decisions. In applications to inner and outer sustainability transformations, it is especially crucial that the criteria cover matters of both substance and process, incorporate insights from broad learning and experience, and are designed to be critically applied in ways that inform further innovation. The framework's generic criteria recognize the limitations of global generalisations and the importance of particular contexts and incorporate respect for complexity and uncertainty. Additionally, the criteria are meant to facilitate problem solving that involves diverse stakeholders and reconcile to the extent feasible, diverse conceptions and requirements for

both inner and outer sustainability progress (Bentz et al., 2022; Lahsen & Turnhout, 2021; Veland et al., 2022; Xu & Wu, 2016).

Nevertheless, context-specified applications of the criteria should greatly enhance prospects for long-term viability by nurturing inner dimensions supportive of collective flourishing (e.g., compassion empathy, nature connectedness) and outer dimensions that support transformations to regenerative and just socio-ecological (SES) and economic systems (Gibson, 2017a; Leach et al., 2012, 2021; Linnér & Wibeck, 2020; Reyers & Selig, 2020). The results should also encourage and inform attention to the context-specific psycho-cultural and behavioural changes required to support sustainability transformations (Berzonsky & Moser, 2017; Riedy, 2016; Seifert et al., 2009).

5.6 Sustainability and Outer Transformation

“An essential notion underlines sustainability assessment. It is to enhance our prospects for lasting wellbeing, mostly by introducing a little more rigour, humility and foresight in our decision making” [104] (p. 1).

History is replete with precautionary tales of the dangers befalling civilizations that tumble into the multipolar traps of unsustainability (Alexander, 2014; Bostrom, 2019; Hardin, 1968; Kennedy, 2003; Sapolsky, 2017; Schmachtenberger, 2020; Tainter, 2006; Wright, 2019). For millennia, hunter-gather-forager societies and early agriculture maintained evidently more environmentally viable practices by emphasizing the interests of the community over the individual, nurturing kinship with the natural world, and discouraging adoption of untested innovations (W. Davis, 2009; Wright, 2004). In contrast, modern approaches to lasting wellbeing, often conceived as sustainable development, operate within a development paradigm that focuses on progressively transforming the economy and society to meet the basic needs of all people in present and future generations (WCED, 1987, p. 43). This

progressivist narrative of sustainability now co-exists with and must confront predominantly consumerist (and colonial) growth-dependent economies that favour the securities and satisfactions of the most advantaged at the expense of the collective and planetary health (Andreotti et al., 2021; S. Stein, 2021b).

Over the 35 years since the sustainable development idea was widely embraced by global leaders, needs for transformative change to more viable trajectories have become more urgent (IPCC, 2018; Sterner et al., 2019; UN, 2020b). While many contrasting approaches and priorities for intentional sustainability transformations have been proposed (Daly, 1999; Martínez-Alier et al., 2010; Meadows, 1997; Raworth, 2017; World Business Council on Sustainable Development, 2012), no consensus has emerged on an overall best route to sustainable futures. Given the vast diversity of particular contexts for sustainability transformation, many different combinations of complementary options from a rich suite of possibilities could serve well in particular places and cases. The most promising combinations might often be those that incorporate old and new understandings as well as mobilize both inner and outer capacities.

In this dissertation, progress towards sustainability is conceived as a suite of processes designed to move local to global conditions and practices towards collective thriving that enhances prerequisites for long-term social and biophysical viability (Ehrenfeld, 2008; Gibson, 2017b). As will be discussed below, the most basic core requirements for moving towards sustainability have been reasonably well established in the sustainability literature, as have the major gaps between current conditions and the basic parameters for sustainability (e.g., as consolidated in the 17 SDGs). However, sustainability as an objective cannot be set out much more precisely. Future sustainability is definable only as a set of intertwined dynamic characteristics to be pursued indefinitely. There is no end goal. Moreover, as suggested above, there may not be one appropriate overall route to sustainability and the most promising ones for particular areas are likely to be diverse and largely context dependent. Given the uncertainties involved, as well as the risks of change for the already least advantaged, an emphasis on very basic substantive criteria and appropriate processes is

central to the pursuit of sustainability. Not surprisingly the process characteristics most commonly identified as appropriate for sustainability transformations respect complexity and uncertainty by emphasizing experiment, equity, engagement and iterative learning (Mastrángelo et al., 2019).

At the core of outer sustainability progress are needs to halt unsustainable activities; reverse unsustainable trends; and implement alternatives that enhance prospects for future as well as present wellbeing, while also maintaining and strengthening desirable current social, ecological, and socio-ecological characteristics and relations, protecting the vulnerable, and respecting uncertainties (Gibson, 2017b). To be effective, approaches to meet these three core needs require appreciation for complexity, resilience, context-specificity, and an understanding of the interdependencies across social and ecological systems (Armitage et al., 2012; X. Bai et al., 2016; Berkes et al., 2003; Elmqvist et al., 2019; Folke et al., 2010; Holling, 2001, 2001; Leach et al., 2021; Ostrom, 2009; Reyers et al., 2022, 2022; Scoones et al., 2020; Stirling, 2011). Supporting positive transformations also entails the nurturing of various inner capacities such as awareness, compassion, empathy, and intercultural competencies that have been largely absent in mainstream sustainability discourse (Bentz et al., 2022; Gray & Manuel-Navarrete, 2021; O'Brien, 2019; Parodi & Tamm, 2018; Pisters et al., 2020). The transformation of inner dimensions will need to be pursued, much like sustainability, as iterative processes and practices as opposed to static goals in order to mitigate undesirable trade-offs (Adger, 2008; Bentz et al., 2022; Blythe et al., 2018; Pfattheicher et al., 2016; Tainter, 2006; Wamsler, 2019; Wamsler & Osberg, 2022; Wamsler & Restoy, 2020; Woiwode et al., 2021).

In addition to inner transformation, progress towards sustainability requires cultural change (e.g., towards integration vs balancing, and informed engagement vs top-down dictation or consumerist fragmentation). The cultural changes would be accompanied by structural changes (e.g., for access to greenspace vs concrete jungles, local food systems vs global commodity chains, active transportation vs private cars) and socio-politico-economic shifts (e.g., narrowed gaps between wealthy and poor, and between the influential and the

powerless). In these contexts, inner transformations should help to build capacity for both cultural and broader systemic shifts (McPhearson et al., 2021; Reyers et al., 2022; Scoones et al., 2020).

5.6.1 Common Approaches to Sustainability

A broad diversity of modern sustainability conceptions has emerged. While some of these conceptions are presented as merely descriptive, most if not all, at least imply particular ways of framing sustainability as an objective for the purposes of understanding current and anticipated needs and opportunities, and guiding deliberations and decision making on what to do. More specific applications include establishing frameworks for evaluating whether and to what extent particular initiatives would contribute to progress towards sustainability. Here I provide a brief overview of this landscape. The intent is to clarify the context and to summarize our grounds for selecting the approach to sustainability that underlies the framework proposed below.

Successive reviews of the sustainability literature, particularly the literature on sustainability-based evaluations and assessment (Bond et al., 2012; Dalal-Clayton & Sadler, 2014; GRI, Global Reporting Initiative, 2022; Hacking & Guthrie, 2008; Purvis et al., 2019) indicate that the most familiar and influential conceptions of sustainability for the purposes outlined above fall into three loosely bounded and overlapping groupings: approaches that are centred on pillars, indicators or requirements.

5.6.2 Pillars-Based Approaches to Sustainability

Pillars-based approaches (Elkington, 2018; Ranjbari et al., 2021; Rodríguez-Serrano et al., 2017) focus on advancing attention to individual categories of expertise and government mandates. They apply the common notion of sustainability as built on pillars—usually three: environmental, social and economic—with sustainability depicted as a lintel across the top of

the pillars (or as the intersection of overlapping “pillar” circles in Venn diagram versions). The pillars emerged soon after the WCED report was released in 1987 (Purvis et al., 2019) and are still used as an introductory model, and as the basic structures for more detailed sustainability reporting and evaluations. Private sector applications include “triple bottom line” versions that sometimes rename the pillars as profit, people, and planet (Elkington, 1994, 2018). As a basic conception of sustainability, the three pillars have the considerable advantage of familiarity. Environmental, social and economic are established categories of expertise, mandate and data collection. Easy access to existing expertise and fit with the powers and expectations of relevant authorities can facilitate mobilization of support and capacity for sustainability applications. Elaboration of particular considerations within the three categories is accordingly convenient.

The pillars also have limitations. Not all important sustainability considerations fit into the standard three pillars. Health, culture and governance, for example, are often found to merit their own pillar or the equivalent (Dorfleitner et al., 2015; GRI, Global Reporting Initiative, 2022). Also, the pillars (however many are identified) represent only broad topic areas, while applications typically need goals and/or desired directions for change. Most significantly for advanced applications, the pillars approach is limited by preservation of well-entrenched separate silos that discourage attention to interactions and interdependencies among sustainability concerns and solutions. Neglect of interactions and interdependencies compromises applications where understanding of real-world complexities, risks and opportunities is crucial. Interactive effects and interdependencies have been at the centre of sustainability considerations at least since WCED built its proposals for sustainable development on recognition that protecting the environment and eliminating poverty were intertwined and possible only if both were pursued together. Finally, pillars-based approaches to sustainability are often associated with the notion that environmental, social and economic objectives necessarily conflict and consequently need to be “balanced”—again suggesting a departure from the WCED’s concept of interdependent and mutually supporting environmental, social and economic initiatives for sustainability.

5.6.3 Indicators-Based Approaches to Sustainability

Indicator based approaches identify needs or goals for moving towards sustainability and track sustainability progress through (usually) measurable objectives with the purpose of guiding and monitoring the effectiveness of different interventions. These approaches typically begin with major areas of sustainability concern that have been tracked for some time. The associated needs and goals may be organized under the pillars categories. But because the selection of indicators areas is driven by concerns (e.g., climate change), rather than established disciplines or mandates, indicator-based approaches are open to multiple options for defining the needs, goals, and associated indicators and for organizing them into an overall framework. The results can still be silos of separate objectives and indicators with separate initiatives for action and separate monitoring and reporting. Innovative attention to interactions and interdependences may also be discouraged by the practical demands for indicators that rest on well-established long-term data sets. But as has been demonstrated with climate change, sufficient concern can lead to quite rapid and effective mobilisation and application of old data for new purposes (Geng et al., 2022; Sippel et al., 2020).

The indicators approach is now well represented by the UN's high profile and broadly supported SDGs (UN, 2015). Adopted by the United Nations in 2015, the SDGs began with an initially pillars-based purpose to address social, ecological, and economic dimensions of sustainability and provide a "blueprint for peace and prosperity for people and the planet, now and into the future" (UN, 2015). But the core substance of the SDGs expands from the earlier Millennium Development Goals (MEA, 2005) to present 17 goals and 169 non-binding targets to orient humanity's efforts towards viable futures (Ekardt, 2020b; ICSU, 2017; Le Blanc, 2015; Stafford-Smith et al., 2017). The focus is on measurable progress in closing gaps and reversing unsustainable trajectories related to each area.

The SDGs also combine requirements for progress towards sustainability (phrased as goals) with indicators (especially associated with the targets for each goal, though not all targets have easily quantified indicators) (Hacking, 2019; Inter-Agency and Expert Group on

Sustainable Development Goals, 2016; UN, 2020a). As a top-down initiative, the global SDGs are not automatically well-linked to bottom-up sustainability initiatives. However, they are clearly valuable as a foundation for global deliberations and monitoring, for setting more specific national and sub-national responsibilities and commitments, identifying pathways to meeting the more specific goals, and for encouraging cooperation and accountability. Also, the SDGs could be a starting point for more advanced recognition of and action on interactions and interdependencies. The extent to which this will happen remains to be seen. Despite UN statements that the goals are interdependent (UN, 2015) the SDGs are typically presented in 17 separate coloured boxes and progress is to be monitored in those categories. Advocates of more effective steps to ensure attention to interactions and interdependencies have recommended reconfiguring the SDGs, for example, into a more systemic and constellated model to foster efforts to identify and maximise synergies and beneficial feedbacks in initiatives to address multiple goals at once (Bonnedahl et al., 2022; Cernev & Fenner, 2020; George, 2001; Giddings et al., 2002; Grace, 2019; ICSU, 2017; Kim & Bosselmann, 2015; Linnerud et al., 2019; Martínez-Fernández et al., 2021; Purvis et al., 2019; Thinley & Hartz-Karp, 2019; Zeng et al., 2020). Such approaches would recognize spatial and temporal interactions across social and ecological systems (Gibson, 2017b; Liu et al., 2015). That in turn would facilitate greater appreciation of change-making in complex systems (Robinson, 2004), including how to build the resilience of desirable system structures, functions and interactions (Foxon et al., 2009; Hodbod & Adger, 2014; Holling, 1973, 1978; Memarzadeh & Boettiger, 2018; Olsson et al., 2014b; Scoones et al., 2020; Walters & Holling, 1990) and encourage transformation of problematic systems that disadvantage vulnerable people and ecologies (Armitage et al., 2012; P. Baer, 2013; Bentz et al., 2022; Caniglia et al., 2021; Gibson et al., 2020; Hickel, 2019; Moore et al., 2014; Moore & Milkoreit, 2020; Pahl-Wostl & Patterson, 2021; Patterson et al., 2017; Tröger & Reese, 2021)—in efforts to meet all the goals in mutually supporting ways (Bahadur & Tanner, 2014; Fazey et al., 2018; Leach et al., 2012; Leichenko & O'Brien, 2020; Liu et al., 2015; Olsson et al., 2014b; Patterson et al., 2021; Scoones et al., 2020; Zanotti et al., 2020). For example, positive gains have been made in panda conservation because of greater attention to

complexity, resiliency, and adaptability, with benefits for both residents and the local ecology (D. Kang, 2022; Liu et al., 2007).

When indicators-based approaches to sustainability fail to focus on positive interactions among the goals being tracked, they miss opportunities to avoid trade-offs. Commentators on the SDGs have observed that focusing on individual goals can create conditions for conflict and trade-offs that compromise substantive progress for collective wellbeing (Bonnedahl et al., 2022; Leach et al., 2021; Lim et al., 2018; Martínez-Fernández et al., 2021; Stafford-Smith et al., 2017). For example, “pursuing sustained, inclusive and sustainable economic growth, full productive employment and decent work for all” (SDG8) will make it challenging to meet the other goals (e.g., progress on climate change (SDG 13)) and is likely to entail trade-offs where growth and livelihood gains are made at the expense of progress on the other crucial fronts (Castro, 2004; Hickel, 2019; Steinberger et al., 2020).

5.6.4 Requirements-Based Approaches to Sustainability

This study seeks to expand the synthesis of widely recognised and commonly accepted sustainability requirements developed by Gibson et al., (Gibson, 2005, 2017b; Gibson et al., 2020) to encompass both inner and outer criteria for sustainability progress. The purpose of requirements-based sustainability approaches is to bring attention to what is needed to support lasting wellbeing from local to global scales. This approach identifies mutually beneficial core criteria, synergistic benefits, underlying tensions, and trade-offs. Whilst requirements-based assessment models encapsulate most of the core aspirations of the MDGs and SDGs, as well as the various pillars/circles frameworks, they place much greater attention to the relational qualities of criteria and influence of increasing uncertainties and complexities. Requirements-centred models are designed to recognise complexities, reduce trade-offs, and bring attention to concerns and opportunities that would otherwise be made invisible through more fragmented forms of analysis (Ekardt, 2020b; Elkington, 2018; Gibson, 2006; Gibson et al., 2020; Noble et al., 2019; Pope et al., 2004, 2017; A. Smith & Stirling, 2010). The advantages of this approach are directly correlated to the strength and

comprehensiveness of the package of principles and criteria they are assessing (Gibson, 2017b). Accordingly, case and context specificity are key in requirements-based assessments.

5.6.5 Integrated Requirements-Based Approaches to Sustainability

Integrated requirements-based approaches typically focus on the core generic requirements for progress towards sustainability while also paying attention to relations among the requirements, seeking mutually supportive effects, and avoiding tensions, and trade-offs (Gibson, 2017b, 2017b; Noble et al., 2019). Though not often identified as a particular approach to sustainability, integrated treatment of requirements is widely evident in practice. These approaches are typified by the identification of a set of objectives for responding to a suite of sustainability-related problems and/or opportunities and treating these objectives as a package of requirements. The requirements may be phrased as criteria for identifying suitable response options, selecting the best one, and guiding its implementation. The focus is on maximizing overall contributions to sustainability by seeking multiple, mutually reinforcing and lasting gains while avoiding or mitigating trade-offs.

Treatment of the needs or requirements as an integrated package may be adopted with broad conceptual as well as practical recognition that progress towards sustainability requires simultaneous (and at least compatible) advances to respect biosphere and human needs and reverse destructive trajectories (Raworth, 2012, 2017; Steffen, Broadgate, et al., 2015; Steffen, Richardson, et al., 2015). As noted above, an earlier version of that understanding also underlies the WCED's initial conception of sustainable development that protects the environment while also providing enough for all. However, integrated requirements-based approaches have also been driven by the character of immediate challenges at the local and regional scales, where existing structures and practices are failing, initiatives reflecting new approaches are needed, and multiple objectives must be served by those initiatives. Accordingly, venues for application have covered a wide diversity of contexts where authorities and stakeholders face demands or expectations to address multiple needs for stewardship and change, and to apply foresight.

Integrated requirements-based approaches have been valuable in urban and regional planning, especially where cities face growth demands that cannot be met in established ways without compromising affordability and quality of life (Angheloiu & Tennant, 2020; Boyle et al., 2004; Patterson et al., 2021) in regional land use planning, including where there are evident needs for changes to enhance prospects for viable economic and ecological futures (Sheate et al., 2008); in rural areas where there may be competing options for food and agricultural systems (Gaudreau, 2017; *SAFA Guidelines*, 2014) and in evaluations of poverty reduction strategies including at the national scale (Hugé & Hens, 2007). Sustainability-based assessments using requirements-based criteria and seeking positive interactions have also been designed and undertaken for project-planning and assessments, in mining (Gibson, 2006; MMSD-NA, Mining, Minerals and Sustainable Development Project North America, Task 2 Work Group, 2002) hydrocarbon extraction and transportation, and hydropower development (Lower Churchill Joint Review Panel, 2011).

Given the breadth of potential applications, requirements-based approaches depend on a combination of respect for the widely-recognized general requirements for progress towards sustainability in the world and careful attention to the specifics of case and place. While a reasonably comprehensive generic set of sustainability requirements or criteria can be framed in many ways, the essential components, and the significance of their interactions, are by now well documented in the extensive literature on sustainability understanding and experience. For the purposes of this dissertation, I adopt the synthesis presented in Gibson et al. (2005, 2017, 2020) because it is expressly designed for specification for particular cases and contexts and has been widely tested in practical applications with such specification (Aberilla et al., 2020; Arulnathan et al., 2020; Berzosa et al., 2017; de Olde et al., 2017; Dijk et al., 2017; Gasso et al., 2015; Gibson et al., 2020; Hacking, 2019; Pope et al., 2017; Stafford-Smith et al., 2017). This approach not only offers a synthesised conception of core requirements for supporting lasting wellbeing (Table 3.0), but unlike most conventional assessment frameworks, emphasises potential for positive feedback and mutually supportive gains. Additionally, the approach offers a complexity-informed and contextually-adaptive process for assessing evaluations and decision making related to sustainability progress

(Gaudreau & Gibson, 2010). This criteria set is adaptable to any undertaking and is appropriate for all stages of the assessment process (Gibson et al., 2020; Hickel, 2019).

Table 3.0: Core Sustainability Criteria

Life support: Build human-ecological relations that establish and maintain the long-term integrity of socio-biophysical systems.

Livelihood sufficiency and opportunity: Ensure that everyone has enough for a decent life and opportunities to seek improvements in ways that do not compromise the opportunities of future generations.

Intragenerational equity: Pursue sufficiency and opportunity for all people (especially the economically and politically poor) in manners that reduce gaps in health, security, social recognition, political influence.

Intergenerational equity: Favour present options and actions that are most likely to preserve or enhance the capabilities of all people to live sustainably while reducing dangerous gaps in sufficiency and opportunity.

Resource maintenance and efficiency: Provide a larger base for ensuring sustainable livelihoods for all while reducing threats to the long-term integrity of socio-ecological systems.

Understanding, commitment, and engagement: Build the capacity, motivation, and habitual inclination of individuals, communities, and other collective governing bodies to apply more open and better-informed sensemaking.

Precaution and adaptation: Avoid poorly understood solutions where there is potential for serious or irreversible damage to collective wellbeing by respecting complexity and uncertainty.

Immediate and long-term integration: Attempt to meet all requirements for sustainability simultaneously.

