Introduction

Toward an Integrated Science of Wellbeing

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BACKGROUND

There has always been interest in understanding what constitutes the good life. Starting with early philosophical writings, sustainable wellbeing at multiple scales—from physical and psychological health, through to the societal and environmental—has been a fundamental goal. Much has been written at each of these scales from the perspectives of psychology, medicine, economics, social science, ecology, and political science. However, their interconnections have received far less attention even though the identification of these interdependencies is critical to the comprehensive understanding and advancement of wellbeing.

In this book, we aim toward creating an integrated science of wellbeing that connects these scales and perspectives to better guide research and public policy. We have done this by engaging leading and emerging experts in wellbeing science from diverse fields, studying various scales and perspectives. They have all attempted to link their areas with the rest of the system. This integrated approach offers a first step toward a more complete understanding of wellbeing that we hope can propel wellbeing research and initiatives in novel and fruitful directions.

Over the past two decades the science of wellbeing has witnessed exponential growth within the individual, societal, and environmental domains. Focus on the wellbeing of the individual was greatly encouraged with the emergence of the field of positive psychology at the turn of the 21st century (Compton, 2005; Seligman & Csikszentmihalyi, 2000). Since then, there has been a burgeoning of both scientific and popular discourse identifying the elements of individual wellbeing and how these can be effectively enhanced. Yet a recurring criticism of this work has

been its relative neglect of the societal and environmental factors impacting psychological and physical wellbeing. Likewise, the work undertaken on societal and environmental wellbeing can be criticised for its limited conceptualisation of what constitutes individual wellbeing and how the social and natural environment influence individual wellbeing and are influenced by the wellbeing of individuals.

Restricted conceptualisations not only limit the scope of research but also necessarily hinder the development of effective public policy. The enhancement of wellbeing is increasingly being recognised as the 'core business' of policy makers across the globe in terms of cultural and economic prosperity and is supplanting the prevailing single-minded focus on Gross Domestic Product (GDP) as the path to societal wellbeing (Costanza et al., 2014). The current overreliance on GDP as the primary national policy goal is eroding sustainable wellbeing worldwide. The UN Sustainable Development Goals (SDGs) represent an international recognition that broader shared goals are necessary (United Nations, 2015). An integrated science of wellbeing is essential to guide public policy toward these broader SDGs and the overarching goal of sustainable wellbeing. The integrated approach offered here will provide a step toward a more complete understanding of wellbeing that we hope will help to propel wellbeing research and initiatives in novel and fruitful directions.

We cannot claim to have gone far in our quest for integration. Academia and government are still siloed in disciplines and departments that do not communicate especially well. But we have hopefully taken some significant steps toward our goal of building an integrated science of wellbeing.

STRUCTURE OF THE BOOK

Our title *Toward an Integrated Science of Wellbeing* is carefully crafted. All of our authors are distinguished contributors to the science of wellbeing in their particular fields, and we have asked them to summarise some of that work in their chapters. However, most importantly for this collection, we have also asked them to consider the role of and interconnections between four different domains or scales of wellbeing research: the psychological, human biological, societal, and environmental. Hence the book is divided into four parts representing each of these domains, but throughout our authors have sought integration across levels. The Part headings, 'An Integrated Approach Includes Psychological Wellbeing . . .', 'And Physical Health and Wellbeing . . .', 'And Societal Wellbeing . . .', 'And the Wellbeing of the Built and Natural Environment', emphasise the interconnections ('And') while acknowledging the distinctions among the various levels.

In this Introduction, we first summarise the contents of each part before offering some concluding thoughts on the path forward that includes recognition of some of the challenges in developing an integrated science of wellbeing.

Part A An Integrated Approach Includes Psychological Wellbeing . . .

The task of connecting psychological wellbeing to the human biological, societal, and environmental dimensions is predicated on understanding its own dimensions. Our opening three chapters provide some clarification in this regard by addressing the long-standing distinction between two facets of psychological wellbeing, namely, the *eudaimonic* ('functioning well' in terms of realising one's full potential) and *hedonic* ('feeling well' in terms of subjective feelings of happiness and the attainment of pleasure and avoidance of pain; Ryan & Deci, 2001).