Adapted from (Gibson, 2005, 2006, 2017b; Gibson et al., 2020).

5.7 Inner Capacities for Sustainability Transformations

Despite decades of sustainability science and practice, progress towards lasting wellbeing for all remains a distant target (IPCC, 2021; O'Neill et al., 2022; Rockström et al., 2009; Steffen, Broadgate, et al., 2015). Deepening rates of poverty and privation, compounded by challenges ranging from climate change to loss of biological diversity, are undermining

conditions for long-term viability (IPCC, 2022; United Nations, 2021; WWF, 2020). These observations are not to dismiss or discredit the many benefits of science and technology. Rather, the intention is to emphasise that a transformation of inner dimensions is needed to support individual and collective behaviour change. Furthermore, this shift is essential for increasing understanding of socio-ecological challenges and their structural drivers, as well as for mobilising desirable transformations within these systems (Blocker & Barrios, 2015; Burch et al., 2014; Dorninger et al., 2020; Lahtinen & Salmivalli, 2020). These shifts in mindsets are driven by inner capacities and are often supported through spiritual, religious, and traditional practices (de Witt, 2016; Wamsler & Bristow, 2022; Woiwode et al., 2021).

Accordingly, a more holistic approach to systems transformations is surfacing, with evident potential to support a linking of the “inner” and “outer” dimensions of sustainability” (Hensley, 2020a; Ives et al., 2020; Parodi & Tamm, 2018; Redvers et al., 2022; Sol & Wals, 2015; Wamsler et al., 2022). The associated body of research recognises that sustainability initiatives and accomplishments so far have been insufficient to drive the transformative changes required to support a viable future, in part because of their emphasis on outer change—technology, governance, economics—and neglect of the inner dimensions that influence behaviours (Horcea-Milcu, 2022; Horlings, 2015). Transformations in these contexts are described as processes that result in profound shifts in human and environmental relationships (Hölscher et al., 2018). These shifts can be disorienting, especially when they encourage new ways of seeing and being that contrast with the dominant social paradigm (and even with some of the established sustainability discourse) (Bendell, 2022; Böhme et al., 2022).

5.7.1 The Inner Development Goals (IDGs)

Complementary to this process is a call to bring greater awareness to inner dimensions, including mindsets, values, and worldviews that influence transformative pathways and conceptions of sustainability (Bentz et al., 2022; Heaton, 2016; Laszlo, 2006; O’Brien, 2021; Rosenberg, 2004; Wamsler, 2019; Wamsler et al., 2021; Woiwode et al., 2021). A

requirements-based model of inner-outer sustainability has yet to be measured or researched systematically. Since causal pathways between inner and outer transformation are complex and nonlinear, they are difficult to quantify at varying scales and project stages. Unlike sustainability indicators, many measures of inner development, including mindfulness, are subjective and self-reported (R. A. Baer et al., 2006; Quaglia et al., 2016; Seifert et al., 2009). Accordingly, there is a lack of overarching metrics and targets to track for assessing degrees of inner change. Such challenges make sustainability requirements-based models more appropriate for assessing initiatives seeking progress towards Inner Development Goals than indicator-based models.

The Inner Development Goals (IDGs) were founded in 2020 as a not-for-profit initiative concerned with the need to cultivate new skills and capacities (cognitive, emotional, and others) to address urgent sustainability challenges and accelerate progress with the SDGs (Henriksson, 2022; Inner Development Goals, 2021). This initiative recognises that “there is a blind spot in our efforts to create a sustainable global society,” and that despite the plethora of knowledge around what could and should be done to support collective wellbeing, progress has so far been underwhelming (Inner Development Goals, 2021, p. 3). Similar to the SDGs, the IDGs are based on a development model—namely adult development (Kegan & Lahey, 2009)—and are composed of 23 skills and qualities that have been organised in five clusters (Table 3.1).

Table 3.1: The Inner Development Goals (IDGs)

(1) Being—Relationship to Self: Cultivating our inner life and developing and deepening our relationship to our thoughts, feelings and body help us be present, intentional and non-reactive when we face complexity.
(2) Thinking—Cognitive Skills: Developing our cognitive skills by taking different perspectives, evaluating information and making sense of the world as an interconnected whole is essential for wise decision-making.
(3) Relating—Caring for Others and the World: Appreciating, caring for and feeling connected to others, such as neighbours, future generations or the biosphere, helps us create more just and sustainable systems and societies for everyone.
(4) Collaborating—Social Skills: To make progress on shared concerns, we need to develop our abilities to include, hold space and communicate with stakeholders with different values, skills and competencies.

(5) Acting—Driving Change: Qualities such as courage and optimism help us acquire true agency, break old patterns, generate original ideas and act with persistence in uncertain times. (Inner Development Goals, 2021)
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While built as a goals-based parallel model to the SDGs, the IDGs are less focused on measuring specific goals and targets than they are on identifying core skills, capacities, and practices that can help accelerate sustainability progress at large. In such a context, the IDGs may be better conceived as Inner Development Criteria as opposed to Inner Development Goals. Accordingly, the IDGs are well paired with requirements-based sustainability models than they are indicator models such as the SDGs. Nonetheless, the IDGs are meant to support the cultivation of capacities, tools, and interventions needed to enable conditions for inner growth that are conducive to sustainability progress (Inner Development Goals, 2021). Moreover, these goals explicitly address the highly contextual nature of learning and change that are centred on acquiring the skills and qualities needed to take on sustainability tasks and roles may involve diverse challenges for different people and organisations (Inner Development Goals, 2021).

Similar to the SDGs, the IDGs separate relational elements and place skills and qualities for human development into thematic boxes. By teasing apart complex and entangled relational systems, this framework, much like the SDG model, risks overlooking interdependencies, synergies, and opportunities for intervention. Additionally, it could perpetuate dominant ways of thinking that homogenise and itemise experiences and skills instead of holding space for a multiplicity of understandings. However, unlike the SDGs where interactions between inner and outer dimensions are often given little attention, several of the IDGs explicitly link individual development with collective wellbeing. For example, under the category of “Being” is “Inner Compass,” a quality described as “Having a deeply felt sense of responsibility and commitment to values and purposes relating to the good of the whole” (Inner Development Goals, 2021, p. 13). The IDGs offer a complementary toolkit that highlights development paths including practices, tools, and interventions (mindfulness, cognitive behavioural therapy, compassion training, etc.) to help cultivate different skills and capacities (none of which are explicitly assessed or measured as goals or targets).

Despite being curated from a multitude of existing approaches with extensive scientific support, the IDG framework is new and has yet to be rigorously studied as an empirical model, which was a strong motivating factor for its integration into the framework. The IDGs were crowdsourced with inputs from over 3000 people, the majority of whom were from Sweden, the USA, and other relatively wealthy Western countries (Inner Development Goals, 2021). Consequently, the model represents a strong bias towards Western conceptions of development, wellbeing, sustainability, innovation, and processes for mindset shifts (Inner Development Goals, 2021). Still, the IDGs represent an impressive package of inner development criteria and approaches that has yet to be matched elsewhere. Pairing the IDGs with the generic outer sustainability model also tests the comprehensiveness of the inner development model and invites discussions around its strengths and limitations.

There is growing excitement for this novel model of inner development including formal commitment by Costa Rica to work with the IDGs (Rodríguez, 2021). Similarly, a European Parliamentary Report (2022) recently recommended the IDGs to advance SDG 17 “in the framework of global partnerships and capacity building, the innovative role of open-source initiatives, such as the Inner Development Goals initiative, that aim to educate, inspire and empower people to be a positive force for change in society, thereby accelerating progress towards achieving the SDGs” (EU, 2022).

5.8 Results

Using sustainability assessment as a guiding approach, the following integrative framework (Table 3.2) was designed to explore conditions for inner and outer transformation. The framework addresses the benefits that are to be gained and the kinds of risks and dangers that ought to be prevented in the offering of interventions at the nexus of inner-outer sustainability (Gibson, 2006). These considerations are seen as interdependent and inseparable. By bringing together the IDGs (Inner Development Goals, 2021) and the core requirements for outer sustainability informed by models such as the MDGs, SDGs, and decades of sustainability scholarship as summarised by Gibson et al. (Gibson, 2005; Gibson

et al., 2020), this is the first framework to offer a basis for developing and assessing inner-outer interventions. Framework considerations involving decision making, trade-offs, and complexities informing the assessment of interventions are further described below.

Table 3.2: Basic inner-outer sustainability assessment criteria

<p>Life support</p> <p>Requirement: Build human-ecological relations that establish and maintain the long-term integrity of socio-biophysical systems.</p> <p>Illustrative implications:</p> <ul style="list-style-type: none"> • Being: reflexively and honestly examining the impacts of thoughts and behaviours on the lasting wellbeing of all; • Thinking: developing complexity tolerance and an appreciation for entanglement within broader social and biophysical systems; • Relating: nurturing a sense of concern, gratitude, and reciprocity with all members of the community and the biosphere; • Collaborating: strengthening engagement between diverse and potentially rivalrous groups to constructively manage conflicts that endanger social and ecological systems (SES); and • Acting: disrupting unsustainable ways of thinking and doing, discouraging behaviours that undermine conditions for lasting wellbeing, and driving positive action at all scales. <p>Livelihood sufficiency and opportunity</p> <p>Requirement: Ensure that everyone has enough for a decent life and opportunities to seek improvements in ways that do not compromise the opportunities of future generations.</p> <p>Illustrative implications:</p> <ul style="list-style-type: none"> • Being: influencing values, mindsets, and lifestyle choices to enhance attention to the wellbeing of the collective; • Thinking: strengthening understanding and other capacities for weighing the impacts of thoughts and actions on other people and the natural world; • Relating: increasing empathetic and compassionate concern for, and commitment to enhancing, the wellbeing of SES; • Collaborating: creating safe and lasting conditions for inter-generational healing, collaboration, and trust-building; and • Acting: consciously choosing a meaningful and fulfilling approach to life that does not undermine conditions for others to do the same. <p>Intragenerational and intergenerational equity</p> <p>Requirement: Favour present options and actions that are most likely to preserve or enhance the capabilities of all people to live sustainably while reducing dangerous gaps in sufficiency and opportunity.</p> <p>Illustrative implications:</p>
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- **Being:** deepening empathy, compassion, and presence;
- **Thinking:** increasing understanding of how contributions to sustainability can and should create spirals of equity and wellbeing;
- **Relating:** increasing humility, concern, and commitment to reducing the suffering and strengthening the foundations for greater opportunities for present and future generations;
- **Collaborating:** cultivating skills for compassionate, healing, and generative dialogue between diverse groups; and
- **Acting:** challenging and dismantling systems of oppression and building equitable replacements.

Resource maintenance and efficiency

Requirement: Provide a larger base for ensuring sustainable livelihoods for all while reducing threats to the long-term integrity of socio-ecological systems.

Illustrative implications:

- **Being:** linking concern for the individual to the lasting collective interests of all;
- **Thinking:** encouraging more informed decisions with consumption patterns of both materials and information;
- **Relating:** minimising negative impacts and maximising positive sustainability effects of individual behaviours;
- **Collaborating:** mobilising energy and resources to vulnerable communities who have been systematically oppressed; and
- **Acting:** increasing awareness of the unsustainability of many normalised behaviours and the availability of positive alternatives.

Understanding, commitment, and engagement

Requirement: Build the capacity, motivation, and habitual inclination of individuals, communities, and other collective governing bodies to apply sustainability principles through more open and better-informed sensemaking.

Illustrative implications:

- **Being:** nurturing sense of responsibility and commitment to lasting wellbeing for all;
- **Thinking:** encouraging greater discernment and agency to critically examine contradictory, incomplete, complex, and ambiguous information;
- **Relating:** living in a meaningful way that enhances conditions for collective wellbeing;
- **Collaborating:** facilitating conflict resolution, problem solving, trust-building, and mutual aid; and
- **Acting:** nurturing courage, optimism, and hope for positive innovations.

Precaution and adaptation

Requirement: Respect uncertainty and avoid pursuing poorly understood risks where there is potential for serious or irreversible damage to lasting wellbeing for all by designing for surprise and managing for adaptation.

Illustrative implications:

- **Being:** cultivating presence, intention, and active but respectful engagement with complexity;
- **Thinking:** developing agency to make well-informed and non-reactive decisions in challenging situations;
- **Relating:** increasing concern for the most vulnerable and increasing commitment to reducing threat exposure;
- **Collaborating:** encouraging and facilitating joint efforts for low-risk, adaptable, and just transitions;
- **Acting:** cultivating resilience and embracing the richness of complexity.

Immediate and long-term integration

Requirement: Attempt to meet all requirements for sustainability together as a set of interdependent parts, seeking mutually supportive benefits.

Illustrative implications:

- **Being:** attuning to present conditions with consideration for future impacts;
- **Thinking:** considering the impacts of decisions making on the full range of sustainability considerations and making multiple mutually reinforcing contributions to both present and future wellbeing;
- **Relating:** building personal satisfactions through just, equitable, joyful, and farsighted relations;
- **Collaborating:** nurturing conditions for healing past and present traumas, fostering peace, and building trustful relationships across diverse groups;
- **Acting:** seeking multiple, mutually reinforcing gains; sustaining patience, determination, stamina, and optimism for change.

References: Inner Development Goals and requirements adapted from (Inner Development Goals, 2021) core sustainability criteria and requirements adapted from (Gibson et al., 2005, 2017, 2020).

Table 3.2 outlines the basic requirements for inner-outer sustainability progress that we have identified as essential for assessment purposes and presents them as criteria for evaluating current and proposed activities and initiatives. It also sets out illustrative implications for the evaluation of inner sustainability interventions.

To complement and clarify the general requirements for inner and outer sustainability criteria outlined in Table 3.2, Table 3.3 provides three guiding questions to guide the assessment process and discussion of key considerations related to decision making, trade-offs and complexity. These elements support equal and integrated consideration of the different criteria outlined in Table 3.2. Given the complexities of identifying and taking informed

steps towards sustainability, it is unlikely that all interventions will be able to meet the entire package of criteria. While trade-offs among the criteria are discouraged to the extent possible, they may be unavoidable and will need to be assessed and mitigated on a case-by-case basis. Some preliminary considerations to guide these trade-offs, including decision making and responding to complexities, are further discussed.

Table 3.3: Integration of basic assessment criteria for assessing interventions at the nexus of inner-outer sustainability

Guiding questions for assessment:

- How might the interventions support sustainability transformations at personal and collective levels?
- How might interventions undermine conditions for lasting viability?
- How might interventions be enhanced to support progress towards sustainability?

Note on terminology:

Interventions in this framework are broadly conceived as any summit, workshop, practice, program, therapeutic approach, or modality either prescribed or pursued for the purposes of inner development and outer change. The term intervention, while imperfect and perhaps even confusing in some contexts, was chosen for the following reasons:

- To intervene means to take action for the purpose of changing, most commonly to improve, a situation.
- In social contexts, interventions are commonly used to interrupt destructive repetitive behaviours such as addictions that undermine conditions for wellbeing.
- Interventions from a systems perspective are deliberate or accidental changes that occur between two or more phenomena that impact the larger systemic configurations [292].

Contributions to decision making: Increasing capacities to identify and explore positive new ways of seeing, being, and doing in established processes through conscious application of mindsets, values, and worldviews that inform sustainability-based comparative evaluations of alternatives by:

- Recognising requirements for lasting wellbeing for all;
- Nurturing capacities for self-regulation to reduce the frequency and impact of mindless and reactionary impulses that result in behaviours and conditions that threaten social and ecological wellbeing;
- Helping individuals cultivate agency, discernment, and sensemaking that are required to diffuse rivalries between groups and shift towards deeper understanding, appreciation, and compassion;
- Developing capacities to leverage inner and outer capacities for sustainability progress with greater awareness, accountability, and responsibility;
- Challenging dominant worldviews and systems that undermine conditions for inter and intergenerational equity including coloniality and systemic violence.

Trade-offs: Managing and reducing trade-offs while maximising opportunities for synergies to meet multiple goals and targets. Unacceptable trade-offs in interventions are those that reinforce unsustainable ways of thinking and

doing. These include but are not limited to:

- Strengthening conceptions of wellbeing that prioritise development paradigms;
- Reinforcing systems that undermine conditions for lasting wellbeing;
- Encouraging a notion of wellbeing and personal development that is individualised, elitist, and/or focused exclusively on improving personal conditions;
- Triggering undesirable reactions such as escapism, denial, powerlessness, overwhelm, apathy, despair, solipsism, re-traumatization, etc., especially without safe and accessible support;
- Offering prescriptive and simplified solutions for complex challenges; and
- Facilitating behaviours or favouring options that displace adverse social and biophysical conditions or consequences to future generations or to the less advantaged in the present.

Complexities: Mindfully responding to increasingly volatile, uncertain, complex, and ambiguous sustainability challenges through the cultivation of:

- Leadership capacities to detect, prevent, mitigate, and adapt to emerging threats;
- Skills and stamina needed to address the urgency, scale, wickedness of multifaceted interwoven sustainability issues;
- Humility to recognise limitations of one's skills, knowledge and understanding, and to seek support, as needed;
- Tolerance and comfort with complexity to contend with paradoxical and incomplete information with many known unknowns and unknown unknowns;
- Discernment to critically assess conflicting, simplified, or misrepresented information;
- Presence to remain open and grounded in polarised, contentious, and/or inter-cultural deliberations;
- Self-reflexivity to recognise the ramifications of one's decisions for social and ecological systems;
- Accountability to accept responsibility for one's complicity in unsustainability;
- Capacity to build relations of respect, trust, mutual aid, and joint problem solving; and
- Confidence in cultivating a meaningful life enriched with creativity, laughter, and joy.

Together, Table 3.2 and Table 3.3 outline key requirements and guiding approaches to undertaking sustainability assessments on interventions operating at the intersection of inner and outer transformation.

5.9 Discussion

The framework presented here identifies criteria, categories, and guiding considerations for assessing the effects of inner transformation interventions on sustainability progress. Initial application of the model (Cooper and Gibson 2023) demonstrated its utility for identifying cumulative effects and trade-offs. While there are inherent risks associated with the distillation of rich social and ecological interactions into separate boxes, the proposed matrix

offers a loosely structured approach to explore emergent questions and summarise key findings.

As I and others have noted, many of the issues concerning sustainability are complex, ambiguous, paradoxical, and often contentious. How to measure the effectiveness of interventions for inner transformation compounds these challenges by adding more philosophical questions such as what is compassion, how is it identified, recognized and assessed, and what is the relationship between compassion and sustainability? Also, given that most assessments operate under temporal, geographical, and fiscal constraints, how could external pressures impact the cultivation and quality of different skills, competencies, and values? Along these lines of inquiry are questions related to who should be using the assessment framework and who decides what kinds of skills, values, and competencies should be strengthened? Moreover, how might the model be strengthened to prevent co-optation by agendas that could support or reproduce unsustainable patterns of exploitation and oppression? Accordingly, we caution that attempts to decontextualise or universalise inner dimensions, or attempts to quantify them as separate ‘goals’, ought to be avoided.

5.10 Conclusions

As social and ecological challenges intensify, so too do calls for transformative change across disciplines and sectors (Blythe et al., 2018). Complementary responses to the urgent need to shift towards more sustainable ways of being and doing have identified a relatively unexplored leverage point for systemic change (Parodi & Tamm, 2018; Thiermann & Sheate, 2020a; Wamsler & Osberg, 2022). Increasingly, sustainability transformations are linked with inner development and the cultivation of skills, capacities, and values that support present and long-term collective wellbeing (Grenni et al., 2020; Wamsler, 2020; Woiwode et al., 2021). The plethora of inner transformation offerings, ranging from mindfulness programs to adult cognitive development, is rapidly increasing with various levels of attention to sustainability requirements. Because no further deepening of unsustainable trajectories can be tolerated in these critical times, it is essential to have

anticipatory and preventative measures, including assessments, in place to strengthen positive inner-outer sustainability links and to avoid and mitigate the reinforcement of any potential trade-offs or negative transformations in interventions. The assessment framework presented here was developed to examine how and to what extent different interventions at the nexus of inner-outer sustainability support progress towards flourishing social and ecological systems. The framework brings together essential criteria for outer transformations—as informed by core sustainability requirements (Gibson, 2005, 2017b; Gibson et al., 2020) and inner transformations—as informed by the Inner Development Goals (Inner Development Goals, 2021). By identifying opportunities for innovation, mutually supportive benefits, deepened understanding and commitment, and enhanced capacities for goal realisation, the proposed framework provides a novel evaluative lens to investigate the nexus of inner and outer sustainability.

The primary value of the framework is to assess how individual or particular sets of interventions are supporting or undermining sustainability advancement. Because the framework is intended to be adapted on a case-by-case basis, it represents a practical model that can be applied to interventions at any stage. The framework has already demonstrated its suitability for evaluating mindfulness-based case studies (Cooper and Gibson, 2023). As such, we recommend that testing expand to other offerings concerned with inner development.

A systematic review of the different methods, practices, and interventions for inner transformation is likely also needed to track how different interventions and methods are moving sustainability in “the right direction”. Future insights gathered through the assessment process are anticipated to be beneficial not only for improving inner development offerings but also for strengthening sustainability-focused interventions.

The framework is proposed as a modest working model, subject to iterative review in light of experience and enhanced understanding. While initial testing has demonstrated positive

empirical support, more studies are needed. Applications across a variety of interventions, along with revisions and adaptations are anticipated and encouraged.

5.11 Chapter summary

Mounting interest in leveraging the inner dimensions of sustainability for systems change has increased attention for practices such as mindfulness. This chapter presents the first inner-outer sustainability assessment model that brings together core requirements for lasting wellbeing as well as the novel Inner Development Goals. Application of the assessment framework is anticipated to strengthen the effectiveness of inner transformation interventions for supporting conditions for lasting wellbeing while reducing undesirable trade-offs.

Chapter 6: How do mindfulness offerings support inner-outer sustainability progress? A sustainability assessment of online mindfulness events

6.1 Introduction

As scholars have noted, there are significant gaps in the literature on how inner transformations can effectively generate positive outer systemic change (Bentz et al., 2022; Blythe et al., 2018; Boda et al., 2022; Thiermann & Sheate, 2020b, 2021). Similar concerns have been raised that untethered from broader ethical considerations, prominent inner transformation approaches, such as mindfulness, could undermine conditions for collective flourishing (Bazzano, 2021; Britton, 2019; C. L. Davis & BehmCross, 2020; Farias, 2022; Farias et al., 2020; Hafenbrack et al., 2021; Lomas et al., 2015; Loy, 2018; Montero-Marin, Allwood, Ball, Crane, Wilde, et al., 2022; Purser, 2018; Van Dam et al., 2018). In chapter 5, a novel framework for assessing sustainability in mindfulness settings was presented. In this chapter, the utility of the framework is demonstrated by direct application in a case study comprising of three online mindfulness-based events offered at the beginning of the Coronavirus pandemic. The purpose of the case study was to determine the extent to which these interventions addressed sustainability requirements during a global health crisis. By identifying whether and to what extent attention to inner and outer sustainability criteria is evident in these various programs, the framework helps to surface tensions and synergies between sustainability priorities and mindfulness interventions. This surfacing process is essential for effectively managing trade-offs and informing decision making in future offerings that align inner and outer transformations towards collective flourishing. Additionally, this research examines how practices such as mindfulness might be recontextualized to maximize benefits for sustainability progress.

The chapter is structured in five key sections. The first section maps the literature at the nexus of inner and outer transformation with a specific focus on mindfulness and sustainability. Secondly, the chapter describes the research design including the

methodological approaches used to apply the novel inner-outer sustainability assessment framework to a case study consisting of three prominent online mindfulness interventions (Cooper and Gibson, 2022). Thirdly, the chapter discusses the results of the assessment, including how core outer sustainability requirements were addressed or omitted across the different events and implications for social and biophysical systems. Fourthly, the chapter offers a general discussion of the research findings, study limitations, and an invitation for future research. Lastly, the chapter concludes with final thoughts and study reflections.

6.1.1 Background: A global health emergency and deepening rates of unsustainability

The COVID-19 pandemic has rapidly accelerated the need for sustainability progress across social and biophysical systems (Espejo et al., 2020; Everard et al., 2020; Marco et al., 2020). Intensifying demands for accessible mental health support (Abbas, 2021; CDC, 2022; Hayes et al., 2019a; Kola et al., 2021), reversal of environmental degradation (IPBES, 2022), and reduction of inequities (Chancel & DeBevoise, 2020) are converging around the use of inner transformations to leverage desirable systemic change (Abson et al., 2017; Frank, Fischer, et al., 2019; Göpel, 2016; Horcea-Milcu, 2022; Horlings, 2015; Ives et al., 2020; Y. Kang, 2019; Parodi & Tamm, 2018). Support by prominent organizations including the International Panel on Climate Change (IPCC), has encouraged further investigation into how inner transformations may support reorientations towards more sustainable worldviews and ways of being (IPCC, 2022). Mindfulness and other consciousness-expanding practices, which nurture “inner dimensions” including values, mindsets, and worldviews, are therefore being widely explored as leverage points for accelerating progress towards lasting wellbeing (Abson et al., 2017, 2017; Davelaar, 2021; Dorninger et al., 2020; Horlings, 2015; Ives et al., 2020; Koger, 2015; Miller et al., 2014; Parodi & Tamm, 2018; Rishi, 2022; Woiwode et al., 2021). In fact, many scholars now argue that enhancing conditions for long-term viability is unlikely to occur quickly and effectively enough without greater attention to the inner dimensions of sustainability and the associated psycho-cultural elements of systemic transformations (Berzonsky & Moser, 2017; Edwards, 2015; Grenni et al., 2020; Kemp &

Edwards, 2022; Leichenko & O'Brien, 2020; O'Brien & Sygna, 2013; Parodi & Tamm, 2018; Wamsler & Osberg, 2022). In light of these considerations, this chapter examines how and to what extent inner and outer transformations can be mutually supportive for enriching capacities and pathways for sustainability progress, as well as where precaution and recontextualization are needed to mitigate undesirable trade-offs.

6.1.2 Background: Mindfulness and inner transformations for sustainability during a global health emergency

Humanity's "mindless destruction of biodiversity" has created optimal conditions for the emergence of new viruses and diseases (Khoury, 2020, p. 1910).

The SARS-CoV-2 virus responsible for the COVID-19 pandemic is the third coronavirus (following SARS and MERS) in the past twenty years to pass between wildlife and humans (Poland, 2020). Both the speed and scale of COVID's transmission have exposed human vulnerabilities arising from and compounded by ecosystem degradation, material deprivation, and deepening inequities (Anser et al., 2020; Everard et al., 2020; Manzanedo & Manning, 2020). Responses to the global health emergency, including lockdown measures, have contributed to a range of desirable and undesirable consequences for socioecological systems (Somani et al., 2020). Reports of positive effects of lockdowns include reduced air pollution (Berman & Ebisu, 2020), improved water quality (Arora et al., 2020), increased range for wildlife (Manenti et al., 2020), and reduced carbon emissions (Rugani & Caro, 2020). Negative effects include worsening rates of poverty, (Anser et al., 2020; Kharas & Dooley, 2021; Patel et al., 2020; Sinha et al., 2020), food insecurity (Adams et al., 2020; Gundersen et al., 2021), and reduced access to nature (Colléony et al., 2022; Spotswood et al., 2021). There are also concerns that the immediate gains, such as increased range for wildlife, are only temporary and overshadowed by more enduring harms including poaching (Corlett et al., 2020; Manenti et al., 2020; Sarkar et al., 2021). In countries such as the United States, early governmental responses to the pandemic fortified unsustainable systems by supporting prominent polluting industries (e.g., plastic manufacturing) (Carrington, 2020), while simultaneously weakening key environmental protections (Parker Bodine, 2020). COVID-19

has thus accelerated the need to reverse unsustainable trends that endanger present and long-term conditions for collective wellbeing (Espejo et al., 2020; Everard et al., 2020; Marco et al., 2020).

Early responses to the global health emergency across sectors including medicine and tourism (Stankov et al., 2020) raised concerns around the need for greater mindfulness to support positive systemic transformations. While definitions of mindfulness often vary, they converge around practices infused with contemplative techniques to enhance capacities for awareness, non-judgement, emotional regulation and, depending on the context, compassion (R. Baer, 2015; Behan, 2020; Brazier, 2016; Kabat-Zinn, 1994; Sun, 2014). In the West, mindfulness broadly refers to a popular psychospiritual and wellness practice with varying degrees of Buddhist association depending on the context (Arthington, 2016; Carrette & King, 2005; Kucinskas, 2019; J. Wilson, 2016). Mindfulness is now commonly practised as a form of meditation in secular spaces including politics, schools, and the military (Bristow, 2019; Killoran, 2017; Marchand et al., 2021). The rapid proliferation of mindfulness has also generated a global billion-dollar industry (Polaris Market Research, 2020).

Mounting social stresses, compounded by barriers to in-person health resources during the COVID-19 pandemic escalated needs for accessible and often online medical support, driving a surge of interest in practices such as mindfulness (Antonova et al., 2021; CDC, 2022; Kennett et al., 2021; Kola et al., 2021; Lahtinen & Salmivalli, 2020; Mak et al., 2021; WHO, 2020). At the onset of the pandemic, mindfulness-based practices and interventions were among the most widely prescribed health interventions by governments, medical officials, and religious leaders (Werner et al. 2020; Feng et al. 2020; Zhang et al. 2020). Online mindfulness-based interventions are generally accessible, scalable, and as a result, often more convenient than conventional in-person treatments. These digitised offerings have demonstrated a range of effectiveness for treating various health conditions, including reducing stress, anxiety, and loneliness (Clarke & Draper, 2020; Donker et al., 2013; Grist et al., 2017; Jin et al., 2020; P. Payne & Crane-Godreau, 2015; Wong et al., 2018; Zhang et al., 2021).

Practices including mindfulness, which have been widely supported for enhancing inner development and mental health, are now being explored as a means to support positive social and ecological change (Burrows, 2015; Dhandra, 2019; Ericson et al., 2014; Frank, Sundermann, et al., 2019; Geiger et al., 2019; Jacob et al., 2009; Koger, 2015; Stanszus et al., 2019; Thiermann & Sheate, 2020a; Wamsler, 2020; Weber & Heidelmann, 2019; Woiwode et al., 2021). In these contexts, mindfulness is examined as a practice for cultivating individual skills and capacities, including attentional regulation, empathy, and compassion, that are recognised as requisites for sustainability progress (Berenguer, 2007; Bristow et al., 2022; Fuochi & Voci, 2020; IPCC, 2022; Khoury, 2020; Paulson & Kretz, 2018; Pfattheicher et al., 2016). Despite the mounting optimism for engaging inner dimensions for systemic transformations, there are concerns that changes driven by a development paradigm are vulnerable to cooptation by neoliberal, populist and hegemonic agendas that are antagonistic to collective flourishing (Boda et al., 2022; C. L. Davis & BehmCross, 2020; Farias & Wikholm, 2016; Geiger et al., 2019; Harrell, 2018; Lindahl et al., 2021; Montero-Marin, Allwood, Ball, Crane, Wilde, et al., 2022; O’Byrne, 2020; Purser, 2015; Roy, 2014; E. Thompson, 2020; Van Dam et al., 2018; J. Wilson, 2016). Further concerns centre on fears that when traditional practices are unmoored from ethical and moral traditions through processes of secularisation (C. G. Brown, 2016; E. Thompson, 2020) or “de-Buddification”, as in the case of mindfulness (J. Wilson, 2014, p. 73), they might undermine conditions for long-term viability by weakening pro-social and pro-environmental orientations (Brazier, 2016; Gebauer et al., 2018; Gleig, 2021; Hafenbrack et al., 2021; Houtrow, 2020; Joiner, 2017; Kucinskas, 2019; Poulin et al., 2021; Purser, 2018).

The extent to which inner dimensions influence sustainability orientations during the pandemic is a point of contention in the literature. For example, researchers found that COVID-19 had a significantly positive impact on environmental awareness, sustainable consumption, and social responsibility in Malaysian populations (Ali et al., 2021). A study across Brazil and Portugal reported similar findings, suggesting that the pandemic had a positive influence on sustainable consumption, environmental awareness, and to a lesser extent, social responsibility (Severo et al., 2021). Other studies suggest that motivations for

more pro-environmental behaviour were not associated with changes in inner dimensions, including changes in values and expanded consciousness, but rather socioeconomic determinants, such as reduced availability of goods and lack of disposable income (Jribi et al., 2020). A similar case demonstrating mixed effects and uncertain overall impacts of inner transformation approaches can be made with interventions such as mindfulness. Early in the pandemic, mindfulness-based interventions were associated with many beneficial impacts such as reduced loneliness, depression, stress, and anxiety (Abbas, 2021; Antonova et al., 2021; Behan, 2020). At the same time, these interventions were also used in contexts that helped to conceal and/or strengthen unsustainable systemic harms, including perpetuating moral injury (Dean et al., 2019) amongst healthcare workers (Cohen-Serrins, 2021a, 2021b; Houtrow, 2020; Mantri et al., 2021; Talbot & Dean, 2018; Williamson et al., 2020).

Despite the urgent need for systemic change to progress towards sustainability, there remain deep gaps of understanding around how transformations occur (Bentz et al., 2022; Blythe et al., 2018). In response, greater insights are required to better understand the relationship between interventions for inner transformation and long-term viability. Through a sustainability assessment lens, this research explores the nexus between inner and outer dimensions of systems change. Specifically, this chapter evaluates how and to what extent interventions for inner transformation addressed core sustainability requirements and the implications for collective flourishing. The following section describes the materials and methods employed for this study.

6.2 Materials and methods

6.2.1 Study context

Scholars have cautioned that when sustainability is pursued within a development framework it can reinforce – either consciously or unconsciously – systems of oppression and exploitation that undermine conditions for long-term social and ecological flourishing (Bendell, 2022; Kaul et al., 2022; S. Stein, De Oliveira Andreotti, et al., 2022). Both inner

and outer sustainability are conceived within development paradigms. However, for both, the approach to development challenges the problematic paradigms. For inner sustainability, the approach is largely informed by approaches concerned with maximising human potential, adult development, and self-transcendence (Bazzano, 2021; Frazier, 2021; Huerta et al., 2021; Kegan & Lahey, 2009; Pirson et al., 2018; Wilber, 2000). For outer sustainability, this is linked to notions of sustainable development, as articulated by the seminal Brundtland Commission (Banister et al., 2019; Linnerud et al., 2019; Meadowcroft et al., 2019; WCED, 1987). Development approaches are problematic for long-term viability when they are informed by egocentric, anthropocentric, and colonial mindsets that pursue growth at the detriment of collective flourishing (Ahenakew, 2016; Andreotti et al., 2021; Gidley, 2007; Scharmer & Senge, 2016; S. Stein, 2021a; Wilber, 2000). In this chapter, inner and outer sustainability progress are conceived as interdependent processes with overlapping requirements. Given that sustainability progress is an emergency outer need for the continuation of life and needs an inner foundation for individual and collective wellbeing, the two dimensions must be pursued in tandem for positive systemic change.

Despite the plethora of approaches for supporting inner transformation, significant gaps remain regarding their efficacy in advancing outer sustainability progress. Accordingly, the evident rising interest and number of initiatives aimed to link inner and outer sustainability warrant exploration. To our knowledge, this is the first study to address this research gap by testing the application of a novel assessment framework developed by Cooper and Gibson (2022) to evaluate how inner and outer sustainability inform transformative interventions and, by extension, sustainability progress during a global health emergency.

6.2.2 Study methods

The focus of this study is to assess how a set of how mindfulness interventions that took place at the onset of the COVID-19 pandemic addressed core sustainability criteria.

Applicable mindfulness events were identified through a Google web query using the search

string: [“mindfulness or mindful” + “event or summit or workshop or gathering + 2020”]. From these initial findings, results were cross referenced through a snowballing process (Denzin & Lincoln, 2017) via popular mindfulness websites, online magazines, newsletters, workshops, and postings by influential mindfulness leaders. Events were then screened based on the following inclusion criteria: language (English), accessibility (free, online, provided transcripts), non-specialist audience (designed for non-lay mindfulness practitioners with all levels of mindfulness/meditation experience), and representative of different versions and applications of mindfulness (Buddhist, post-Buddhist, secular, etc.). Initial searches identified 104 possible events, which were pared down to three relevant offerings based on best fit with the inclusion criteria. The three events were also of comparable size, featuring 15-25 speakers, and lasting for 4-5 days. The number of participants for each event was not disclosed by the organizers. Each of the sessions were recorded and available in both audio and text format afterwards.

Together, the three chosen events were explored as a, overall case study featuring 47 speakers with diverse backgrounds in mindfulness, covering a diverse sample of the mindfulness-based interventions offered during the pandemic. No mindfulness-based events focused primarily on sustainability or related themes were identified at the time of the analysis. Accordingly, this assessment explores how generic applications of mindfulness in every day domestic and work settings might address sustainability considerations. The value of such inquiry informs how conventional and widely accepted approaches to mindfulness align with conditions for long-term viability. Event organizers granted permission to examine the offerings with the provision that event names were not reported to protect the professional interests of speakers.

The three events chosen for the case study are described as follows:

- Event 1 - Mindfulness presented in a post-Buddhist context for application in daily life including work, parenting, and interpersonal relationships;
- Event 2 - Mindfulness presented in a post-Buddhist context for application in healthcare and medical settings; and

- Event 3 - Mindfulness presented from a Buddhist context and setting for application in daily Buddhist and/or non-Buddhist life.

A case study analysis was conducted to deepen understanding of the selected mindfulness events and interventions (R. Bogdan & Biklen, 2003; Denzin & Lincoln, 2017; Yin & Campbell, 2018). Additionally, a “snapshot” approach was applied to capture significant and nested elements within the mindfulness events. This framing temporally bound the case study as a system and supported an emerging narrative to present itself “as a Gestalt over a tight time frame” (Thomas, 2011, p. 517). This systematic and holistic framing gave rise to transsystemic descriptions of phenomena that were richer than the aggregation of their separate characteristics (G. Bateson, 1972; N. Bateson, 2018; Ehret, 2018). The case study covers a diverse sample of the mindfulness-based interventions offered during the pandemic and provides insights into the application of mindfulness interventions during a global health emergency.

The event transcripts were first read carefully and then qualitatively coded using a modified version of Grounded Theory (Birks & Mills, 2015; Charmaz, 2015; Glaser & Strauss, 1967; Strauss & Corbin, 1998). While events were analyzed separately, results were systematized in thematic tables and sub-categories under broad and overlapping inner–outer sustainability criteria (identified in italics). Visually presenting the results in parallel as individual cases increased the accessibility of the data and streamlined the comparison between individual event considerations, common themes, and oversights. Each thematic table also includes a meta summary of shared potential synergies and trade-offs. Additionally, this presentation style provides a more holistic framing of how a diverse sample of mindfulness events broadly engaged with overlapping sustainability criteria. Systems Theory informed the analytical sensemaking processes through which data was understood in relationship to the broader context in which it was situated (G. Bateson, 1972; N. Bateson, 2016; C. Robson & McCartan, 2016). Accordingly, theoretical saturation was determined by data “polyangulation” (Menzel & Yunkaporta, 2022) as opposed to triangulation (Carter et al., 2014; Denzin, 1978; P. Fusch et al., 2018). Polyangulation was deemed to be more complexity-informed, embodied, and attuned to the plurivocality of commonly silenced

experiences than standard triangulation methods (Fotaki et al., 2020; Menzel & Yunkaporta, 2022; Yunkaporta & Moodie, 2021).

The data analysis process also engaged in contemplative inquiry to increase researcher reflexivity, discernment, and openness (Ergas, 2017; Janesick, 2016; Konecki, 2019). In this context, contemplative inquiry took the form of scheduled breaks for practices including meditation and yoga, as well as the maintenance of a research journal, detailed memos, and an audit trail (Konecki, 2019). Contemplative inquiry was also employed to support researcher wellbeing (Pihkala, 2020), invite joy into the research process (Acosta, 2020), and nurture regenerative conditions for inner-outer flourishing as a pedagogical practice (Moser & Fazey, 2021; Zajonc, 2006).

6.3 Results

The results of sustainability assessments often become normative reference points for real-world problem solving and systemic transformations towards long-term viability (Miller et al., 2014; Wiek et al., 2017; Wiek & Larson, 2012). Accordingly, the purpose of evaluating the three events was to create a reference point that could help map the state of current mindfulness offerings within a sustainability context, specifically by identifying areas of current strength and future potential. In the following section, we discuss the results of the Cooper and Gibson (2022) framework application and highlight the significance of how and to what extent different events addressed the core interacting and overlapping sustainability requirements and the implications for progress towards lasting wellbeing.

6.3.1 Life support

Life support is essential for building human and ecological relationships that establish and maintain the long-term viability of social and biophysical systems. The three events we

examined drew correlations between the impacts of individual thoughts and behaviours on collective human wellbeing (Table 4.0). However, beyond mentioning climate change as a source of mental and physical suffering and an impending threat to social and economic systems, the events largely overlooked the detrimental impacts of individual and collective actions on ecological systems. For example, only one speaker in Event 1 addressed the impacts of individual actions on biophysical systems, a connection completely overlooked in Event 2. It bears mentioning that as a healthcare-focused intervention during a global health emergency, Event 2 was strongly oriented towards reducing existential threats to human life. Considerations of the long-term planetary impacts of providing life support during the pandemic were largely eclipsed by pressing emergencies such as limited access to life-saving medical equipment. In contrast, Event 3 was more focused on climate change, which was framed as a human crisis. Speakers drew on Buddhist teachings of interbeing and dependent co-arising to stress that human action and inaction has directly impacted the biosphere and by extension, social systems as well.