In "The Integrative Science of Eudaimonic Wellbeing: Past Progress and the Road Ahead", Carol Ryff summarises her pioneering work in defining the components of a eudaimonic conceptualisation of wellbeing (i.e., purpose in life, environmental mastery, positive relationships, autonomy, personal growth, and self-acceptance) and understanding how these connect with other dimensions such as our physical health. She goes on to offer new integrative directions by exploring the attainment of eudaimonic wellbeing through engagement with the arts and the natural world. This inspirational work is juxtaposed with the sobering message that the eudaimonic pursuit of realising our potential remains—and is increasingly—beyond the reach of many as socioeconomic disadvantage and inequality intensify (a point later elaborated on by Carol Graham in her discussion of the 'crisis of despair' and by Richard Wilkinson and Kate Pickett in their chapter on inequality and wellbeing). We are left with a clear imperative to work across scales so that societal and environmental supports and impediments to the various components of individual wellbeing can be addressed.

The next two chapters focus on the hedonic aspects of psychological wellbeing. In "Understanding the Role of Positive Emotions in Wellbeing Through Psychological, Biological, Sociocultural, and Environmental Lenses", Christian Waugh offers an integrated perspective on each stage of emotional experience (i.e., the perception of a salient stimulus, appraisal of the stimulus, production of action tendencies, and regulating our emotional states). Robert Cummins, in "Subjective Wellbeing and Resilience at the Individual Level: A Synthesis Through Homeostasis", draws a distinction between transient emotions and more stable mood states, proposing that the wellbeing mood states are comprised of happy, content, and alert and that these are under homeostatic control akin to other human biological systems. The notion that these positive mood states are unchanging within a narrow range around a setpoint for each person speaks to the broader question of which components of psychological wellbeing are changeable and to what degree (Lykken & Tellegen, 1996; Lyubomirsky, Sheldon, & Schkade, 2005). Moreover, in focusing on the role of positive affect in psychological wellbeing, these two chapters implicitly question the common practice of indexing wellbeing in terms of low levels of negative affect such as depression and anxiety. Instead, hedonic wellbeing is more than the absence of negative affect, with

positive emotion a key component of several models of psychological wellbeing (e.g., Huppert & So, 2011; Seligman, 2011).

A remaining question is the role of negative emotion in wellbeing. Since the pursuit of eudaimonic wellbeing can require a degree of effort and tolerating discomfort or distress, it may at times be contrary to the experience of positive affect. As just one example of how negative emotions can be linked with facets of eudaimonic wellbeing such as mastery and sense of purpose, individuals who experience higher levels of anger (but not anxiety) regarding climate change are more likely to engage in individual and collective actions to mitigate against climate change (Stanley, Hogg, Leviston, & Walker, 2021). Thus, individual action driven by anger and dissatisfaction is necessary to improve societal and environmental wellbeing, which can create greater individual wellbeing for a larger number of people (more on this later). The assumption that positive emotions are necessarily desirable over negative ones that pervades much of the wellbeing literature has been challenged and even labelled as "toxic wellbeing" by some (Atkinson, 2021, p. 4). Nevertheless, the interest in positive emotions that was greatly propelled by the emergence of the field of positive psychology has been critical in broadening the almost singular previous focus on negative emotions, with further work now needed on the role of both positive *and* negative affect in wellbeing. For instance, Christian Waugh's own research on emotional flexibility is relevant here, in finding that people with greater resilience are more able than those with lower levels of resilience to flexibly shift between positive and negative affect in response to changing environmental circumstances (Waugh, Thompson, & Gotlib, 2011).