Across all three events, speakers correlated increased mindfulness with greater complexity tolerance, for which there is support from the literature (Bohecker et al., 2016; Weick, 2015). Complexity tolerance was thought of as a vital competency for navigating the increasingly uncertain and turbulent times that threaten life support systems. For example, a speaker in Event 1 explained that mindfulness helps to bring awareness to the “complexity that's happening in our own hearts and minds” as well as the inner work needed to become comfortable with the vulnerabilities associated with not knowing. A speaker from Event 2 spoke of uncertainty as an endemic characteristic of healthcare, both as a practice and as a system. In this context, mindfulness was regarded as beneficial for helping individuals flow with the daily waves of uncertainty instead of resisting them. In Event 3, mindfulness was deemed as generative for helping individuals cultivate mental flexibility for reconciling with unfolding contradictions and paradoxes. For example, helping people surrender the need to “fight” for positive action on issues such as climate change, and instead making peace with what is.

Event 3 framed the ecocrisis as a human crisis that represents both a danger and an opportunity to wake up within the context of life support. Because the crisis influences every part of daily life, strengthening a collective survival physiology necessitates the cultivation of new skills, tools, and practices to help individuals self-regulate to act in a manner that does not undermine conditions for individual and collective wellbeing when triggered by disconcerting information. Additionally, it was suggested that these urgent times require greater wisdom, compassion, balance, healing, gratitude, and understanding. Event 3 framed climate change as a by-product of “our misunderstanding of our relationship with the earth, with our own body.” Practices such as mindful eating were encouraged for deepening individuals’ relationship with food and recognising their broader interconnection with life-sustaining systems.

Table 4.0: Case study reporting on life support

<i>Requirement: Build human–ecological relations that establish and maintain the long-term integrity of socio-biophysical systems.</i>		
Summary of collective findings		
Potential synergies: emotional regulation, reflexivity, sustained awareness, increased tolerance for VUCA, empathic and compassionate resonance with other people		
Potential trade-offs: life support approached with strong preference for anthropocentric wellbeing		
Event 1	Event 2	Event 3
<i>Being: reflexively and honestly examining the impacts of thoughts and behaviours on the lasting wellbeing of all.</i>		
Increasing emotional regulation as part of the inner work required for forgiveness, discernment, agency, meaning making, and acceptance	Strengthening ability to acknowledge, regulate, and attune to emotional landscape and use these capacities with discernment to help others	Sustaining awareness of interdependence and the impacts of thoughts and behaviours on broader systems
<i>Thinking: developing complexity tolerance and an appreciation for entanglement within broader social and biophysical systems.</i>		
Developing greater awareness of the complex interactions between the inner and outer worlds, especially at moments of heightened stress, and increasing ability to consider multiple perspectives at once; but limited connection to natural world	Greeting uncertainty as a normative experience and responding to complex and challenging situations with agency and discernment; but no mention of interdependence with natural world	Making peace with the discomforts that arise in the face of uncertainty and complexity while developing “raw perception” to see the cause and effect of interconnected phenomenon clearly
<i>Relating: nurturing a sense of concern, gratitude, and reciprocity with all members of the community and the biosphere.</i>		

Strengthening emotional resonance and epistemic trust to increase capacities for individual and collective sensemaking, appreciation for contributions of others to collective wellbeing; but little link to biosphere	Deepening concern, gratitude, and reciprocity for community of caregivers; but no extension to biosphere	Understanding the mind broadens concern for the wellbeing of all life on the planet and nurtures gratitude for all that sustains life
<i>Collaborating: strengthening engagement between diverse and potentially rivalrous groups to constructively manage conflicts that endanger social and ecological systems (SES).</i>		
Nurturing the ability to connect and soothe suffering of others through presence while creating space for healing and forgiveness; but minimal link to how unsustainable social systems endanger natural world	Supporting capacities to be present to experience of others with openness and non-judgement, and continually, self-reflexively assess what conditioned biases bring to encounters; but minimal focus on threats to ecological systems	Recognising that divisiveness arises from collective unconscious (family, community, culture); but minimal connection to resolving conflict and rivalries between social groups and the natural world
<i>Acting: disrupting unsustainable ways of thinking and doing, discouraging behaviours that undermine conditions for lasting wellbeing, and driving positive action at all scales.</i>		
Broadening ability to see how habitual ways of thinking and doing are harmful to self and other people; but limited extension to biosphere	Bringing awareness to patterns of systemic injustices in medical systems, and the need for transformative change to support vulnerable populations; but limited extension to biosphere	Nurturing sense of interbeing to recognise that suffering is shared amongst all beings and the awareness to interrupt ways of thinking and being that could cause harm

6.3.2 Livelihood sufficiency and opportunity

At the core of livelihood sufficiency and opportunity is the need to ensure that all people have access to live a good life and opportunities to improve their conditions in a manner that does not undermine prospects for future generations. Reversing past and present biospheric degradation will entail substantive rehabilitation efforts to enhance prospects for future generations (IPBES, 2022). Events 1 and 3 placed a strong emphasis on personal mindfulness practices to cultivate inner skills such as awareness, compassion, and empathy that were assumed to automatically endeavour positive ripple effects through social networks (Table 4.1). These approaches were primarily focused on personal development as opposed to

promoting action to reduce gaps in sufficiency and opportunity. For example, a speaker in Event 1 noted that contemplative practices help to develop self-compassion and our capacity to “meet each other” in a way that honours different experiences.

Several speakers posited that mindfulness nurtures awareness in a sense of shared humanity. Through this shared appreciation of others, it was suggested communities of care naturally coalesce around common concerns, and that these communities would influence positive change around areas such as anti-racism, justice, and climate responsibility. While there was some focus on increasing capacities to reduce trauma and facilitate healing in Events 1 and 3, the focus was predominantly oriented towards self-transformation. For example, taking action to reduce personal suffering received far more attention than changing systems of oppression and degradation that undermine sufficiency and opportunity for the collective. The links between the proposed effects of mindfulness within the context of sufficiency and opportunity, especially vulnerable populations, were often more tangential assumptions and suggestions than evidence-based strategies for application. In both Events 1 and 3, the theme of “inner work” emerged, as a process to consciously interrupt passing emotional baggage or harmful patterns of thoughts to others, especially children.

Contrastingly, Event 2 was primarily focused on improving the overall sustainability of medical systems to improve access and quality of treatments. Event 2 also surfaced systemic pressures that undermine life support. A pertinent example includes when healthcare workers experience burnout because their ability to do the “right thing” is undermined by systemic conditions such as insufficient access to medical devices and other life-sustaining resources. In this context, medical practitioners did not need mindfulness to help them better attune to the suffering of others, but rather self-compassion to recognise that regardless of their best efforts, systemic factors beyond their control would limit the quality of care they could provide. Many speakers in Event 2 spoke of engaging with mindfulness to reduce experiences of being overwhelmed when routinely facing the intense suffering of their patients and colleagues. In these cases, mindfulness was considered helpful for care providers who were forced to deal with what one speaker described as “the worst of the human

condition.” Mindfulness was therefore regarded as beneficial when conceived within a broader set of offerings and interventions to care for those who are caring for others.

Table 4.1: Case study reporting on livelihood sufficiency and opportunity

<i>Requirement: Ensure that everyone has enough for a decent life and opportunities to seek improvements in ways that do not compromise the opportunities of future generations.</i>		
Summary of collective findings Potential synergies: interrupting habitual ways of thinking and doing that harm other people, nurturing more compassionate and empathic responses to the suffering of others Potential trade-offs: circle of concern is often limited to humankind, strong emphasis on inner transformation to solve large systemic issues		
Event 1	Event 2	Event 3
<i>Being: influencing values, mindsets, and lifestyle choices to enhance attention to the wellbeing of the collective.</i>		
Increasing awareness of how emotions influence thoughts, behaviours, and motivations to respond to stimuli with discernment and agency instead of reactivity	Challenging normative systems that value efficiency over quality of care and recognising how personal actions can reduce suffering of others	Recognising that individual thoughts and actions impact the wellbeing of the collective; accepting that unwholesome thoughts and behaviours should be interrupted before they cause harm
<i>Thinking: strengthening understanding and other capacities for weighing the impacts of thoughts and actions on other people and the natural world.</i>		
Reducing reactive responses to stimuli that could cause harm to other people; but limited consideration of impacts of thoughts and behaviours on biosphere	Encouraging moments of reflection and recalibration throughout the day to consider how individual thoughts and actions impact others; but not extended to the natural world	Transforming individual suffering naturally strengthens capacities for and inclinations to help support wellbeing of other people and the planet
<i>Relating: increasing empathetic and compassionate concern for, and commitment to enhancing, the wellbeing of SES.</i>		
Strengthening capacity for empathic resonance and compassionate response to the suffering of others; but limited consideration beyond human wellbeing	Attuning to the suffering of others through empathic resonance and compassionate response, while recognising that one individual cannot heal all suffering; no attention to harms inflicted to the natural world	Connecting with the suffering of others through the recognition of interbeing and dependent co-arising nurtures compassionate and empathic resonance; minimal focus on pathways to reducing suffering of others besides inner transformation
<i>Collaborating: creating safe and lasting conditions for inter-generational healing, collaboration, and trust building.</i>		
Connecting with community to create safe and nourishing spaces to learn, heal,	Nurturing diverse and inclusive safe spaces in health organisations that	Focusing on inner transformation to recognise how ingrained patterns of thinking

care, and collaborate; focus limited to welfare of social systems	offer a range of supports for those who care for others; but concerns limited to welfare of social systems	have undermined conditions for trust, collaboration, and healing at individual and collective scales
<i>Acting: consciously choosing a meaningful and fulfilling approach to life that does not undermine conditions for others to do the same.</i>		
Building capacity to recognise habits of mind that can both cause and heal suffering, and develop the stamina to maintain this attentiveness and ability to skilfully respond to challenges	Interrupting systems that limit the resources, capacities, and conditions to care for all people equally so that they may live healthy, meaningful, and fulfilling lives	Vowing to protect life and reduce violence in the world by aligning individual thoughts and behaviours with ethical principles linked to doing no harm

6.3.3 Intergenerational and intragenerational equity

Progress for inter- and intragenerational equity requires that all people have access to conditions that sustain wellbeing “without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status” (United Nations, 1948). Consistently throughout Event 1, mindfulness practices were viewed as a pathway through which individuals develop capacities for recognising their unconscious and habitual ways of thinking and doing (Table 4.2). Moreover, that positive systems-level changes occur when individual needs are prioritised. The following excerpt exemplifies many of the sentiments expressed in the event: “When you meet some of your own needs, you actually have more to give to others. So that is another way you can sustain good relationships better over time.” This kind of individualised self-first approach to mindfulness has been widely criticized for promoting solipsism and escapism, often at the detriment of collective flourishing (Donald et al., 2019; Gebauer et al., 2018; Joiner, 2017; Purser, 2019).

Event 2 paid specific attention to how mindfulness can support making “the unconscious conscious” within the context of health inequities, and to help surface ingrained mindsets that undermine conditions for equal access to healthcare. Themes around transformative change were linked to the need for collaboration with communities, especially to address deep

systemic challenges related to issues such as racism. This included calls to increase spaces for courageous conversations to reflexively examine how social issues such as racism are replicated in medical organisations, and to create opportunities for individuals to engage in collective action to support change such as White Coats for Black Lives protests. Speakers also addressed the benefits of mindful practices for helping clinicians slow down and “see” the uniqueness of their patients beyond their race, gender, socioeconomic status, or other identifiers that are typically aggregated into a profile to expedite treatment delivery. As one healthcare worker described, mindfulness was a way to “give yourself the time you need to be a resource for other people”. Shared concerns across Events 1 and 2 were centred around the need for greater compassion and empathy for all people. As was mentioned in Event 1, “love is not a gated community.”

Speakers in Event 3 spoke about modernity and how its conveniences and privileges benefit select individuals at the expense of many. With greater mindfulness, individuals are assumed to be able to decondition and transform engrained ways of thinking that have marginalised others on account of racism, gender, culture, religion, etc. Again, mindfulness was viewed as a catalyst for inner changes that would heal (through undefined processes) the effects of gross inequities and dismantle systems of oppression that threaten long-term viability in both social and ecological contexts. Increasing awareness of how personal thoughts and actions contribute to systemic inequities through the cultivation of mindfulness was regarded as key for re-imagining, re-understanding, and re-characterising modern perceptions of superiority to find more nourishing ways of thinking and doing. The very thoughts, values, and behaviours upon which conventional modern notions of progress are predicated were identified as unwholesome and thus detrimental to both personal and collective wellbeing. As one speaker expressed it, “This experience of the modern world traumatizes our biology, meaning it destabilizes our roots of being grounded in the here and now on this planet.”

Table 4.2: Case study reporting on intragenerational and intergenerational equity

Requirement: Favour present options and actions that are most likely to preserve or enhance the capabilities of all people to live sustainably while reducing dangerous gaps in sufficiency and opportunity.

Summary of collective findings		
Potential synergies: nurturing capacities to recognise systems of oppression		
Potential trade-offs: strong focus on identifying inequities but not challenging them, limited focus on long-term wellbeing or links between the unsustainability of social and ecological systems		
Event 1	Event 2	Event 3
<i>Being: deepening empathy, compassion, and presence.</i>		
Confronting unconsciously internalised thoughts, values, and biases through sustained awareness to show up with openness, kindness, and curiosity	Increasing awareness, curiosity, and courage to investigate subconscious biases and learning how to engage non-judgmentally with all people	Cultivating raw perception to recognise phenomena as they are without judgement naturally increases capacities for compassion and empathy to care for other people and the planet
<i>Thinking: increasing understanding of how contributions to sustainability can and should create spirals of equity and wellbeing.</i>		
Recognising social determinants of health, systemic oppression; limited connections made between unsustainability of social and ecological systems	Addressing the impacts of social determinants of health and the need to tackle broader issues that undermine conditions for wellbeing, including poverty and racism	Identifying patterns of thought that perpetuate notions of separation and exceptionalism between different people and the planet; but little extension beyond cultivating awareness
<i>Relating: increasing humility, concern, and commitment to reducing the suffering and strengthening the foundations for greater opportunities for present and future generations.</i>		
Developing awareness of one's embeddedness in larger systems and moving beyond polarities; but limited focus on humility or future generations	Learning how to see and appreciate the intrinsic value of all people and their differences, and heal multi-generational traumas	Seeing that the past, present, and future are mental constructs and that reducing the suffering of others starts with transforming individual minds; but minimal focus on urgency to act
<i>Collaborating: cultivating skills for compassionate, healing, and generative dialogue between diverse groups.</i>		
Recognising interdependence with larger systems and need for these connections for survival; but no connection to concerns for future generation	Developing agency to see and appreciate the shared humanity in all people while not homogenising or generalising experiences or needs	Reducing emotional reactivity and increasing reflexivity to recognise ingrained patterns of thinking that create false boundaries of separation between people
<i>Acting: challenging and dismantling systems of oppression and building equitable replacements.</i>		
Deepening awareness of systems of oppression and how they undermine conditions for collective wellbeing by weighing individual decision making with equitable considerations	Raising awareness of health disparities and inequities and where possible, actively championing change within systems of influence	Encouraging ways of seeing and being that reduce harmful impacts on other people and the biosphere beginning with self-transformation

6.3.4 Resource maintenance and efficiency

Gains made for increasing resource maintenance and efficiency help to reduce threats to socio-ecological systems from resource extraction, use, and waste. Additionally, they help to make more of the material foundations of wellbeing available to the now disadvantaged. Event 3 specifically addressed the importance of using mindfulness to deepen awareness of resource use and consumption patterns (Table 4.3). As one speaker explained, “The real choice is to become aware of what you’re consuming, what you’re producing, and breathe and relax and release it. Let it go. If it’s not nourishing for yourself and for others, learn to let it go little by little”. Throughout Event 3, there was a strong emphasis on practicing mindfulness as a form of inner work to transform the self before helping others. It was commonly assumed that positive inner transformations would automatically result in positive contributions to collective flourishing. As one speaker explained “If I take care of myself, I'm taking care of you, my fellow human being and I'm taking care of you, animal species, the plants species, and mineral species.” The impetus for inner work was connected to enhancing individual capacities to recognise the causes of suffering, reducing contributions to suffering, and through both thoughts and actions, transform suffering. Mindfulness was not, however, focused on mobilising energy and resources to help those in urgent need nor for taking action to change systems that undermine conditions for long-term viability.

In Event 1, mindfulness was framed as a complementary practice for enabling conditions such as patience and forgiveness that are needed for healing different forms of suffering including trauma. Additionally, mindfulness was seen as beneficial for increasing the stamina needed to stay present to suffering and not bypass challenging experiences. As a speaker from Event 1 explained, healing is an ongoing practice that requires sustained energy and space. In these spaces, mindfulness was thought of as synergetic with trauma healing by helping individuals interrupt cycles of blame and anger, increasing discernment, and recognising that all people have at some point hurt others. Mindfulness was also described by one speaker as a salve that could relax the body when experiencing pain, stress, and suffering. Another discussed the application of mindfulness to examine individual habits and

lifestyle choices that support or undermine sustainability conditions with specific focus on keeping “attention to what’s possible here locally.” Few connections were made between the use of mindfulness to inform individual choices related to resource maintenance and efficiency. Specifically, little attention was paid to increasing the appreciation and valuation of our limited stock of collective resources and the need to maintain them for the benefit of all.

Aligning with the literature, Event 2 demonstrated that by the nature of their vocation, healthcare workers are not only deeply aware of how insufficient material resources contribute to ill health and undermine conditions for wellbeing, but also suffer system-induced distress and trauma (Foli et al., 2020; Kellogg et al., 2021). COVID-19 rapidly amplified systemic challenges related to medical access and quality of care, especially as many workers had to contend with limited access to life-saving equipment (Belhouideg, 2020). The benefits of mindfulness addressed throughout this offering were often reframed within the context of helping individual healthcare workers become better resources for others. For example, mindfulness was deemed to be advantageous for helping healthcare workers become humbler and more curious about what they do not know about their patients. Mindfulness was also encouraged as a practice to help clinicians increase their capacity to remain fully present to those in their care instead of trying to multi-task or rush between patients. It is important to note that in many of the talks, mindfulness was suggested as an intervention for increasing the performance of clinicians under pressure, not to transform the challenging environments and systems they were working within. Responses to workplace wellness programs offered during the pandemic have varied. Some advocates have found that interventions such as mindfulness can actually worsen healthcare workers’ distress by treating conditions such as burnout as if it was caused by individual weakness or mindlessness as opposed to systemic factors (Houtrow, 2020).

Table 4.3: Case study reporting on resource maintenance and efficiency

Requirement: Provide a larger base for ensuring sustainable livelihoods for all while reducing threats to the long-term integrity of socioecological systems.