All models of psychological wellbeing concur in acknowledging the pivotal role of positive interpersonal relationships. Accordingly, the next three chapters in Part A, "Psychology," have a relational focus. What makes for a positive relationship, and how is it that these relationships have beneficial impacts on our wellbeing? Remarkably, given their quite distinct orientations, these chapters have considerable overlap in addressing questions of this kind. In "Evolution, Compassion, and Wellbeing", Paul Gilbert describes his innovative work offering a thoroughly biopsychosocial model of compassion grounded in an evolutionary framework. In this model, compassion (defined as a sensitivity to suffering in self and others, with a commitment to try to alleviate and prevent it) is a key element in understanding what it means to relate to ourselves and others in a manner that promotes wellbeing at the individual, societal, and environmental levels.

The role of compassion is not limited to building positive relationships, but also has implications for other dimensions of psychological wellbeing. Self-esteem, for example, features in some models of psychological wellbeing (e.g., Huppert & So, 2011) and has long been found to be strongly related to measures of happiness, wellbeing, or life satisfaction (see Diener & Diener, 1995, for cross-cultural comparisons). But the limitations of self-esteem have also been highlighted: the pursuit of self-esteem can leave us vulnerable to engaging in self-serving biases (e.g., people overestimating their intelligence) that distort reality (Leary, 2004), and it can make us want to be superior to others so that "life becomes a zero-sum game, and other people become competitors and enemies rather than supports

and resources" (Crocker & Park, 2004, p. 401). Moreover, self-esteem acts as "a fair-weather friend, there for us when we succeed but deserting us precisely when we need it most—when we fail or make a fool of ourselves" (Neff & Germer, 2018, p. 22). In contrast to self-esteem, self-compassion provides a means of maintaining a positive relationship to ourselves even in the face of our inevitable failures, challenges, and personal limitations. In this sense, self-compassion provides a means of gaining self-acceptance (defined in Carol Ryff's eudaimonic wellbeing model as being able to accept both our positive and negative qualities). Understanding the role of compassion across the dimensions of psychological wellbeing, as well as across the individual, societal, and environmental scales of wellbeing, will continue to be a crucial direction of research.

In their chapter, Harry Reis and Jenny Le focus on "Perceived Partner Responsiveness and Wellbeing", with the construct of perceived partner responsiveness embodying the degree to which we view our partners as understanding, respecting, and appreciating who we are and providing us with care and support as needed. It thus shares some of the components of compassion, especially in terms of understanding the other person's needs and providing necessary support. In a novel extension of their work, the authors go beyond considering partner responsiveness in terms of dyadic personal relationships to propose broader settings where this mechanism might be at play to enhance the wellbeing of students in educational settings, groups, organisations, the operation of a society's legal and political processes, and even the environment as our planetary partner.

The final chapter focusing on relationships is that by Bruce Chapman and Nabeeh Zakariyya on "Life Satisfaction, Marital Status, and Partnership Quality: Modelling From Australia". The authors draw on a unique dataset tracking aspects of relationship quality (i.e., a person's happiness with their partner and a partner's happiness with them) and life satisfaction. Among the many interesting results emerging from this study was the finding that higher happiness with one's partner was strongly associated with higher life satisfaction, with the magnitude of this association approximately three times greater than the higher life satisfaction of the employed compared to the unemployed. This finding underscores the importance of positive relationships for wellbeing. It was similarly found that a person's happiness with their partner was positively associated with the partner's own life satisfaction, and this association was especially strong for women. The fact that women's wellbeing was found to be more contingent on the approval of their partners is consistent with the broader literature on gender differences in the importance of approval from others (Zeigler-Hill & Myers, 2012). Returning to the construct of perceived partner responsiveness, this finding also suggests that the skills of demonstrating appreciation for our partners might be especially important in the ability of men to positively impact the wellbeing of their female partners. Overall, the gendered dimensions of wellbeing require much greater attention in future integrated approaches to wellbeing.