Summary of collective findings		
Potential synergies: cultivating awareness, compassion, and cultural sensitivity to respond to suffering		
Potential trade-offs: overlooking the need to mobilise significant resources to support systemic change		
Event 1	Event 2	Event 3
<i>Being: linking concern for the individual to the lasting collective interests of all.</i>		
Developing competencies including awareness, acceptance, kindness, and non-reactivity to cultivate greater compassion	Questioning assumptions and deepening concern for cultural and racial humility, prioritising sensitivity over competency	Deepening understanding of interdependence between individual, collective, and the planet and the interconnectedness of suffering
<i>Thinking: encouraging more informed decisions with consumption patterns of both materials and information.</i>		
Strengthening emotional regulation to moderate reactive tendencies and increase agency and discernment of information; but minimal connection to reducing material consumption	Recognising how much medical knowledge is influenced by systems of oppression that undermine conditions for wellbeing; but minimal connection to reducing material consumption	Purposefully choosing not to consume products or information that could directly or by extension harm others or the planet; cultivating gratitude for simple pleasures
<i>Relating: minimising negative impacts and maximising positive sustainability effects of individual behaviours.</i>		
Enhancing skills such as awareness to identify harmful patterns of thinking and doing within the context of relationships; but minimal focus on connections between individual actions and ecological harm	Discerning how certain practices and procedures have been developed through a model of efficiency instead of a model of care, interrupting habitual processes that endanger wellbeing	Reducing desire for modern material comforts and luxuries, finding meaning and beauty in the simplicity of nature and the beauty of the present moment
<i>Collaborating: mobilising energy and resources to vulnerable communities who have been systematically oppressed.</i>		
Widening circles of care to community level and providing support for healing trauma and reducing suffering of disenfranchised populations; but little attention to mobilising resources that would support systemic change	Supporting efforts to transform systems is linked to awareness, compassion, and empathy; unclear how mindfulness is linked to mobilising energy and resources for vulnerable populations	Minimal focus on mobilising energy and resources to vulnerable communities and those in need
<i>Acting: increasing awareness of the unsustainability of many normalised behaviours and the availability of positive alternatives.</i>		
Raising awareness of unconscious patterns of thinking and doing that have been systemically engrained; but limited focus on the unsustainability of prevailing systems beyond racial inequities	Encouraging leaders to engage in courageous conversations within their organisations to recognise and transform patterns of systemic violence; but emphasis placed only on individual to drive transformation	Surfacing destructive patterns of consumption that have been normalised in modern society and deliberately choosing to avoid participating in these behaviours

6.3.5 Understanding, commitment, and engagement

Progress towards understanding, commitment, and engagement requires strengthened capacities and inclinations to integrate considerations for sustainability progress into decision making. Reducing suffering, especially trauma related, requires a deep understanding of others. A speaker in Event 1 offered that mindfulness was a way “to meet each other... and find our way toward common humanity.” Another explained that mindfulness is needed to make progress on systemic challenges by “helping us bring forth the commitment, the intentionality to make the most of the opportunities presented by our lives, to move in the direction of our values and ... to try and make the world a better place in whatever ways we can.” Similarly, another speaker suggested that mindfulness be used to encourage reflection into how people could engage and consider “What would be of service and put to work your set of tools, gifts, talents, abilities, resources to generate that service and to be in relationship.” While taken together, these approaches broadly gesture to sustainability requirements, they were fragmented between speakers and more the exception than the rule (Table 4.4). Moreover, they were more cursory ideas and questions than deliberate foci of for cultivating and practicing mindfulness. Contrarily, a commonly expressed theme in this event was that mindfulness is needed for self-compassion and that self-compassion is a precursor for developing compassion for others. Several speakers explained that mindfulness naturally increases responsiveness to suffering because it automatically generates greater compassion, a process which should be noted is a contentious issue in the literature (Fucci, Abdoun, et al., 2022; Hafenbrack et al., 2021; Schindler & Friese, 2022). Throughout the event, it remained unclear how mindfulness catalyses this progress and organically supports understanding, commitment, and engagement.

In medical settings, mindfulness was regarded as generative for increasing capacities for understanding by helping cultivate skills for deep listening, authentic relating, and presence. The impetus to cultivate these inner skills was directed towards clinicians so that they could be of best service to those in their care. Several speakers explained that through authentic connection, clinicians could learn from the relationship with their patients instead of just the

“rational and objective” processes and practices they had been taught in their profession. A speaker in Event 2 explained that this was essential as “most errors in medicine are actually truly systemic, structural problems at their root.” The pandemic rapidly amplified systemic challenges, including insufficient access to resources, that undermined the capacity of healthcare workers to provide safe and proper care resulting in increased levels of distress and trauma among clinicians. The following sentiment captures many shared concerns expressed throughout the sessions, “we don’t have the social structures necessary for doctors to practice medicine humanely.” Accordingly, some speakers argued that mindfulness is useful as an intervention for reducing the moral distress experienced by caregivers, who, as others have argued, are suffering as a result of an unsustainable medical system (Mehta et al., 2022). One speaker described how mindfulness supported their awareness of the need to support organisational transformations and systems change within their sphere of influence. This included participating in protests, advocating for greater accessibility to treatments (e.g., including interventions in other languages), and strengthening the quality of their relational contacts.

Throughout Event 3, mindfulness was reckoned to be necessary for deepening understanding of the impermanence and interconnectedness of all phenomena. This insight was directly correlated with what was described as the “freedom to transform.” Many speakers spoke about the importance of recognising that how individuals think, act, and speak can cause or relieve suffering for self and others. Several speakers argued that without capacities for sustained awareness, people will unconsciously contribute to suffering at all levels – from the individual to the collective. Understanding the relationship between patterns of thinking, speaking, and doing was therefore seen as fundamental for releasing inherited “baggage,” including unhelpful expectations, ideas, fears, and worries. It was suggested that this release invites “mindfulness to come up so we can purify our mind consciousness. Allow it to just experience the scene, just experience the hearing, just experience the tasting, the smelling, the touching.” This invitation was further described as an opportunity to come home to the present moment where deep understanding could take place. Commitment, in the context of this event, was focused on self-development, specifically by interrupting individual thoughts

and behaviours that could cause harm to others. With greater dispositional mindfulness, it was assumed that one would naturally engage more compassionately and skillfully in the world and thus have a positive ripple effect through their thoughts and actions.

Table 4.4: Case study reporting on understanding, commitment, and engagement

<i>Requirement: Build the capacity, motivation, and habitual inclination of individuals, communities, and other collective governing bodies to apply sustainability principles through more open and better-informed sensemaking.</i>		
Summary of collective findings Potential synergies: strengthening awareness of the suffering of others and capacity to respond Potential trade-offs: responsibility for driving systemic transformations relegated to individuals		
Event 1	Event 2	Event 3
<i>Being: nurturing sense of responsibility and commitment to lasting wellbeing for all.</i>		
Heightening compassion motivates concerns to reduce suffering of others and to foster connection through which healing can occur; but limited focus on responsibility for collective wellbeing	Buffering the distress experienced by healthcare workers who have limited access to resources to support their patients; strong focus on inner transformations to reduce systemic suffering	Focusing on transforming inner dimensions, which, by extension, is assumed to nurture generative conditions for collective wellbeing; strong emphasis that inner change will automatically drive positive outer change
<i>Thinking: encouraging greater discernment and agency to critically examine contradictory, incomplete, complex, and ambiguous information.</i>		
Strengthening tolerance for complex, challenging, and dynamic situations through emotional regulation and skilful response	Employing cognitive control to self-regulate and skilfully respond to complex, uncertain, and crisis situations without reactivity	Increasing capacities to see phenomena as they are emerging in the present without bias, premature judgement, or aversion to complexity
<i>Relating: living in a meaningful way that enhances conditions for collective wellbeing.</i>		
Aligning values, meaning, and purpose by increasing capacities for awareness and compassion and creating positive ripples of influence; limited focus on biospheric impacts	Supporting conditions for health whereby people can pursue meaningful lives; but little focus on reducing negative impacts on the biosphere	Nurturing sense of meaning and fulfilment by purposefully choosing a life of simplicity, reverence, and connection with all life
<i>Collaborating: facilitating conflict resolution, problem solving, trust building, and mutual aid.</i>		
Increasing limbic resonance with others through presence combined with a motivation of care facilitates	Attuning to the experience of others to improve quality of healthcare by nurturing trust, authenticity, respect, open	Skilfully responding to situations without emotional reactivity or unconscious biases that obscure the nature of phenomena as they unfold in the present moment

conditions for trust, openness, and healing	dialogue, and bi-directional learning	
<i>Acting: nurturing courage, optimism, and hope for positive innovations.</i>		
Generating greater awareness of how ingrained patterns of thinking need to be challenged to be present and non-judgmental to phenomena as they are unfolding	Encouraging ontological humility, courage to engage in complex situations, reverence for shared humanity to transform healthcare in such a way that it serves all people	Approaching each experience with curiosity and presence to break old patterns of thinking and doing; but minimal attention to innovation

6.3.6 Precaution and adaptation

At the core of requirements for precaution and adaptation is the need to respect and plan for volatility, uncertainty, complexity, and ambiguity. Across the three events was a consensus that mindfulness was instrumental for increasing complexity tolerance and skill in responding to challenging situations without reactivity (Table 4.5). Interestingly, none of the events explicitly focused on facilitating joint and collective efforts to encourage low-risk and adaptive alternatives to unsustainable practices or precautionary pathways towards just transitions. In Event 1, the tendency of the “outer world” to favour the cultivation of hard skills over inner skills was noted. This issue was linked to managing difficult emotions, especially in high stress situations. One speaker described mindfulness as a diagnostic tool for reading your own “dashboard” to gauge the conditions of your emotional landscape. This deliberate and conscious calibration, they argued, protects limbic systems from becoming hijacked by threat responses that prioritise self-protection over connection and creates space to respond skillfully to challenges.

In Event 2, mindfulness was considered valuable for helping people interpret situations with clarity, to increase capacities to detect threats, and mitigate potential risks. It was also deemed to be a useful practice for harnessing inner resources to face emerging challenges and to help frontline workers perform their jobs with agency and integrity. One speaker discussed the need to question the motivations of leadership for offering practices such as mindfulness. For example, is mindfulness being offered to obscure unsustainable conditions

that cause distress and moral injury or is it being offered to invest in the long-term wellbeing of people operating within the organisation? As the speaker explained, this questioning is needed to

“shift that narrative from mindfulness being a tool of tolerance of unethical and toxic situations... to see mindfulness as a way to restore agency, to be able to restore mental and emotional stability so that clinicians can be in a place to discern whether or not they want to continue to loan their gifts and talents to that organization or not, and how to be part of a constructive change process that will lead to culture change. So for me, it’s about giving people the tools to confront those realities.”

Throughout Event 3, mindfulness was commonly presented as essential for preventing and reducing collective suffering via inner transformation. Increasing understanding of one’s mind, specifically patterns of thoughts and behaviour, was strongly emphasised as a way to interrupt destructive tendencies that could endanger socioecological wellbeing. These shared sentiments were summarised by one speaker who offered

“Misunderstanding of our relationship with the earth, with our own body, is bringing about a catastrophic climate change. All of these things are rooted in our mind. And so the understanding of the mind is essential. How can we possibly bring about a change without understanding our mind? Because, we are human beings, we are performing these actions, and each one of us is contributing in some way, not only through you know, just physical action, but actually right in the root of it in our thinking.”

The metaphor of gardening one’s own mind was offered to visualise sowing seeds in the garden of our unconscious by external stimuli such as the media. Mindfulness was viewed as supportive for nurturing individual competencies for discerning whether these seeds would germinate into loving kindness and compassion and should be fertilized or whether they would rot into hatred and discrimination and should be composted. Event 3 also addressed

the growing popularity of mindfulness, particularly within organisations. One speaker described how Zen teacher Thich Nhat Hanh forewarned that as Buddhism modernises and becomes westernised, there is need for caution so that it is not adapted to fit within narrow organisational structures that could dehumanise and denaturalise the practice. This process, Hanh warned, would kill any of the life force that is imbued in the practice, as well as the conditions for flexibility and change that are part of the human condition.

Table 4.5: Case study reporting on precaution and adaptation

<i>Requirement: Respect uncertainty and avoid pursuing poorly understood risks where there is potential for serious or irreversible damage to lasting wellbeing for all by designing for surprise and managing for adaptation.</i>		
Summary of collective findings Potential synergies: strengthening capacities to navigate VUCA, recognising suffering of other people Potential trade-offs: limited focus on reducing vulnerabilities or changing unsustainable systems		
Event 1	Event 2	Event 3
<i>Being: cultivating presence, intention, and active but respectful engagement with complexity.</i>		
Increasing capacity for self-regulation to reduce reactivity when facing complex or challenging situations	Helping healthcare workers develop stamina to remain present, non-reactive, and grounded when facing complex challenges	Sustaining awareness in the unfolding present moment nurtures a relaxed attentiveness that creates conditions for insights to emerge and guide skilful action to complex challenges
<i>Thinking: developing agency to make well-informed and non-reactive decisions in challenging situations.</i>		
Supporting tolerance for complexity directly increases agency and the ability to recognise how the outer world influences experience and understandings	Nurturing capacities for emotional regulation to maintain agency during times of heightened stress and difficulty	Noticing how thoughts, feelings, and past experiences influence perception and how modern stimuli amplify exposure to triggers that misinform and increase reactivity
<i>Relating: increasing concern for the most vulnerable and increasing commitment to reducing threat exposure.</i>		
Bringing attention to systemic oppression through sustained awareness; but limited focus on reducing exposure of vulnerable populations to threats	Increasing awareness of inequities in healthcare that increase threat exposure to marginalised groups; but minimal attention to reducing threat exposure	Recognising that individual thoughts and actions create suffering for others; but limited focus on reducing exposure of vulnerable populations to threats
<i>Collaborating: encouraging and facilitating joint efforts for low-risk, adaptable, and just transitions.</i>		
Not addressed	Not addressed	Not addressed
<i>Acting: cultivating resilience and embracing the richness of complexity.</i>		

<p>Strengthening emotional regulation and compassion helps to increase stamina while cultivating a sense of inner calmness when facing complex challenges; but limited extension to long-term solutions</p>	<p>Deepening capacities including gratitude to recognise positive impacts supports resilience during times of heightened stress; but limited focus on long-term solutions</p>	<p>Focusing on self-healing and cultivating calmness in the face of challenge strengthens resilience and helps to prevent overwhelm or burnout; but minimal focus on long-term solutions</p>
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6.3.7 Immediate and long-term integration

Immediate and long-term integration necessitates that all sustainability requirements be pursued together with the intention of maximising positive benefits. None of the three events paid much attention to broad sustainability considerations, especially within the context of collective wellbeing (Table 4.6). Throughout Event 1 there was a common theme of using mindfulness to cultivate skills that help to cope with the present moment. Themes including sustained awareness, emotional regulation, resilience, and compassion emerged frequently as expected by-products of mindfulness practices. Event speakers and session hosts frequently suggested that inner development, especially when facilitated through mindfulness practice, would provide immediate benefits to the individual, and according to some speakers, organically lead to positive ripple effects within the outer world. It bears repeating that Event 2 took place early in the pandemic when the healthcare field was struggling with a global health emergency of unprecedented scale. Attention was oriented towards the immediate preservation of life rather than the future impacts of providing such care.

Event 3 provided a strong contrast to the other offerings by focusing on how mindfulness helps people find peace for “living in the eternity of the present moment.” Peace in this context was linked to freedom from the stories of the past that individuals have curated, those they have inherited, or notions of a pre-ordained future they have been led to believe is inevitable. As several speakers explained, the present moment offers opportunities to experience both the past and the future. Furthermore, it is only in the present that there is an opportunity to witness beauty, especially in nature, since it unfolds moment to moment and neither the person bearing witness, nor the external conditions, will be the same again. Focus

was more inclined towards learning how to *be* in the present moment, instead of trying to interrupt it or change conditions for the future. As one speaker explained

“Some of us really become burned out trying to take care of the earth...so we forget to take care of our self. We forgot that we are a child of the earth. So just to be able to do nothing is also a way of taking care of the earth; to sit peacefully... restore yourself to rest and do nothing. You may say, I’m not doing anything to take care of the earth, but you are with every breath that restores you. You are helping the earth.”

While this statement may be supportive of personal transformations and wellbeing, when taken out of a context where individuals are understood as being interdependent with all life, it could easily encourage lack of engagement with urgent social and ecological crises.

Table 4.6: Case study reporting on immediate and long-term integration

<i>Requirement: Attempt to meet all requirements for sustainability together as a set of interdependent parts, seeking mutually supportive benefits.</i>		
Summary of collective findings Potential synergies: deepening quality of awareness and engagement in present tasks Potential trade-offs: disregard for long-term and collective impacts of unsustainability		
Event 1	Event 2	Event 3
<i>Being: attuning to present conditions with consideration for future impacts.</i>		
Cultivating sustained awareness to attune to present moment with awareness and non-judgement and increasing capacity to consider impacts of behaviour on others; minimal focus on long term	Meeting present moment challenges with sustained attention despite immediate conditions of immense stress, uncertainty, and reduced resources; but less focused on long-term impacts	Recognising that temporality is a mental construct and that the past, present, and future “inter-are”; but limited focus on transforming conditions for a more desirable future
<i>Thinking: considering the impacts of decision-making on the full range of sustainability considerations and making multiple mutually reinforcing contributions to both present and future wellbeing.</i>		
Encouraging greater awareness and compassion to act skilfully in the present; but limited focus on larger sustainability considerations and future wellbeing	Directing attention towards profound suffering in the present moment with recognition that transformations need to occur across healthcare systems to	Transforming inner dimensions positively contributes to collective healing and the reduction of suffering through sphere of influence; but minimal focus on changing

	reduce equitable access to care; but little focus on future wellbeing	conditions to ensure collective future wellbeing
<i>Relating: building personal satisfactions through just, equitable, joyful, and farsighted relations.</i>		
Finding life satisfaction by aligning values, purpose, and meaning in daily interactions	Cultivating sense of satisfaction and meaning through deep connection and positive experiences facilitated through healing	Pursuing non-material sources of meaning and fulfilment that are not linked to exploitation of other people or the biosphere
<i>Collaborating: nurturing conditions for healing past and present traumas, fostering peace, and building trustful relationships across diverse groups.</i>		
Nurturing connections through presence, compassion, and emotional resonance supports trauma healing while building trust across different groups	Approaching healing through a health equity lens to support trauma healing, cultural humility, and sensitivity while nurturing trustful relationships with others	Enhancing capacities to recognise and decondition ways of thinking and being that marginalise others due to gender, “race”, culture, species, etc.
<i>Acting: seeking multiple, mutually reinforcing gains; sustaining patience, determination, stamina, and optimism for change.</i>		
Being open to transformative change and greeting the barriers to complex challenges with humility, honesty, and hope	Reducing psychological distress, boosting resilience, and building institutional capacities for change via individual transformation	Reconciling with the impermanence of all increases appreciation for phenomenon while releasing the need to control or change things

6.4 Discussion

The case study analysis revealed rich insights including emerging themes, patterns, knowledge gaps, and opportunities to strengthen synergies between inner and outer sustainability. Furthermore, the analysis demonstrated how diverse interpretations of mindfulness inform a variety of understandings and responses to unsustainability, and the associated challenges affecting social and ecological systems. The following section discusses common emerging themes across the events, including compassion, trust, and inner work as well as opportunities for further exploration.

Several emergent themes arose across the case study analysis, the most common centred on compassion, trust, and inner work. Not only were these themes insightful for highlighting connections with mindfulness, but they also identified areas to strengthen the inner-outer assessment framework. The inclusion of these themes in the framework is further discussed below.

6.4.1 Compassion

All three events recognized and emphasized the need to connect mindfulness with compassion. As eloquently described by a speaker in Event 1, “our ability to care for others outside of our kingroup is the hope of the world.” While some speakers attested that compassion naturally arises from mindfulness practice, others argued that mindfulness and compassion are separate capacities that should be pursued together. Event contributors also differed on the extent to which they saw self, others, or both as the key recipients of compassion. In healthcare-focused Event 2 for example, nurturing compassion for patients and colleagues was often a key priority. In contrast, in Events 1 and 3, many contributors explicitly stated that compassion was to be cultivated for the self before others. In these events, speakers commonly suggested that prioritising self-compassion would naturally result in positive ripple effects for society at large. Contributors to Events 1 and 2 also spoke about the need to expand compassion in a way that invites love into workplaces and to create healing spaces where frontline staff can care for each other at work, especially in medical spaces during times of crisis.

6.4.2 Trust

Events 1 and 2 emphasised the need for trust to deepen connection with others. In these contexts, trust building included an invitation to share painful lived experiences, the offering of presence through deep listening and interoception, and the availability of safe spaces to decompress at work. Trust was recognised as an imperative for healing trauma, repairing broken relationships, and connecting with others (especially patients). Additionally, this capacity was understood as a precursor to cultivating humility, sensitivity, and competencies for working with marginalised communities. The cultivation of collective sensemaking skills and complexity tolerance was also commonly linked to trust nurturing. A speaker in Event 1 noted that mindfulness was helpful for building trust and healing conflicts by helping people

look past emotional responses such as anger, seeing through the eyes of others, and recognising the shared humanity between all people. While mindfulness was identified as an integral component for repairing social rifts, speakers expressed concern that building trustful relationships supportive of healing, especially in marginalised communities, requires culturally-attuned facilitators – often with relevant lived experiences – who can help support collective healing over time.

6.4.3 Inner work

The potential for mindfulness to confront habitual ways of thinking and doing that have been unconsciously patterned and internalised was frequently discussed throughout all three events. Moreover, mindfulness was classed as part of larger discussions on personal development, especially linked to inner transformation. The precursors to these transformations were commonly associated with inner work and linked to deepening awareness of and behaviour modification resulting from or in response to:

- how self-interests are often motivated by desires to be perceived a certain way;
- identifying “what inside you is still unfulfilled or un-lived” and how this influences your thoughts and behaviours;
- healing unresolved traumas that could negatively impact others;
- seeing beyond the image of “self” created by the ego to instead be present, vulnerable, and open to connection with others;
- reflexively recognising and confronting unconscious biases that influence perceptions and treatment of others;
- recognising, integrating, accepting, and transforming the disavowed parts of self; and
- freeing oneself from the inherited collection of false beliefs to heal one’s inner child and cultivate new insights and wisdoms that can create healing conditions for others.

Assessment results are helpful for informing the planning, decision making, and execution of future mindfulness events to maximise positive contributions and reduce undesirable trade-offs for sustainability progress. Application of the Cooper and Gibson (2022) framework also identified complementarities and tensions between different conceptions of inner and outer

sustainability transformations. These insights are valuable insights for this emerging field and identify key opportunities to enrich understandings and applications of inner transformation for sustainability progress.

6.4.4 Opportunities and challenges of select mindfulness offerings

The investigated events commonly described mindfulness as a muscle, tool, and/or technology that helps to improve emotional regulation, decision making, and compassion. Aside from having an impact on one's immediate circle, it was not evident how mindfulness might directly leverage broader systemic changes. Similarly, throughout many of the discussions, causal pathways between inner transformation and broader positive systemic change were often unclear or tangential. There was, however, consensus amongst contributors at all three events that mindfulness supports individual wellbeing, and naturally by extension, collective wellbeing as well. For example, the following sentiments expressed by one speaker were quite common throughout the talks.

“I think the best thing that we can do is just sort of... [*focus on*] that sphere of influence around us. You know, just the two, three, four people around us that we can show up for in a more mindful and compassionate way helps to start spreading that movement and that contagion. And we know that emotions and compassion is contagious. So, again, just starting with ourselves and then with our relationships around us.”

There was a tendency for many of the sessions to ignore causal structures that bind decision making in ways that limit opportunities for sustainability progress to individual behaviour change. As others have cautioned, placing the responsibility for sustainability transformations on the individual, is not an effective route to systemic change and can be detrimental to collective wellbeing (Boda et al., 2022; Cohen-Serrins, 2021a, 2021a; Houtrow, 2020). Throughout the three events, there were also inconsistencies related to how mindfulness should be conceived and practiced. One speaker from Event 1 warned that mindfulness should not be approached through a consumerist lens but rather needs to be part

of a consistent and disciplined practice that exists within a community. Other speakers at the same event suggested a much more individual-centred and consumerist approach and mentioned modifying practices to accommodate the demands of their busy lifestyle.:

“You don’t have sort of a minimum viable dose, if you will, of mindfulness. A good rule to think about is that, you know, the more you practice, the better... So start small. Focus on building that sort of habit into your routine and then you can go up. Then you can go crazy. The sky’s the limit. I mean, we have people who have practice for a thousand hours over their lifetime. We have people, you know, the sort of Olympic champions, the Buddhist monks whose brains get research in labs.”

Many of the benefits of mindfulness that were reported, especially in Events 1 and 2 were divided into binaries of helpful or not helpful. For example, a speaker in Event 1 suggested that “If we’re not mindful, we’re mindless. And we wander through our days mindlessly, and that’s not very helpful for ourselves and it’s certainly not helpful for other people.” Similarly, another speaker brought up that mindfulness should be used to discern whether an activity is “helping the planet or taking away from it.” These oversimplified conceptions fail to respect complexities inherent in both sustainability progress and inner development. For example, studies have demonstrated that allowing the mind to wander can have positive as well as negative effects, including benefits for creativity (Agnoli et al., 2018; Killingsworth & Gilbert, 2010; Seli et al., 2016; Smallwood & Andrews-Hanna, 2013). Similarly, it is not always simple to determine whether activities are inherently good or bad for the planet. What might seem good to one person can come at the detriment of other people, species, or ecosystems.

Recognising that temporal and practical restraints limit how much time participants can invest in these events, there is a high likelihood that individual sessions could be taken out of the larger context of the event. If participants attended only one session or part of a session, they would miss the nuanced diverse understandings and applications of mindfulness in

different contexts. Consequently, the transcontextual richness would be reduced to a limited expression of mindfulness, which might not only differ from other approaches, but also limit contributions to sustainability. For example, many speakers limited their conception of wellbeing to human systems, ignoring biospheric implications entirely, especially in Event 1. In contrast, one Event 3 speaker explained that

“you are not separate from all species. You are not separate from all human beings and your suffering and their suffering is not two separate things. And so you come into the monastery in order to be able to first of all transform your own afflictions and then you see that transforming your own afflictions is helping other people to do it. You don't have to make an effort to help other people to transform their afflictions. When you've transformed your own, you quite naturally will do that.”

Event 2 primarily focused on applications of mindfulness to improve conditions for social systems through healthcare. It too largely ignored determinants of wellbeing that extend to the natural world. While not addressed in this Event, the use of mindfulness to enhance the sustainability of medical practices was raised by clinicians early in the pandemic. For example, anesthesiologists expressed the need for mindfulness to minimise the environmental impacts of single-use medical devices and greenhouse gas-emitting anesthetic agents (Gordon, 2020). A similar concern was raised in the field of dentistry, particularly around issues related to waste and pollution (Khan, 2020). In these contexts, mindfulness was viewed as essential for maintaining the quality of patient care while also reducing medicine's environmental footprint. Others have suggested, “Health care providers have a professional responsibility to educate their patients about climate change and the personal impacts it may have on physical and mental health” and that mindfulness might offer preventative benefits for individual and ecological wellbeing (Nusrat et al., 2019, p. 1153). Recognising these sustainability-informed applications of mindfulness interrupts the reproduction of harm within the medical-industrial complex, while simultaneously creating opportunities for broader contributions towards long-term viability.

6.5 Future directions

As demonstrated in this case study analysis, inner transformation offerings are not always aligned with requirements for long-term viability, and in some instances, can even reproduce resilient unsustainable systems. This highlights the need to consider alternative understandings and conceptions of both “mindfulness” and “sustainability.” Such inquiry would entail a shift beyond the prevailing WEIRD (Western, educated, industrialised, rich, and democratic) conceptions of inner and outer sustainability that have so far dominated this field, towards a “pluriverse” or multiplicity of worlds of understanding (Henrich et al., 2010; Kaul et al., 2022; S. Stein et al., 2017). These considerations would be a first of many steps needed to recontextualize the assessment process for applications in non-Western contexts, and would hopefully encourage more ontological hybridity, epistemic humility, and epistemological plurality into discussions around systemic transformations (Abraham, 2016; Bockler, 2021, 2022; Böhme et al., 2022; Goodchild, 2021; Hazard et al., 2020; M. Jackson, 2014; Kimmerer, 2013; Koger, 2015; Leal Filho et al., 2019; Leichenko & O’Brien, 2020; Mueller & Greenwood, 2015; Nightingale, 2016; Papenfuss et al., 2019; Porter et al., 2022; Robinson, 2022; Sol & Wals, 2015; Walsh et al., 2020; Yunkaporta, 2019; Zmigrod et al., 2019). Additionally, it would offer alternative frameworks to prevailing Western sustainability assessments that have been criticized for advancing neocolonial objectives (Baldwin et al., 2019; Snow, 2021). Deliberations on how to best revise and/or replace these assessment frameworks would entail timely re-consideration of the implicit “values and moral imperatives used to determine what is to be sustained and for whom” (Reid & Rout, 2020, p. 105941). Attention to these issues would also spur examination of broader philosophical and ethical questions related to the plurality of possibilities surrounding what inner and outer wellbeing would entail and whether interventions such as mindfulness would be contextually appropriate.

This chapter has applied a generic inner-outer sustainability framework for assessing mindfulness initiatives. It is important to recognise that inner and other sustainability are inevitably envisioned and addressed in many different contexts. In these diverse contexts, the key inner and outer sustainability issues will differ as will the most suitable conceptions and

practices of mindfulness. As others have noted, different versions of mindfulness have varied significantly depending on settings, making content, target, and outcomes important contextual factors for planning and decision-making (Choi et al., 2022). It is also worth noting that contexts are often determined by target audiences, who influence the extent to which ethical and soteriological considerations are included or omitted from the practices. As revealed in this study, positive contributions for sustainability progress will likely not be met by expressions and applications of mindfulness that are hyper-individualised, human-centric, and uninformed about complexity.

It is important to interpret the results of this analysis within the temporal context in which these events occurred. The cumulative effects of existential threats and shared traumas imposed by pressures such as COVID-19 and climate change (Brulle & Norgaard, 2019; Cohen-Serrins, 2021a; Dahan et al., 2022; Ellberger, 2021; Woodbury, 2019) effected understandings of both inner and outer transformation. Another notable point is that compassion, trust, and inner work, which were identified as emergent themes in the case study, were not directly addressed in the initial framework. These three themes, as well as others that arise in subsequent applications of the framework, will merit further exploration. It is both anticipated and hoped that more testing of the framework will lead to richer understandings of the synergies between inner and outer transformations. Moreover, that more diverse applications of the framework will better inform the enmeshed generic and context-specific requirements needed for sustainability progress. Lastly, while this chapter examined how practices such as mindfulness might be strengthened by greater attention to sustainability requirements, further research is also needed to better understand how conceptions of sustainability might in turn be enhanced with greater attention to inner dimensions.

6.6 Conclusions

“Perhaps there is no lack of knowledge, but there is still a lack of consciousness of sustainability” (Ekaradt, 2020a, p. 70).

As environmental degradation and persistent inequities undermine conditions for human wellbeing, there is added urgency to accelerate sustainability progress and remove systemic barriers to collective flourishing. This case study examined three mindfulness events that took place at the onset of the COVID-19 pandemic. The purpose of the inquiry was to examine how and to what extent inner and outer sustainability considerations were considered in mindfulness-based events during a global health emergency and to test the application of the Cooper and Gibson (2022) assessment framework.

As evidenced in the case study analysis, the events often framed mindfulness as a positive mechanism for strengthening inner capacities such as emotional regulation, compassion, and complexity tolerance. While these skills are useful for navigating increasingly complex social and ecological challenges, many core requirements for advancing sustainability progress were entirely overlooked. The most notable oversights included lack of concern for and commitment to reducing environmental degradation as well as mobilising resources for disenfranchised populations. Not only were these oversights missed opportunities for broadening conceptions of and applications for mindfulness, but they also unconsciously perpetuate an individualised expression of mindfulness practice. Contrary to what was articulated by many speakers, engaging with mindfulness for the primary benefit of the *individual* – whether for personal development or wellbeing – is unlikely to result automatically in profound contributions to sustainability progress (Neale, 2011; Tobias Mortlock et al., 2022). A more nuanced understanding and recontextualized approach to individual mindfulness programs is likely needed to support positive systemic transformations as socioecological challenges intensify (King & Badham, 2019; Poulin et al., 2021; Schindler et al., 2019; Tobias Mortlock et al., 2022).

Aligning with what others have expressed, transforming entrenched unsustainable systems is unlikely to occur without a collective awakening to the violence and exploitation that enables

modern securities and pleasures to the detriment of the environment and vulnerable populations (Andreotti et al., 2021; N. Bateson, 2018; Rammelt et al., 2022; S. Stein, 2021a; S. Stein, Andreotti, et al., 2022; Whyte, 2020). Such awakening would address the cultural dimensions of normalised hegemonic worldviews that perpetuate unsustainability and limit transformability beyond the entrenched status quo (Felt et al., 2016; Hammond, 2020; K.-L. Thompson & Ban, 2021). Accordingly, inner transformative practices, including mindfulness, will need to pay greater attention to generic and context-specific sustainability requirements at the nexus of social, ecological, and economic wellbeing if they are to support progress towards long-term viability (Slott, 2015; Sun, 2014; Walsh, 2017; Yi, 2017). Moreover, for inner transformations to catalyse progress towards sustainability, practices will also need to support inner development in a sense of maturation and “growing up” whereby values are extended beyond individual physical gratifications towards a larger “metabolic body” to which all life is connected (S. Stein, Andreotti, et al., 2022, p. 12). This kind of psychoanalytical maturation is essential for steering efforts away from narrow oversimplifications of sustainability and narrow conception of mindfulness, towards processes of “readying” for systemic transformation (N. Bateson, 2022).

It is becoming increasingly evident that sustainability progress will require psychocultural transformation to positive support systemic change (Böhme et al., 2022; Eisenstein, 2013; Fotaki et al., 2020; Hendersson & Wamsler, 2020; Rauschmayer, 2019; Webber & Page, 2022). Advancing progress towards long-term collective flourishing through the leveraging of inner dimensions will, however, require that interventions focus not only on strengthening individual metacognitive capacities, but also on deepening understanding of and commitment to transforming entrenched systems that perpetuate biospheric degradation and social injustices. The burgeoning field of inner transformation represents an exciting opportunity to challenge, interrupt, and transform systems that undermine conditions for lasting wellbeing.

To maximise benefits for collective wellbeing and reduce undesirable adverse trade-offs, it is essential that mindfulness-based programs and other interventions for inner transformation be

curated with greater attention to sustainability requirements. Applications of assessment frameworks, such as the Cooper and Gibson (2023) model have considerable potential for informing the design and evaluation of future offerings.

6.7 Chapter summary

While there is growing optimism for inner transformations to catalyse systemic shifts towards more sustainable ways of being, no study has yet to assess how well current interventions for inner development address core requirements for collective wellbeing. Using three prominent online mindfulness-based offerings as a case study, this chapter explored the extent to which mindfulness-based interventions address widely accepted sustainability criteria during a global health emergency. The novel integrated inner-outer assessment framework presented in Chapter 5 was applied in the case study to examine a set of mindfulness events for synergies and trade-offs for sustainability progress. Results demonstrate that the mindfulness-based interventions can have a broad range of desirable to detrimental implications for social and biophysical systems. As the first study to assess the potential contributions of mindfulness-based interventions for progress towards sustainability during a pandemic, this chapter offers timely and profound insights into an emerging dimension of transformations scholarship.

Chapter 7: Recontextualizing inner and outer sustainability

7.1 Chapter outline

This chapter reviews the application of the conceptual framework and examines opportunities to revise based on results from the case study analysis. Additionally, it examines how conceptions of inner transformation might be recontextualized to best support progress towards collective wellbeing. Moreover, this chapter investigates how understandings of outer sustainability might enrich prospects for lasting viability via inner transformation. Lastly, this study concludes with needs and prospects for future research at the nexus of inner and outer sustainability transformations.

7.2 Enhancing the inner-outer assessment framework

The inner-outer sustainability framework (Chapters 5 and 6) is the first model to assess core requirements for sustainability at interior and exterior scales. The framework is of timely relevance given the mounting interest in inner transformations and the urgent need for broad sustainability progress. Conceptually, the framework applied in practice served as a coherently integrated and structured base for illuminating assessment of how well interventions for inner transformation were aligning with requirements for long-term viability. Further insights derived from the initial testing of the model are discussed below.

7.2.1 Strengths of the Inner-outer sustainability assessment framework

As illustrated in Chapter 6, the application of the inner-outer assessment model (Cooper & Gibson, 2022) was highly effective for identifying the extent to which different mindfulness-based interventions addressed core requirements for sustainability. The revealed key strengths of the framework include the following:

- *Contextually adaptable assessment process and tool* – the framework demonstrated its suitability for assessing how a range of mindfulness-based offerings addressed sustainability requirements. Additionally, it was efficient in reporting on potential synergies, trade-offs, and opportunities to strengthen core practices so that they better align with sustainability criteria.
- *Accessibility* – the side-by-side presentation of analysis results simplified and streamlined comparison of the events. This also facilitated greater awareness of overlapping and interdependent relationships between different criteria.
- *Overlapping and interdependent categories* – having overlapping categories ensured that the interdependent requirements of different criteria were recognized. Similarly, by not weighing criteria, the framework made it more difficult for biases linked to values and worldviews to influence data analysis and avoided the concerns about double counting results that arise in approaches that aim for quantitative precision.
- *Conceptual adaptability* – the framework is suitably flexible in structure to accommodate new iterations of the Inner Development Goals (IDGs) as they develop. Should another more holistic model for inner sustainability requirements emerge, the framework can be adjusted to accommodate further recontextualization.
- *Surfacing emerging trends* – as demonstrated, the framework was effective in identifying emerging trends across the different events. Recognition of such trends are likely to inform new understandings of how inner and outer sustainability are conceived in specific contexts and how future interventions might be strengthened to best align inner and outer transformations for sustainability progress.

7.2.2 Opportunities to enhance the Cooper and Gibson (2022) framework

Recognizing that the framework was only tested in three events as part of a case study, it is likely that further enhancements might be made. Considerations for how the assessment framework might be strengthened in further iterations include the following:

- *Novel areas of application and testing* – Testing the framework in different interventions to determine suitability in contexts beyond mindfulness is suggested and anticipated to test its usefulness in diverse applications and to elucidate opportunities for improvement.
- *Need for more integral worldviews* – The framework is largely an amalgamation of two WEIRD models of inner and outer sustainability (IDGs and Sustainability Assessment / SDGs). Accordingly, as currently presented, the framework may not be suitable for assessments outside the scope of WEIRD settings. More broadly informed worldviews may well be needed to enhance the framework and to invite more diverse and inclusive perspectives related to sustainability and collective flourishing.
- *Not suitable for quantifying or ranking events* – The framework is intended to respect relationships and interdependencies between broad requirements for inner and outer sustainability. The qualitative design was deliberately chosen to minimize opportunities for reductionist and value-based quantifications. Any attempts to use the framework for the purposes of quantifying or ranking events will be thwarted from the outset. However, complementary approaches to applying the framework along with suitable more quantitative studies may be found.

As evidenced through the assessment process, was that future iterations of the framework should pay close attention to identifying key terms and whether there are variances in how they are used in different contexts. As previously noted, there was no consensus around how

mindfulness was conceived, how it should be practiced, and who should be practicing it. Similarly, the same attention should be directed at identifying whether and how causal processes and links between inner and outer sustainability can be appropriately leveraged. Specific examples demonstrating the effective pairing of inner and outer transformation would add credibility to the interventions and enrich knowledge in this field. The following sections explore theoretical implications that arose from the framework, specifically concerning how inner transformation approaches such as mindfulness might be enhanced with greater attention to sustainability and how sustainability might in turn be enhanced with greater attention to inner dimensions.

7.3 Recontextualizing mindfulness-based interventions with greater attention to sustainability

“To become the species the earth needs – creatures who are not only self-conscious but conscious that we are how the earth becomes self-conscious – we need to embrace the new bodhisattva path, which unites individual and social transformation. That involves contemplative practices deconstructing and reconstructing one’s sense of self, in service of social and ecological engagement. Doing the best we can is our gift to the earth – in fact, since our species is one of its many ways of manifesting, it is really the earth’s gift to itself” (Loy, 2018, p. 179)

7.3.1 Consciousness and inner transformations

Inner transformations, particularly meditation and mindfulness are often described as processes linked to consciousness¹ expanding practices that can change values, or at least value priorities and combinations (Gleig, 2021). These processes are often associated with “conversions” that stem from the Latin *convertere* or “to turn” (Gerbner, 2015).

Consciousness conversion refers to a “process of transformation” that occurs either at the

¹ While it is far beyond the scope of this research to thoroughly unpack the richness of consciousness, it is worth clarifying that in this context, the term is more closely aligned with a process as opposed to a particular state of mental functioning (McGilchrist, 2018).

individual and/or collective scales, has social, cultural, and political implications, and that may legitimize colonial expansion through religiosity (Gerbner, 2015, p. 134). While the expansion of consciousness is generally framed as desirable and mutually beneficial for individuals and society, it would be wise to remember that consciousness-changing practices, whether through different forms of meditation practice, yoga, or psychedelics, are not above corruption or weaponization (Kotler & Wheal, 2018; Wheal, 2021). Furthermore, consciousness alone does not guarantee virtuous behaviour. As has been noted, “Somehow our consciousness of good and evil in this century blinds us to the scale of the genocide attempted against the original inhabitants of some of our most precious lands. If we refuse to acknowledge the past, we conceal the nature of suffering, and therefore cannot understand demands in the present” (Brody, 1988, p. xiv).

If inner transformations are to be leveraged for outer change, consciousness might be best reframed through an ethnospheric lens – “the intellectual and spiritual web of life that envelops the planet” (W. Davis, 2009, p. 2). This departure would not only align with notions of old sustainability (Gibson, 2005), but would also mitigate potential dangers resulting from reductionist binaries of inner and outer, human and nature. Unlike reductionist frames of understanding, the ethnosphere encapsulates “the sum total of all thoughts and intuitions, myths and beliefs, ideas and inspirations brought into being by the human imagination since the dawn of consciousness” (W. Davis, 2009, p. 2). A more systemic, embodied, and relational framing might also increase complexity tolerance and capacities for group coherence (Bockler, 2022).