A more concerted research focus is also required to thoroughly capture cultural diversity. As a discipline, psychology has drawn heavily from Western frameworks and samples. The subdiscipline of positive psychology has fared

somewhat better in this regard (Kim, Doiron, Warren, & Donaldson, 2018), although much remains to be done in terms of informing conceptualisations of wellbeing from non-Western perspectives. This is particularly the case for Indigenous cultures subjected to the disruptive and destructive processes ensuing from colonisation. Our next chapter can be seen as part of a growing discipline of Indigenous psychology where Indigenous people themselves define the issues and promote paradigms that reflect their realities. In this chapter, Helen Milroy, Kate Derry, Shraddha Kashyap, Monique Platell, Joanna Alexi, Ee Pin Chang, and Pat Dudgeon present pioneering work by Indigenous mental health clinicians and researchers in reclaiming "Indigenous Australian Understandings of Holistic Health and Social and Emotional Wellbeing". The chapter provides an overview of the major steps in the last 30 years of consulting and embarking on the path from colonisation toward effective wellbeing interventions for Aboriginal and Torres Strait Islander peoples based on Aboriginal and Torres Strait Islander understandings of selfhood. Here, the self is inextricably linked with kinship systems, community, culture, country and land, and spirituality. Accordingly, culturally informed wellbeing interventions acknowledge this fundamentally integrated ontology of the self. The authors also describe a unique epistemology: namely, the use of artwork (Helen Milroy's evocative images) to elicit narratives to support Aboriginal and Torres Strait Islander peoples and communities in understanding and enhancing their wellbeing in a culturally responsive way. It is noteworthy that the holistic conceptualisations of Indigenous Australians, who are the most ancient continuous population on Earth (Malaspinas et al., 2016), are now leading the development of an integrated science of wellbeing.

The final chapter in Part A bridges the individual and societal sections by focusing on the psychological wellbeing of people in a particular organisational setting. In their chapter on "Wellbeing in Higher Education: Evidence- and Policy-based Strategies to Enhance the Wellbeing of People, Place, and Planet", Bruce Christensen and Rebecca Kennedy focus on the wellbeing of students in institutions of higher education in light of this population's elevated levels of psychological distress. In a sweeping yet succinct treatment of the subject matter, they begin with an overview of the evidence supporting various person-level interventions before presenting promising, albeit less extensively researched, strategies at the place and planet levels. While focused on higher education and acknowledging what can be uniquely offered by these scholarly communities in building an integrated approach to wellbeing, the chapter provides an exemplar of the range of multilevel approaches that could enhance the wellbeing of people in diverse organisational settings. As the authors note, future work is also needed to provide a similarly integrated perspective focused on the wellbeing of staff in institutions of higher education, who have been described as "pressure vessels" in light of their occupational stressors (Morrish, 2019).

Part B AND Physical Health and Wellbeing . . .

The great advances of medical science in the 20th century were based in considerable part on the adoption of 19th-century systems thinking—perhaps best exemplified by the work of Herbert Spencer—to understand the principles of physiology, disease causation, and therapeutics. Where other disciplines used the idea of the interconnected system to connect areas of investigation outward to related things, medicine pursued elaboration of the inner systems of the human body and split centrifugally—flying apart into the reductionist investigation of what we now know as the cardiovascular system, the respiratory system, the musculoskeletal system, and so on.

The limitations of this approach become apparent, at some point, to all of us who work with it. However, in clinical medical practice, it has always been necessary to do the work of drawing together knowledge from the various biological systems into a holistic therapeutic plan for the patient. Extending this, systems thinking can be a useful approach for work on integration between disciplines and between scales.

This approach is demonstrated in the chapter by Paul Dugdale, Elizabeth Rieger, and Robert Dyball on "Integrating Across Diverse Perspectives to Improve Health and Wellbeing: Obesity as an Illustrative Case". Biopsychosocial models of medical and psychological conditions have long been proposed (Engel, 1977) to understand their multidimensional aetiology but have tended to neglect the *interconnections* among the biological, psychological, and social dimensions that more recent frameworks emphasise (e.g., Tsai, Mendenhall, Trostle, & Kawachi, 2017). In this chapter, the authors focus on obesity in offering a more thoroughgoing integrated perspective. They place emphasis on the obesogenic environment while connecting these environmental conditions with examples of genetic, physiological, psychological, and social vulnerabilities in understanding the causes and potential sources of intervention and support for overweight people. Obesity illustrates several of the paradoxes that come to light when we work across scales. Between the psychological and biological scales, the profound social stigma associated with obesity works against the clear need for healthcare by people with higher levels of obesity. Looking between the environmental and human community levels, we see that the impoverishment of the environment through monocropping to support energy-dense processed food production is ironically reflected in the overnutrition of some of the human population. The chapter concludes by suggesting the sort of policy approaches that can be used to tackle obesity across scales and systems.

Our next chapter situates health and wellbeing specifically within the urban environment. In "Wellbeing and Personal Safety: Lessons from Population-Based Strategies to Reduce the Burden of Injury", Russell L. Gruen, Amit Gupta, and Nobhojit Roy describe how cities that integrate road safety, ambulance, emergency, and hospital services into city-wide trauma systems can greatly reduce death and disability arising from the accidents and injuries that accompany life

in the city. The authors then reflect on how these systems can be built into the broader development of cities in the developing world. In particular, they describe how this approach has been adopted in India, starting in a few cities, but working toward a national trauma system that may show just how much this approach can reduce the global burden of injury.

The theme of integrating care across settings continues in the chapter by Kane Solly and Nancy A. Pachana, "An Integrative Perspective on Positive Ageing in Later Life". This chapter celebrates the increasing normality of people living into old age but calls out the ageist stigma that they often face. Drawing on the emergence of positive psychology, the authors outline an approach to positive ageing (while also acknowledging the potential pitfalls of a positive psychology approach). The integrated perspective provided by the authors goes beyond psychology and healthcare to show how a society that enables an ongoing contribution by people as they age, including culturally important and artistic contributions, becomes a society that is richer. Environmental considerations also feature prominently in the health and wellbeing of older adults. The innate feelings of wanting to connect to the natural world—biophilia—increase with age, while actual physical access to the natural world often decreases with age. Thoughtful, simple measures to improve access, such as parks with easily negotiable pathways, and pet ownership, can significantly improve wellbeing in this rapidly expanding population group.

There is an obvious sense in which healthcare and wellbeing relate: the purpose of healthcare is to improve the wellbeing of the individual. The chapters discussed above show that the relations go considerably further than this and sometimes in unexpected directions. But what about when the purpose of healthcare is to facilitate a good death? Michael Chapman, Jennifer Philip, and Paul Komesaroff tackle this question in "Systems of Care and Experience for Dying Well". Recognising the finitude of the human lifespan and the obvious limitations of medicine to prolong it, they examine our ideas about death, the fear and certainty of it, but also the bonding and comfort that many of our cultural practices around death bring. This more social view of death and dying is clearly related to the wellbeing of those involved and, indeed, of the broader society where meaningful reflection goes hand in hand with the practices that accompany dying and death. In an important sense, this is the chapter that shows us most clearly that wellbeing is a field worthy of reflection and study separate from the health of the individual and cannot be reduced to this or its simple aggregates in the population.

Taken together, the chapters on physical health and wellbeing show the importance of working toward an integrated science of wellbeing to improve the great projects of medical care and public health. Furthermore, they identify fruitful questions at the points of overlap between scales for further research. They also show us something about the economy of research: findings at one scale may be interesting and important for scientific inquiry at another scale, and, unless we do the thinking to relate work at one scale to another, we will miss it.

Part C AND Societal Wellbeing . . .

There are a growing number of societal wellbeing frameworks being developed and used in regions and nations around the world. These go well beyond GDP as a measure of progress and attempt to include the full range of factors that need to be considered in an integrated approach to wellbeing. Jacki Schirmer, Robert Tanton, and John Goss, in "Wellbeing Frameworks: Emerging Practice, Challenges, and Opportunities", provide a comprehensive history of the development of these frameworks and their common challenges. Increasingly, both objective and subjective measures are being included in these frameworks, which is an initial step toward integration. However, the ongoing development of an integrated science of wellbeing, as this book encourages, is much needed to evaluate the validity and utility of these frameworks. For instance, further research is required that seeks to connect the individual and societal levels of wellbeing frameworks. That is, while 'subjective wellbeing' is included in the majority of societal wellbeing frameworks, how does this relate to a more complete understanding of psychological wellbeing, such as Ryff's eudaimonic model, and how do the distinct components of models of psychological wellbeing relate to the distinct components of models of societal wellbeing?