7.3.2 Linking inner and outer sustainability

To support progress towards long-term viability, interventions for inner transformation are required to address broad sustainability criteria as previously described, as well as context-specific challenges resulting from pandemics, violent conflicts, climate-related emergencies, and other looming crises. As this research has demonstrated, inner dimensions both influence

and are influenced by outer dimensions. In fact, there is no clear demarcation between these complex and interacting dimensions, as noted in Chapter 4. While there is potential for applications focused primarily on inner dimensions to accelerate progress towards long-term viability, there is also an opportunity for them to undermine this progress.

The relationship between inner and outer sustainability is profoundly more complex than often described in the literature, making transformative pathways and theories of social change subject to interpretation. The strong resiliency of entrenched economic, political, and social systems that operate from an unsustainable neocolonial model that prioritizes individual wellness over collective wellbeing adds further complexity to large-scale transformations (Machado de Oliveria, 2021). Given the strong inertia of the mindfulness movement (as described in Chapter 2) and the urgent need for systemic change to address mounting issues such as climate change, mental health, and armed conflicts, it is very likely that interventions for more sustainability-oriented inner transformation will continue to grow in popularity. Accordingly, it is important to reflect on how mindfulness and other approaches to inner transformation might be enhanced and adapted to best support conditions for collective flourishing.²

7.3.3 Contextualizing mindfulness anew

Some of the core challenges associated with using mindfulness to enhance prospects for steps towards sustainability are linked to the absence of single accepted version of mindfulness. Rather, there are many “mindfulnesses” and “Buddhisms”, just as there are numerous understandings and conceptions of sustainability (see Chapter 5). Additionally, as others have noted, Buddhism is not an inherently pro-environmental or pro-social religion (Elverskog, 2020; E. Thompson, 2020). Attempts to re-contextualize modern mindfulness practices towards a “traditional” or largely romanticized Western version of Buddhist

² While it is likely that many, if not all approaches for inner transformation will require some level of recontextualization to align with broader sustainability goals, the case study analysis focused exclusively on mindfulness-based interventions, as will be done here as well.

spirituality will therefore likely fall short of ensuring progress towards sustainability. Moreover, since nineteenth century colonialism played a pivotal role in making meditation practice widely accessible to the West (Gleig, 2019), there are deep ethical considerations for further adapting mindfulness for a version of the “collective good” and important questions about how this process might further privilege certain beings to the detriment of others (Walsh, 2017). With these concerns in mind, this section will address some insights from sustainability practice that could inform how mindfulness might be contextualized anew with attention to (i) the evident requirements for local-to-global transformations towards conditions for long-term viability, and (ii) the related need for a more integrated and humbler worldview with key qualities found in traditional Buddhism (and other sources) that complement core sustainability requirements. This summary expands on the broad inner-outer requirements outlined in the Cooper and Gibson (2022) framework as informed by the case study in Chapter 6.

i) Broader and longer-term orientations

Expanding awareness of the needs of the present with attention to enabling conditions for long-viability, should help attune mindfulness offerings to emerging threats and challenges. The mindfulness movement has demonstrated exceptional adaptive capacity and resilience in staying relevant across time, space, and a range of traditional to secular orientations (E. Thompson, 2020; J. Wilson, 2014). Where the practice might be enhanced for the purposes of sustainability progress is through increased attention to multi-scalar foci, for example the “big here and long now” (Robin, 2007), global to local (Purcell & Brown, 2005), and individual to collective (Tobias Mortlock et al., 2022). An example of this is encouraging people to reflect upon how their decisions in the present might generate or relieve suffering in the future. The capacity to consider immediate and future implications increases capacity to detect, mitigate, and adapt to emerging threats (Weick & Sutcliffe, 2007).

ii) Context-specificity

Mindfulness-based interventions would also benefit from an appreciation of more specific contexts for determining how mindfulness is conceived, how associated practices are meant to be used, where and for whom applications are appropriate. As previously mentioned, not all mindfulness practices are appropriate for all audiences and care is needed to reduce potential for harm. Greater humility and reflexivity on the part of leaders in this space is therefore encouraged to maximize net benefits and reduce undesirable trade-offs by paying greater attention to what would be most appropriate for and in service to event participants. Opportunities for avoiding adverse effects and enhancing positive ones for collective wellbeing (social and biophysical) and sustainability progress, are often most directly hand in hand in the specific, local contexts of particular mindfulness interventions (Gibson, 2017b). Accordingly, more transparency is needed to determine intended audience and instructors, as well as potential benefits and harms of different practices.

iii) Individual and collective orientations

To avoid reinforcing values and worldviews that prioritize individual wellness at the expense of collective wellbeing, it is essential that mindfulness (and inner development approaches generally) is not only self-focused but also other-focused. It is therefore important to reflect on how mindfulness practices might be better aligned with increasing awareness and engagement for confronting unconscious patterns of prejudice and subjective realities that enable an oppressive neocolonial status quo (Musho Hamilton et al., 2020; Rowe, 2015).

This links to another line of inquiry related to the need for discernment, humility, and care whenever mindfulness-based interventions seek to support vulnerable communities. Key considerations include, for example, what kinds of precautions might be taken to mitigate the risk of harm including re-traumatization? Accordingly, newly contextualized mindfulness-based offerings might be better prepared to support progress for inter- and intra-generational equity through open processes of deliberation instead of assimilation or top-down imposition. Discerning whether and how mindfulness practices might be appropriate in these groups

should always be done with extreme care and on-going consultation with community members. Interventions such as neuro-decolonial mindfulness, are likely to inform new pedagogical lenses for interrupting patterns of oppression and exclusion in different offerings (Berila, 2014; Williams et al., 2016; Yellow Bird, 2013; Yellow Bird et al., 2020). Beyond social justice and intersectional issues, mindfulness practices also need to increase their orientation from individual attentional regulation towards collective coherence. As High Reliability Organizations have demonstrated, mindfulness offers value for increasing shared cognition and situational awareness, both of which are essential for crisis environments (e.g., climate change, pandemics, ecological disasters, etc.) (Edmondson, 2018; Sutcliffe, 2018; Tobias Mortlock et al., 2022; Weick, 2001).

iv) Complexity tolerance

Instead of assuming sustainability challenges to be problems to be fixed through psychological intervention, it would be beneficial for mindfulness interventions to reflect upon how they might be unconsciously perpetuating systems of oppression and exploitation. If the aim of the intervention is to increase employee output at work to benefit the corporation, this is unlikely to support conditions for socio-ecological system integrity. As others have alluded, trying to solve systemic issues through inner transformations or in this case, mindfulness, fails to recognize the complex structural drivers that underlie socio-ecological challenges including their influence on individual values, thoughts, and behaviours (Boda et al., 2022; O’Byrne, 2020). Accordingly, it would be advisable for mindfulness practices to nurture greater complexity tolerance in such a way that they encourage awareness of the relationship between systemic forces (e.g., capitalism), individual thoughts and behaviours, and sustainability issues.

v) Understanding, commitment, and responsibility

As has already been discussed, mindfulness practices in certain contexts have demonstrated a broad range of benefits for supporting sustainability progress including enhanced capacities for empathy, compassion, nature connection, as well as pro-social and pro-environmental

orientations. While these benefits are likely to be of immense benefit for advancing conditions for long-term viability, without commitment to engagement they are unlikely to support systemic change. Encouraging new motivations and habits that support the engendering of these capacities with specific attention to sustainability is likely to be beneficial for sustainability progress.

vi) Plurality of mindfulnesses

As previously mentioned, another consideration for recontextualization purposes is the need to prevent further assimilation of different mindfulness approaches into a narrow, Western, secular, scientifically validated, and individual-focused practices. Interrupting patterns of homogenization not only challenges inequitable and unsustainable systems but invites appreciation for different expressions of mindfulness. A more diverse and inclusive conception of mindfulness might also offer wisdom for confronting problematic worldviews, such as by helping "humans see they are not the jurisprudential centre of the universe" (Borrows, 2018, p. 61). Accordingly, the testing of non-meditative approaches to mindfulness in future applications of the framework is likely to further inform the assessment model as well as other potential frameworks for investigating this nexus.

7.4 Recontextualizing sustainability with greater attention to mindfulness

"Sustainability is not the achievement of stasis. It is not a passive consequence of having fewer humans who consume more limited resources. One must work at being sustainable" (Tainter, 2006, p. 93).

Against a backdrop of ecological destruction and social rifts are growing concerns that the unbridled pursuit of progress and innovation is making the world more vulnerable to civilizational collapse (Bostrom, 2019; Ord, 2021). In fact, scientific and technological progress has reached a point whereby human action – either accidental or deliberate – could destabilize the biosphere and threaten all life on Earth (Bostrom, 2014; Hodges & Sanders,

2014; Jägermeyr et al., 2020; Wagman et al., 2020). Given the complexity of the wicked dilemmas underpinning unsustainability, it is unlikely that progress towards collective flourishing will be met with sufficient scale and urgency to meet imminent challenges such as climate change without greater attention to the inner dimensions of sustainability progress. However, a clearer theory or set of complementary theories of social change is required to effectively inform how collective action might be leveraged for systemic change (Boda et al., 2022; O’Byrne, 2020; S. R. Smith et al., 2020).

7.4.1 Socio-emotive support sustainability practitioners

The impacts of unsustainable systems, including climate change, are negatively impacting psychosocial health (Clayton, 2020; Cunsolo et al., 2020; Godsmark, 2020; Hayes et al., 2019b; S. K. Stanley et al., 2021). In fact, some now view climate change as “the biggest threat to global mental health in the coming century” (Charlson et al., 2022, p. 106984). Regularly experiencing environmental destruction – either directly or vicariously – can be traumatizing and detrimental to wellbeing (Pihkala, 2020). Environmental researchers working in fields such as climate change are increasingly experiencing heightened rates of stress, anxiety, depression, and hopelessness (Gilford et al., 2019; Richardson, 2018).

Climate driven conflicts, forced migrations, and environmental exposure (e.g., to wildfires, floods, droughts) are likely to result in unprecedented needs for mental health support, particularly among low and middle-income populations (Atwoli et al., 2022; Koubi, 2019; Mach et al., 2020; Obradovich & Minor, 2022). Most research at the intersection of mental health and climate change has focused on high-income countries, overlooking the needs of the most vulnerable nations that not only bear the heaviest burden of climate change, but have the least amount of adaptive capacity to meet the growing challenges (Atwoli et al., 2022; Charlson et al., 2021).

As COVID-19 demonstrated, psychosocial health is also damaged by social, economic and health aspects of unsustainability. COVID-related stresses that led to with the mass exodus of

healthcare workers, individual burnout, arising from insufficient resources and support, undermined collective wellbeing (Gordon, 2022). Accordingly, there is a growing need to explore how the psychosocial health of those working in the sustainability field, including disaster workers, refugee service providers, researchers, and science communicators, might be supported during these critical times when their contributions are most needed (Budziszewska & Kalwak, 2020; C. Eriksen & Ditrich, 2015; Gilford et al., 2019; Moser, 2019; Pihkala, 2020; Shi & Moser, 2021). The urgent need to strengthen these support systems is compounded by increasing incidents of ecological disasters (Raju et al., 2022), armed conflict (Ge et al., 2022), and polarization around issues such as climate change and migration (Falkenberg et al., 2022).

7.4.2 Increasing awareness of the “Inner turn”

Increasing awareness of epistemic and ontological blind spots through the cultivation of greater mindfulness and reflexivity is anticipated to be of benefit for sustainability researchers. Scholars such as Boda et al. (2022) have strongly cautioned against the “Inward Turn” trend in sustainability research. This “extreme form of methodological individualism,” they argue, places such a heavy reliance on inner dimensions to solve complex social and environmental problems that it actually undermines capacities for systemic change (Boda et al., 2022, p. 291). Where the inner turn is most prevalent but often difficult to identify is in contexts where interventions are attempting to leverage capacities for consciousness expansion, worldview change, and inner development while oversimplifying relationships between individuals as change agents and systemic drivers of unsustainability (Boda et al., 2022). Increasing resilience and effectively responding to systemic crises such as climate change and COVID-19 will require greater commitment to “interventions that place equity, solidarity, and care at the center of healthy adaptation and wellbeing” (Camponeschi, 2022, p. 1). Frameworks such as the Cooper and Gibson (2022) model are generative for assessing how inner transformation initiatives are leaning into the “inner turn” by neglecting core

sustainability criteria, and how they might be strengthened to better align with sustainability progress.

7.4.3 Gesturing towards more integral worldviews and sustainability assessment processes

"Were societies to be ranked on the basis of technological prowess, the Western scientific experiment, radiant and brilliant, would no doubt come out on top. But if the criteria of excellence shifted, for example to the capacity to thrive in a truly sustainable manner, with a true reverence and appreciation for the Earth, the Western paradigm would fail" (W. Davis, 2007, p. 201).

While scientific knowledge is vital to informed decision making, it represents but one way of knowing and often neglects important inner dimensions such as values (Benham & Hussey, 2018; Pietri et al., 2011; Sheaves et al., 2016). For sustainability assessments, values are critical for determining the appropriate frameworks, tools, and processes to be used in specific contexts (Gasparatos, 2010; Gasparatos et al., 2008). As Gasparatos (2010) notes, different tools are informed by specific worldviews, which in turn have their own value-based systems. Shifting from simply reductionist to more composite tools offers a range of means for measuring temporally and geographically bound indicators, with different degrees of value-driven subjectiveness (e.g., data selection, defining core criteria, aggregating and weighing units of analysis) (Gasparatos, 2010; Messner et al., 2006; Munda, 2006; van den Hove, 2006).

Shifting away from a development paradigm (Waas et al., 2014), especially rooted in WEIRD understandings and valuations of sustainability is likely to enhance conceptions of and pursuits towards long-term viability. Many scholars explored potential for an emerging integral worldview that weaves together diverse and often oppositional ways of knowing such as science and spirituality (de Witt, 2016; Laszlo, 2006; O'Brien & Sygna, 2013; van

Egmond & de Vries, 2011; Wilber, 2000). This “rationally spiritual” hermeneutic is characterized by reflexivity, self-awareness, and rational scientism (Benedikter & Molz, 2011) and relies on academic and non-academic actors to co-produce knowledge (Martínez-Fernández et al., 2021). Benedikter and Molz (2011) summarize the strengths of the approach as follows:

“One of the great powers of this worldview is that it has the ability to see a larger, deeper, or higher-level unity in our world of duality and opposition, however not by reversing the process of differentiation (i.e., by negating the differences or opposition in favor of the whole), but by bringing together and integrating the polarized elements. In other words, it attempts to include a wide range of viewpoints, even if those viewpoints may be conflicting with each other, capturing the potential unity through the full recognition of its differences, inbuilt dialectics, and paradoxes” (p. 209).

This kind of integrated worldview builds on the Integral Theory work of Ken Wilber (Wilber, 2000) and has been applied in numerous fields including medicine, ecology, and politics . Additionally, this integrated approach has been used in sustainability assessment (Martínez-Fernández et al., 2021). For example, in architecture, Integral Sustainable Design (ISD) is used as an evaluative framework to assess design parameters from several perspectives and to enhance sustainability progress by nurturing a reflective holistic worldview (Roetzel et al., 2017).

7.4.4 Deepening empathy, compassion, and trust

A core requirement for sustainability is linked to increasing capacities for understanding, commitment, and engagement (Gibson et al., 2020). Progress in this context is linked not only to motivating decision makers to make better informed, more democratic, and inclusive choices but also to building the capacities and opportunities for more people to engage with understanding and influence in collective deliberations and decision making (Gibson, 2017b). Expanding on these core elements is an opportunity to foster inclinations to nurture empathy

and compassion during assessment processes. As the case study demonstrated (Chapters 6 and 7), mindfulness-based interventions placed a strong emphasis on deepening compassionate and empathetic responses to suffering. Mindfully attuning to the inner dimensions of community members for example, could help project proponents better understand socio-emotive concerns and land-based valuations that are typically overlooked in assessment processes. Investing time and energy to engage in deep listening (Kasriel, 2022) and compassionate conversations (Musho Hamilton et al., 2020) whereby decision makers might come to better understand others (Kapuściński, 2008), could be therefore not only be advantageous not only for sustainability assessment processes but also for progress towards lasting wellbeing. Potential benefits might include more participatory engagement in decision making, inclusion of more diverse ways of seeing and doing, and trust-building between and among stakeholders.

7.4.5 Approaching sustainability assessment with more trauma-informed processes

While it is beyond the scope of sustainability assessment literature and this research, a recurring theme surrounding trauma healing emerged throughout the events. In conventional applications of sustainability assessment, greater attention to trauma is anticipated to be beneficial for consultation with stakeholders and community members. As a form of inter-community due diligence, deepening awareness of historical traumas might inform ways to mitigate adverse effects of projects (e.g., dams, resource extraction, highway expansions) in context-specific conditions. This is of particular relevance in areas where there is a history of conflict between local communities and project proponents. Such attention is likely to inform better decision-making processes by widening the scope of considerations, options for response, and diversity of engaged members for consultation (Gibson, 2017b).

Increasing trauma awareness is also essential for understanding broader sustainability challenges including how “lasting cultural wounds from colonialism, mistreatment or annihilation of traditional cultures and Native peoples, slavery, misogyny, and other

instances of injustice and wrongdoing continue to bleed into current societal interactions and relationships” (Berzonsky & Moser, 2017, p. 19). These unprocessed and often enduring forms of oppression are compounded by environmental change and negatively impact social determinants of health and wellbeing (Camponeschi, 2022).

Some have argued that profound environmental change and COVID-19 have birthed a new form of higher order trauma that has pervasive effects throughout the world (Albrecht, 2020; Brulle & Norgaard, 2019; Ellberger, 2021; Woodbury, 2019). This trauma is negatively impacting mental health and wellbeing, especially in Indigenous communities (Cunsolo & Ellis, 2018; Middleton et al., 2020; Woodbury, 2019). Some scholars have insisted that “bringing increased awareness to the collective traumas underpinning our social structure” (Woodbury, 2019, p. 7) is a necessary precursor for removing the psychological barriers that prevent effective action on issues such as climate change. Similarly, framing climate change merely as an external issue, to be solved by technology or new policies, may be ineffective without also recognizing it as an inner matter: “Seeing the crisis as a new form of trauma that is triggering us all individually and culturally, by contrast, makes it more personal. Climate trauma is a systemic assault rather than a technological externality, and the self-awareness promoted by this paradigmatic shift in our outlook engender personal responsibility and leads to more responsible social movements once we begin hacking at the root of the crisis rather than pruning its symptomatic branches” (Woodbury, 2019, p. 6).

7.5 Chapter summary

The Cooper and Gibson (2022) model is well positioned to assess the extent to which mindfulness-based interventions address core sustainability requirements. Application of the framework identified opportunities to strengthen mindfulness-based events and other current mindfulness offerings by aligning them with conditions for long-term flourishing as represented by the core requirements for progress towards sustainability. This step would amount to contextualizing mindfulness practice anew for a world in which both individual and collective wellbeing depend on greater concern for and commitment to reducing

environmental degradation and increasing resources and opportunities for disenfranchised and vulnerable communities. The chapter also recognized the importance of the emerging mindfulness themes of compassion, trust, and inner work, which merit further examination within the context of inner-outer sustainability transformations.

Chapter 8: Conclusion

8.1 Chapter outline

This concluding chapter synthesizes the significant research findings and novel contributions to the literature. The first three sections revisit the research purpose and objectives, while summarizing important findings and knowledge contributions to theory and practice. Next, study limitations and directions for future research are described. Lastly, the chapter concludes with personal reflections and final thoughts on the dissertation process.

8.2 Research purpose and objectives

The purpose of this research was to explore the relatively unexplored liminal space between inner and outer sustainability. Specifically, this research aimed to increase understandings of how inner transformations – driven by practices such as mindfulness – support outer sustainability transformations conducive to long-term and collective flourishing. The overarching questions that guided this research were: (i) what is the relationship between inner and outer sustainability, and (ii) to what extent and how do the selected case studies of online mindfulness-based programs and interventions address the requirements for inner-outer sustainability?

To inform this primary research focus were three main objectives:

- i) To develop a conceptual framework for evaluating the extent to which mindfulness-based interventions addressed core requirements for sustainability progress based on the literature;
- ii) To test the application of the framework in interventions offered during a global health emergency and identify implications for sustainability transformations; and
- iii) To examine how attention to sustainability matters might strengthen mindfulness and inner transformations more broadly, both as concepts and practices.