Our next chapter provides an in-depth description of a particularly interesting and relevant example of a societal wellbeing framework: namely, the pioneering work undertaken in Bhutan. In "Weaving Wellbeing into the Fabric of the Economy: Lessons from Bhutan's Journey Toward Gross National Happiness", Julia C. Kim, Julie A. Richardson, and Tsoki Tenzin tell the amazing story of the Gross National Happiness (GNH) index and how it offers a holistic framework for wellbeing measurement and policy that integrates the individual, social, and environmental elements. In the GNH, these are defined as the four integrated pillars of sustainable wellbeing: (1) environmental conservation, (2) cultural promotion, (3) sustainable and equitable socioeconomic development, and (4) good governance.

Bhutan has been an important example of a country devoted to finding a better way to measure and use integrated wellbeing to drive policy, both locally and globally. For example, on 2 April 2012, Bhutan hosted a meeting at UN headquarters in New York City of more than 800 diverse participants from government, business, nongovernmental organisations (NGOs), and academia (including two of the authors, RC and IK). The meeting was designed to lay the ground work for a new development paradigm based on the sustainable wellbeing of all life on Earth. The Prime Minister at the time, Jigme Y. Thinley—who graciously provided the Foreword to this volume—opened the meeting with a rousing challenge.

> We desperately need an economy that serves and nurtures the wellbeing of all sentient beings on earth and human happiness that comes from living life in harmony with the natural world, with our communities, and with our inner selves. We need an economy that will serve humanity, not enslave it.

It must prevent the imminent reversal of civilisation and flourish within the natural bounds of our planet while ensuring the sustainable, equitable, and meaningful use of precious resources. (quoted in Colman, 2021, p. 241)

The UN meeting was followed up in 2013 with an International Expert Working Group (IEWG) workshop in Thimphu, Bhutan. The workshop included a group of more than 60 international experts (again including RC and IK) tasked with creating a 'new development paradigm' incorporating the ideas of GNH and other approaches to integrated wellbeing. Colman (2021) provides a detailed description of this workshop and its aftermath. There was much enthusiasm for the project and its potential impact during the workshop. Subsequently, however, under the influence of the government of India, the World Bank, and others, the entire work of the IEWG was sidelined and, under a new Prime Minister, Bhutan backed off from its original bold initiative.

But the tide has now turned as countries begin to seriously take on the challenge laid out by Jigme Thinley and Bhutan. One of the spin-offs of the 2013 workshop was the eventual creation of the Wellbeing Economy Alliance (WEAll) and the Wellbeing Economy Governments (WEGo). WEAll is a broad 'network of networks' aimed at bringing together the many organisations, governments, networks, academics, businesses, NGOs, and individuals that are already working on elements of the new economy and sustainable wellbeing. WEAll was designed to coordinate, facilitate, amplify, and catalyse the wide range of ongoing efforts around the shared goal of creating a sustainable wellbeing economy.

At a meeting in Glasgow, Scotland, in October 2017, initiated by WEAll members and hosted by Nicola Sturgeon, first Minister of Scotland, a group of governments including Scotland, Costa Rica, Slovenia, and New Zealand committed to creating a partnership to share good practice in wellbeing economy policy-making and to champion holistic and collective wellbeing as the goal of development. WEGo now includes Scotland, New Zealand, Iceland, Finland, and Wales, with several other countries and state governments close to joining. Sustainable wellbeing is gradually being accepted as the primary policy goal of at least some vanguard governments, as Jigme Thinley hoped. This volume provides additional academic support for this policy agenda.

However, in many countries, despair rather than happiness and wellbeing is prevalent, and these have been exacerbated during the COVID-19 pandemic. In Carol Graham's "America's Crisis of Despair: The Case for a Wellbeing-Based Recovery with Lessons from and for Other Countries", she chronicles this crisis and recommends tracking trends in wellbeing as part of national statistics, as is done in the United Kingdom, New Zealand, Bhutan, and other countries, as a way of solving the crisis of despair.

A key part of the problem is the rapidly increasing inequality in many countries brought about in part by the misplaced focus on GDP growth at all costs and the loss of social capital this produces. Richard Wilkinson and Kate Pickett summarise their pathbreaking work on the relationship between inequality and

wellbeing in their chapter "Inequality and the Transition from GDP to Wellbeing". They show how we need to address the powerful political forces that prevent the reduction in things that we already know reduce societal wellbeing, such as homelessness, poverty, and food and job insecurity. Major reductions in inequality are necessary to transition away from government policies focused on GDP growth and to those focused on sustainable wellbeing, as the governments comprising WEGo have begun to do.

In the last chapter in this section, "An Economy Centred on Human and Ecological Wellbeing", Lorenzo Fioramonti and Luca Coscieme envision what a Wellbeing Economy (WE) that prioritises human and ecological wellbeing instead of GDP growth would look like. As mentioned earlier, several governments have recently formed the WEGo alliance to begin to implement some of these ideas. They recognise the need for an integrated approach to understanding and measuring societal wellbeing that this chapter and the rest of this volume are providing.

Part D AND the Wellbeing of the Built and Natural Environment

Although nature provides Earth's life support system, the importance of nature's direct and indirect contributions to wellbeing have only become evident within the public's awareness as the global environment has begun to visibly degrade (Bowler, Buyung-Ali, Knight, & Pullin, 2010). With increasing air and water pollution, climate disruption, loss of biodiversity, degradation of land, and an increase in natural disasters, both individuals and societies are noticing the impacts on our physical and mental health and wellbeing (Kubiszewski, Mulder, Jarvis, & Costanza, 2021; Manning & Clayton, 2018). This has become even more evident with COVID-19, as access to nature has been restricted (Grima et al., 2020; Talmage et al., 2022).

In "Natural Capital, Ecosystem Services, and Subjective Wellbeing: A Systematic Review", Diane Jarvis, Phil Lignier, Ida Kubiszewski, and Robert Costanza analyse the research that has been done on the relationship between natural capital and wellbeing over the past 20 years. They divide their analysis into four themes: (1) the degree of human intervention on the environment (e.g., urbanisation and deforestation), (2) enjoyment of specific environmental goods and services (e.g., urban greenspaces), (3) proximity to adverse consequences that result from environmental problems (e.g., pollution), and (4) overarching measures of the impact of the environment on wellbeing. From this analysis, they report that, unsurprisingly, the relationship between natural capital and wellbeing is complex and requires understanding interactions with the other types of capital (built, social, and human). However, they also report that natural capital has a significant positive impact on our physical and mental wellbeing, and its degradation is having significant negative impacts on wellbeing at all scales from individual humans, to communities, and to the entire planet.

These negative impacts are being amplified by climate change, which decreases the resilience of ecological and human systems (Doppelt, 2016; Simpson, Weissbecker, & Sephton, 2011). The chapter by Sotiris Vardoulakis and Hilary Bambrick, entitled "An Integrated Approach to Health and Wellbeing in Response to Climate Change", focuses specifically on the impacts of climate change on our wellbeing. They discuss the three types of impact that climate change has on wellbeing: (1) primary, direct impacts such as heatwaves making people sick; (2) secondary impacts, such as heatwaves causing crops to fail, which causes a food shortage; and (3) tertiary impacts, referring to more diffuse consequences such as population displacement due to conflict over natural resources or the degradation of mental wellbeing. They also note that these impacts are not equally distributed in that wealthier countries, or wealthier populations within countries, have the financial resources to buffer themselves from the worst of the climate change impacts. Women and children have also been found to be more vulnerable to climate change (Wenden, 2011). It is the poorer, more vulnerable portions of the global population that will suffer the bulk of the climate change impacts.