8.3 Significant findings and novel contributions

The chapters of this dissertation, while presented as distinct sections, are interdependent and overlapping pieces that together provide novel insights into the burgeoning field of inner-outer sustainability. Accordingly, the chapters identify and address research gaps, propose and test a novel assessment framework, and invite opportunities for future learning. To set the context for addressing the primary research question, Chapter 3 explored the relationship between mindfulness and sustainability through an integrative literature review and informed how the pairing is of interest to researchers and practitioners in various fields. Expanding on these findings, Chapter 4 informed how greater attention to sustainability matters could strengthen mindfulness and other approaches to inner transformation. From these insights emerged a conceptual framework for the purposes of assessing inner-outer sustainability as presented in Chapter 5. Lastly, a case study analysis was undertaken to test the application of the framework and empirically examine its use in timely interventions in Chapter 6. A more thorough review of each chapter as well as the theoretical, empirical, and applied contributions follows.

8.3.1 Theoretical, empirical, and applied contributions of Chapter 3

Chapter 3 presented the findings of an integrative literature review at the nexus of inner and outer sustainability. The review synthesized current understandings, identified knowledge gaps, and set the contextual foundation for the research. Specifically, this chapter provided a substantive overview of mindfulness through a post-Buddhist western lens. It identified a spectrum of mindfulness conceptions ranging from more traditionally Buddhist oriented approaches, to varying degrees of post-Buddhist conceptions, to those more strongly secularized. Examining the nuance between these different conceptions revealed that there is no “one mindfulness” but rather a broad range of “mindfulnesses.” For sustainability purposes, this is of great relevance because some conceptions of mindfulness are more aligned with long-term viability than others. Moreover, a range of effectiveness has been

observed for positive effects of mindfulness for sustainability progress. For example, in some instances, mindfulness practices have been associated with reduced pro-social orientations (Hafenbrack et al., 2021) while increased prosocial orientations are fostered in others (Berry et al., 2018). As the chapter demonstrates, attempts to leverage inner transformational practices for sustainability progress ought to articulate clearly how interventions such as mindfulness are conceived and the extent to which they nurture conditions for long-term viability.

Numerous benefits of mindfulness for sustainability progress were identified including: increased belief in climate change and deeper connection with nature (Panno et al., 2018; J. Wang et al., 2019), reduced consumerism (Bahl et al., 2016; Dhandra, 2019; Frank, Sundermann, et al., 2019; Helm & Subramaniam, 2019; Milne et al., 2019), and increased ontological and epistemic humility (Hensley, 2020b; Mueller & Greenwood, 2015; Pierce, 2015; Powietrzyńska & Tobin, 2017). Additionally, mindfulness was found to support the nurturing of deep values (Bernal et al., 2018) and is thus seen as a mediator for ecologically conscious behaviour and wellbeing (Geiger et al., 2018; Van Gordon et al., 2018). However, since most measurements of mindfulness are self-reported, study results are subjective and challenging to replicate. Therefore, it is difficult to assess not only changes in individual trait mindfulness but also the extent to which shifts in mindfulness affect pro-environmental behaviour (F. S. Barrett & Griffiths, 2018; Grabow et al., 2018; Thiermann & Sheate, 2022).

As others have demonstrated, whether individuals are committed to adopting mindfulness as an integral part of their way of life (spiritual or otherwise) or as an isolated and de-contextualized meditation practice, influences the potential positive impact of mindfulness at larger scales (Thiermann & Sheate, 2022). Similarly, as the chapter demonstrated, it is important to articulate what is meant by sustainability when trying to leverage new transformative pathways as the term carries various context-specific definitions, goals, opportunities, trade-offs, and challenges. For example, when framed within a development lens, sustainability risks reinforcing a status quo that undermines conditions for long-term and collective wellbeing (Baldwin et al., 2019; Banerjee, 2003; Banister et al., 2019; Barbier

& Burgess, 2019). Contrarily, if approached with greater attention to notions of old sustainability, more enduring value systems, worldviews, and mindsets might be positively leveraged (Gibson, 2005, 2017b; Gibson et al., 2020).

Complexity, transformations, and resilience, were also examined, specifically their connective tissues linking inner and outer change processes. The research revealed that changing unsustainable behaviour by confronting narrow and short-sighted values and worldviews requires the cultivation of more integrative and complexity-tolerant capacities (Berkes et al., 2003; Csikszentmihalyi, 1990; Gaudreau & Gibson, 2010; M. C. Jackson, 2000; Kish & Quilley, 2017; Swilling & Peter, 2014; Tainter, 2006). Greater tolerance for complexity necessitates deeper appreciation for the non-linear and sometimes stochastic interactions between interdependent systems across social and ecological scales (Armitage et al., 2012; X. Bai et al., 2016; Bathiany et al., 2018; Berkes et al., 2003; Finsterwalder & Kuppelwieser, 2020; Folke, 2006; Holling, 1973; Liu et al., 2015; Olsson et al., 2014b; Willamo et al., 2018).

Transformations were broadly conceived as fundamental changes in complex and adaptive systems (Feola, 2015; Hölscher et al., 2018; Patterson et al., 2017; Rotmans et al., 2001). Accordingly, progress towards sustainability requires that undesirable systems be interrupted and transformed (Meadowcroft et al., 2019; Patterson et al., 2017; SAPEA, 2019; Scoones et al., 2020; Swilling, 2020) and that the resilience of desirable systems be enhanced (Foxon et al., 2009; MEA, 2005; Olsson et al., 2014a). Resilience in this context concerns the capacity of a system to absorb shocks and even to change in ways that maintain its functionality (Walker & Salt, 2006). The literature reported many observed trade-offs for resilience building, but the general approach for sustainability progress was to reduce negative impacts, strengthen opportunities for positive contributions, and always appreciate complex interactions to strengthen adaptability of systems to change (Adger, 2008; Bahadur & Tanner, 2014; Berkhout, 2008; Folke et al., 2010; A. Smith & Stirling, 2010). These insights coalesced around the need for a more systemic lens of inquiry to examine the relationship

between mindfulness and sustainability since these interactions are complex, non-linear, and influenced by external forces (G. Bateson, 1972; Sajjad & Shahbaz, 2020).

Another key finding that arose from the literature review at the intersection of inner and outer sustainability was that greater attention is needed to reduce inequitable power distributions that perpetuate dominant and unsustainable worldviews and behaviour (Chancel & DeBevoise, 2020; Hammond, 2020; Menton et al., 2020; O'Brien, 2012; Raworth, 2012). In the case of inner transformations, and mindfulness in particular, this was linked to practices that encouraged personal wellness as opposed to collective wellbeing. The strong focus on individualism was associated with the strengthening of unsustainable systems that prevented disempowered populations from both recognizing and challenging systemic forms of oppression (Freire, 2000; Hammond, 2020; Hausknost, 2020; Hickel, 2019; Pelling & Manuel-Navarrete, 2011). Lastly, the chapter examined the notion of inner sustainability and the implications for its neglect in broader sustainability scholarship. Understandings and applications of inner transformation through practices such as mindfulness were discussed, including the synergies and tensions identified of their pairing. While the contributions of this chapter were largely conceptual, they inform a relatively new and unexplored area of scholarship. Specifically, how inner and outer sustainability might be interwoven to synergistically interrupt and transform unsustainable systems was a key gap in the literature that inspired the inquiry undertaken in Chapter 4.

8.3.2 Theoretical, empirical, and applied contributions of Chapter 4

The key findings presented in Chapter 4 were centered on how sustainability scholarship has so far failed to drive the necessary changes needed to advance progress towards long-term viability, in large part because of its disregard for inner dimensions including values, beliefs, worldviews, and emotions (Abson et al., 2017; Ericson et al., 2014; Horcea-Milcu, 2022; Horlings, 2015; Ives et al., 2020; Leventon et al., 2021; Parodi & Tamm, 2018; Wamsler & Bristow, 2022; Woiwode et al., 2021). Transforming problematic worldviews and values including individualism, anthropocentrism, and limitless progress, etc. that undermine

conditions for long-term viability and inhibit positive change is unlikely to occur without greater examination of the inner dimensions of sustainability (Berzonsky & Moser, 2017). The chapter also examined how the core values and worldviews that underline modern Western culture reinforce destructive systems including coloniality, and will accordingly need to be reimagined if sustainability progress is to be made (Ahenakew, 2016; Andreotti et al., 2021; Henrich et al., 2010; Moser & Fazey, 2021; Reed & Fazey, 2021; S. Stein, 2019).

8.3.3 Theoretical, empirical, and applied contributions of Chapter 5

The interweaving of inner and outer sustainability requirements had yet to be conceived in an evaluative context until this study. As Chapter 4 indicated, there is an urgent need to provide a considered foundation for informing the growing enthusiasm for inner transformations as strategic levers for sustainability progress with precaution and humility. Accordingly, as the first inner-outer sustainability assessment framework to be developed, the theoretical contributions of this model are a sound contribution to this burgeoning field of research. The framework serves to identify potential benefits of integrating inner and outer sustainability, but also recognizes the trade-offs and opportunities to strengthen synergies. Furthermore, the model systematically examines the interlinkages between inner and outer dimensions of systems change and informs a deeper understanding of how conceptions of different practices and interventions might support or undermine conditions for long-term viability. Three primary contributions to the literature are observed in this Chapter.

First, the assessment model presented in Chapter 5 expanded widely recognized sustainability assessment criteria (Gibson, 2005, 2017b; Gibson et al., 2020) and offered a contextually adaptive process to examine interventions focused on supporting inner transformations. As an assessment process, this model helped to elucidate how inner development practices might support or thwart sustainability progress. The pairing of inner and outer sustainability criteria in an assessment framework also bridged gaps of

understanding between two distinct yet complementary fields of study.

Second, by integrating the Inner Development Goals (IDG) (Inner Development Goals, 2021) into the framework, the assessment model demonstrated pathways through which this novel approach to sustainability acceleration might synergize or interfere with improving conditions for long-term viability. Specifically, it identified opportunities to strengthen the IDG model, both as a conceptual framework as well as an assessment tool. The main concern with the current iteration of the IDGs was linked to its heavy reliance on Western notions of sustainability, progress, and inner development. Not only was this recognized as a missed opportunity for innovation but also a risk for perpetuating unsustainable and inequitable systems.

Third, the contextually adaptive nature of the assessment model means that it is neither bound to inner or outer sustainability applications. Rather, the general criteria are broad and adaptable enough to assess a plethora of inner development interventions (e.g., mindfulness, yoga, psychedelics, adult cognitive development, etc.). It is anticipated that this will become of growing importance as the inner development space continues to grow and more interventions emerge.

8.3.4 Theoretical, empirical, and applied contributions of Chapter 6

Chapter 6 expanded the theoretical and empirical contributions of the previous chapters by providing applied contributions to the literature by testing the inner-outer sustainability assessment in a case study involving three mindfulness-based interventions. The three events were carefully selected based on a series of inclusion criteria. Representing diverse approaches to mindfulness, the interventions highlighted contrasting conceptions of both mindfulness and sustainability, and emphasized the need to deepen understanding around the complex and reciprocal relationship between inner and outer transformations (Sajjad & Shahbaz, 2020). Since the case study research took place during the onset of the COVID-19

pandemic, it offered additional value to the literature, particularly within the context of understanding how desirable transformations in social and ecological contexts are thwarted by the resilience of dominant systems (G. Bateson, 1972; N. Bateson, 2022).

As Chapter 6 demonstrated, greater appreciation for complexity is needed to ensure that desirable changes in SES do not emerge from efforts made to optimize isolated system components absent considerations for the integrity of the whole (Adger, 2008; Holling, 1973, 1978, 2001; Ludwig et al., 1997). In the case of inner transformation specifically, attention to complexity requires that instead of trying to recontextualize interventions to maximize benefits for dominant systems (e.g., neoliberal capitalism), that these approaches are understood within the context of a complex and changing world, and accordingly, are adapted to enhance the system's trajectory towards long-term viability (Armitage et al., 2012; Austin & Gregory, 2020; Bahadur & Tanner, 2014; Berkes, 2009; Walker & Salt, 2006).

As the first study to critically assess the extent to which interventions address core requirements for sustainability progress, this Chapter provided a timely investigation into the potential range of desirable to detrimental impacts of inner transformation for long-term viability. Additionally, given the temporal significance of the case study during a global health emergency, this research also informs how practices such as mindfulness might not only support individual wellness but also long-term and collective wellbeing during crisis. Amidst a background of social and ecological crises—including the COVID-19 pandemic, armed conflict, and profound losses of biological diversity—precaution is urgently warranted to interrupt and reverse destructive activities where possible, while simultaneously increasing systemic conditions for long-term viability. Understanding the potential contributions of practices such as mindfulness to reduce suffering and increase positive change long-term is therefore of immense timely interest (Alkoby et al., 2017; Atti et al., 2017; Bentzen, 2019; Ebrahim et al., 2021; Koubi, 2019; Litvak-Hirsch & Lazar, 2020; Mach et al., 2020).

Chapter 6 also elucidates the need to invite more diverse and inclusive understandings of mindfulness and sustainability into normative discussions. Consideration of non-WEIRD

(Western, educated, industrialized, rich, and democratic) conceptions is strongly encouraged to strengthen the combined adaptive capacity of inner and outer transformative dimensions and pathways to support desirable transformations as well as to avoid crossing dangerous thresholds to social-ecological systems change that might negatively influence prospects for wellbeing (Henrich et al., 2010; Holling, 1973, 2001; Walker & Salt, 2006). Recognizing WEIRD values, worldviews, and epistemologies have dominated the literature, these often silenced approaches ought to be considered as alternative frameworks to prevailing sustainability assessments, and for their insights into unexplored pathways towards long-term viability (Baldwin et al., 2019; Kaul et al., 2022; Snow, 2021; S. Stein et al., 2017). Another important contribution of this chapter is the identification of opportunities for future research including investigation into the emerging themes identified in the analysis. Notions of compassion, trust, and inner work arose throughout the three events, suggesting that these elements are of importance for inner-outer transformation.

8.3.5 Theoretical, empirical, and applied contributions of Chapter 7

Chapter 7 provided insights on the strengths of the Cooper and Gibson (2022) model as well as opportunities for enhancement, as informed by its piloting in the mindfulness-based case study outlined in Chapter 6. Some of the main benefits of the framework included contextual adaptability, overlapping interdependent categories, and ability to surface emerging trends in interventions. Opportunities for enhancement included testing in different interventions and need for more integral worldviews. Results from the case study analysis (Chapter 6) also informed insights regarding how mindfulness might be recontextualized to better align with core sustainability requirements. Some of the areas of recontextualization included: greater attention to broad and long-term orientations, more context-specific practices, focus on both individual and collective orientations, strengthening of complexity tolerance and non-WEIRD conceptions of mindfulness, enhanced attention to increasing understanding, commitment, and responsibility for positive transformations, and inviting more tolerance for diverse versions of mindfulness. Similarly, key insights for recontextualizing sustainability with greater attention to mindfulness included: responding to the need for psychosocial

support amongst environmental workers, increasing awareness of ontological blind spots and the need for epistemic humility, greater acceptance of integral worldviews and sustainability assessment processes, fostering more trauma-sensitive awareness, and strengthened inclinations towards compassion and empathy.

8.4 Study limitations and opportunities for future research

While the examined events were representative of different approaches of mindfulness, results from the case study analysis should not be generalized for all inner transformative interventions. For example, the interventions took place during a global emergency and specific attention was geared towards helping individuals cope with the increased challenges brought forth by COVID-19. Accordingly, future research needs include adjusting and testing the framework in a broader diversity of sustainability-centred events and activities and other mindfulness-centred or otherwise inner-focused interventions. As demonstrated in Chapter 7, there are also opportunities to examine how emergent themes including compassion, trust, and inner work inform sustainability transformations and might be integrated into the assessment framework.

Additionally, the case study focused on events with high visibility in Western and English-speaking settings, and temporal and logistical constraints precluded comparing these events with similar offerings in other languages and non-Western settings. A follow-up study in different geographies would be illuminating. However, as previously noted, significant recontextualization of the framework would likely be required to avoid imposing a WEIRD bias on the assessment process and conceptualizations of sustainability in general.

Examining psychological approaches to mindfulness should also be considered as this study focused primarily on meditative practices. Lastly, a parallel dissertation looking at inner development options offered in sustainability-based interventions and processes is anticipated to be of immense benefit to enriching current understanding of this burgeoning field and would provide complementary insights into the bi-directional relationship between inner and outer sustainability.

8.5 Personal reflections: *Hic Sunt Dracones*

This dissertation sought to map uncharted territory at the nexus of inner and outer sustainability. After years of exploration in this space, I have discovered immense promise for combining attention to the inner and outer dimensions of sustainability for positive transformations. As was demonstrated in the research reported here, progress towards collective flourishing will likely require combined and simultaneous attention to both the inner and outer dimensions of sustainability. While the rich and unharnessed potential coursing through these landscapes is exciting, like any exploration into uncharted territory, the warning *Hic Sunt Dracones* – here be dragons – is appropriate to urge precaution, humility, and respect.

...At the nexus of inner and outer dimensions...

Modernity's bestiary of challenges is growing. While humanity no longer fears fire-breathing dragons, elusive kraken, or other mythical beasts once believed to ravage lands and seas, it has birthed higher order "hideous progeny" with real existential risks (Shelley, 1993, p. 22). These monstrosities – including nuclear weapons, artificial intelligence, and biotechnology – are rarely sketched on world maps or copper globes, however, they are deeply embedded within a web of wicked sustainability problems (Bostrom, 2019). The scope and intensity of interdependent social and ecological crises are beastly; often requiring but also resilient to transformation. Together, these strong tensions and paradoxes keep solutions to complex and interconnected sustainability challenges beyond the current scope of collective sensemaking (Schmachtenberger, 2022).

...In the inner dimensions...

Mindful interventions oriented towards transforming values, worldviews, and consciousness are proliferating and increasingly seen as catalysts for mindset shifts. Detached from

religious and spiritual traditions as well as from far-sighted outer commitment to people and planet, however, these approaches cannot reliably serve individual or collective wellbeing. Without greater attention to the outer dimensions of sustainability, it is unlikely that inner transformations on their own will support progress towards collective flourishing.

...In the outer dimensions...

Anthropogenic activities have imperiled much of the life on Earth. Such profound environmental damage is increasingly threatening present and future conditions for collective flourishing and in turn, accelerating dangerous unbounded positive feedbacks such as climate change. Immediate action is required to interrupt, transform, and heal the wounds of exploitative systems – with commitment, compassion, and other inner capacities. Without greater attention to the inner dimensions of sustainability, it is unlikely that outer transformations on their own will support progress towards sustainability.

...To be continued...

At one time, dragons were seen as gatekeepers of the unknown and were meant to dissuade entry into perilous terrain. I have come to understand and appreciate that dragons more accurately represent territories that ought to be explored, albeit with great care. Since there will never be a complete treasure map for sustainability progress, this territory will forever be in a state of exploration. Any attempts to clear a single path through this richly complex territory would be tangential at best and catastrophic at worst. To avoid disturbing the draconic sentinels, entry into the nexus landscape between inner and outer sustainability should be approached with deep humility, respect, and caution.

It is my hope that this research journey might become a port of call for others who feel inclined to explore the liminal space between inner and outer sustainability. I look forward to our paths entangling, dear reader, and wish you safe travels along the way... May you

embark upon your adventure with an open heart and an open mind. May your wayfinding in these uncharted territories be guided by a commitment to collective wellbeing... May your journey be one of calm seas and clear skies. May you find some of what you are searching for... And may you never forget...*Hic Sunt Dracones.*

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APPENDIX

Common methodological terms used in qualitative research

<p><i>Sampling</i></p> <p>Purposive sampling: gathering/generating data to answer one or more research questions. In this first process, data are collected, coded, and analysed.</p> <p>Theoretical sampling: iterative process of identifying missing information to saturate categories and their relationships.</p> <p>Constant theoretical sampling: ongoing process of comparing relationships between incidents, codes, and categories.</p>
<p><i>Analytical processes</i></p> <p>Constant Comparative analysis: iterative process that identifies consistencies and divergences with the goal of refining data into categories of theoretical relevance.</p> <p>Memoing: analytic process of recording reflective interpretation of thoughts, feelings, and intuitions throughout the research process.</p>
<p><i>Coding processes</i></p> <p>Coding: the analytic process of identifying patterns of similarity, divergence, and repetition in data.</p> <p>Initial coding: preliminary step in data analysis that identifies relevant words or groups of words and assigns labels to differentiate between data.</p> <p>Intermediate coding: core categories are assembled and relationships between categories are identified and explained.</p> <p>Advanced coding: final coding step in which theory is developed from data.</p>
<p><i>Miscellaneous terms</i></p> <p>Theoretical sensitivity: ability to discern relevance in data that informs theory.</p> <p>Grounded theory: refinement of data analysis processes into a comprehensive explanation of phenomenon.</p>

Note. Adapted from: (Birks & Mills, 2015; Charmaz, 2011, 2015; Chun Tie et al., 2019; Creswell, 2014; Denzin & Lincoln, 2017; Glaser & Strauss, 1967; Strauss & Corbin, 1998)