Some of these inequalities in the resilience to climate change stem from access to properly built infrastructure. We spend so much of our lives in the built environment that it is an obviously critical component to our wellbeing and our ability to maintain that wellbeing in response to changing conditions (Hiscock et al., 2017; Thatcher & Milner, 2014). In "Wellbeing and the Built Environment: A Case Study in the Application of Broad-Based Participatory Design," Margarette Leite, Sergio Palleroni, and Barbara Sestak look at how wellbeing depends on how we plan, design, and build the environment around us. One of the best ways to ensure that our built environment maximises wellbeing is by creating it through a participatory process with the community to guarantee that their social, environmental, and economic goals are met. To show how this can work in practice, they use a case study of eco-friendly, modular classrooms. These classrooms were built in deliberation with the community to ensure a better learning environment, one that addresses the physical, mental, intellectual, and emotional health of the students and the community as a whole.

To tie it all together, Robert Costanza, Ida Kubiszewski, and Lorenzo Fioramonti in "Sustainable Wellbeing and the United Nations Sustainable Development Goals (SDGs)" look at the relationship between the UN SDGs and wellbeing. They show that, in their current structure, the SDGs lack an overarching goal with clear metrics of progress. They propose an aggregate Sustainable Wellbeing Index (SWI) that includes the dimensions of the individual, the economy, society, and the rest of nature and that incorporates both objective and subjective indicators. This index needs to work in collaboration with a dynamic, nonlinear, systems model of the entire system of the economy-in-society-in-nature as well as the individual scale (psychological and physical). Such a model can incorporate many of the ideas in the chapters of this volume.

TOWARD INTEGRATION: AN APPROACH THAT CONNECTS PSYCHOLOGICAL, PHYSICAL, SOCIETAL, AND ENVIRONMENTAL WELLBEING

To conclude, we offer some brief observations regarding the process of developing an integrated science of wellbeing, including those factors that can facilitate this process or, conversely, render it more challenging. In thinking about our contemporary collective challenges, Yeatman (2021) has commented, "We cannot do this work if we do not rethink our place in relation to the whole. We are not outside the whole, we are within it and as dependent on its integral functioning as any other creaturely being" (p. 134). This requires us to give up the traditional scientific comfort of separating, of dis-integrating constructs such as subjectivity and objectivity. At a broader level, it involves striving against the inherent tendency in much scientific work to reduce the field of view and pursue subspeciality research interests. However, the practice of science is performed by a community of scholars that values not just dissection and specialisation, but openness, curiosity, respectfulness, and imagination, each of which aids in the creation of integrated perspectives.

Rethinking the relations between scales, or domains of research, is precisely what we had in mind in the phrase 'toward an integrated' in our title. While the development of a reductionist framework across scales is one way of integrating science, it is rarely successful. Where it is successful, it is because of a narrow scope of inquiry. More realistically, the process of 'working toward integration' by thinking through known or possible relations between fields, and doing this in dialogue with other researchers expert in a field different to one's own, will yield a wide variety of such relations. Some of these may be highly productive, some may result in useful methodological or conceptual advances, and some may be uselessly esoteric. Our hope is that framing this collection as 'toward an integrated science of wellbeing' by a community of scholars, with the expertise and commitments of our authors, would shed light on how we can achieve better and more productive integration for this critically important research.

In asking our contributors to write outside their customary scale or domain, we have implicitly suggested that they do this by listening to their own doubtful thoughts on things they are unaccustomed to writing about and sharing something of their imaginative selves with the readers. Whatever the scientific merit of what this has produced, each of their efforts has been a move toward integrating the sciences of wellbeing. We believe they have expanded the horizons of integrated explorations of wellbeing and helped to support policies to improve attainable and sustainable wellbeing for all life on earth.

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