Revisiting the Compatibility Concept in Restorative Environments: A Research Dialogue

《重探恢复性环境中的适配性概念：一场研究对话》

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Abstract

The compatibility concept in restorative environments refers to the good fit between an environment and an individual's goals and aspirations (Kaplan 1983). It is one of four psychological properties of the environment theoretically linked with psychological restoration which, together with the properties of 'soft fascination', 'extent' and 'being away', is believed to support the recovery of drained emotional and cognitive resources (Kaplan and Kaplan 1989). But compatibility is an underdeveloped and somewhat misunderstood concept in psychological restoration. The original Kaplans' model gave significantly more prominence to compatibility in the role of psychological restoration than the subsequent research has recognized. This paper discusses the compatibility concept as it was first envisaged within the original attention restoration (ART) model, that is, in terms of environmental supportiveness. Next it discusses how this framework has been subsequently developed by a handful of researchers using goal-based theoretical frameworks. It sets out the empirical evidence showing how compatibility and goal-thinking are important to psychological restoration and suggests why research has been slow to develop this theme. Finally, it sets out some new emergent theories that put goal systems at the forefront of restorative environment research going forwards.

摘要：恢复性环境中的适配性概念，指的是环境与个体目标及期望之间的良好匹配。它是理论上与心理恢复相关的环境四大属性之一；连同“吸引性”“延展性”“抽离感”这三项属性，适配性被认为能助力耗尽的情绪与认知恢复。但在心理恢复研究领域，适配性是一个发展不足、且存在一定误解的概念。卡普兰夫妇最初提出的模型中，适配性在心理恢复过程中所扮演的角色，其重要性远超过后续研究的认知。本文首先探讨适配性概念在最初的注意力恢复（ART）模型中的构想 —— 即从环境支持性的角度展开；随后阐述这一框架如何被部分研究者借助目标导向的理论框架进一步拓展。本文还呈现了实证证据，说明适配性与目标思维对心理恢复的重要性，并解释了为何这一主题的研究进展较为缓慢。最后，本文介绍了一些新兴理论，这些理论将目标系统置于未来恢复性环境研究的核心位置。

Introduction

Hundreds of studies over the last 60 years have established that restorative environments support mental health and wellbeing owing to certain properties of the environment, for instance, the softly fascinating stimuli of nature that effortlessly draws our involuntary attention, replenishes our cognitive resources and allows the mind to wander and reflect (Kaplan 1995). Psychologists have spent many years exploring the property of 'soft fascination' and trying to sort out exactly what low-level visual properties are associated with it, such as fractal dimensions, the levels of complexity in a scene and the scene content.

This research has largely focused on the 'bottom-up', perceptual (sensory input) mechanisms involved in psychological restoration primarily looking at the effect of natural versus (vs) urban stimuli on attention restoration, mood, or stress recovery. Experiments have mostly explored people's subjective responses to contrasting 2D or 3D visual imagery presented on computer screens in controlled laboratory conditions. This leaves many questions unanswered about what's happening in the brain and what other properties in the physical environment mediate in psychological restoration beyond visual fascination.

The motivation for this article is driven by three primary angles. First, the emergence of new ideas in relation to goal-thinking and restorative environments (Joye, Köster et al. 2024, Valtchanov and Ellard 2015). Second, recognition that compatibility is a far more complex and multi-faceted construct than the psychological restoration literature has recognised to date. And third, that the dominant paradigm in the research is incomplete since it has largely focused on soft fascination. Researchers have seemingly forgotten that there are three additional attributes in the original Kaplan and Kaplan (1989) model that are linked with psychological restoration. These are the properties of 'being away' (a cognitive rather than physical transformation that provides respite from everyday stressors), 'extent' (a setting rich enough and coherent enough to constitute a whole other world) and 'compatibility', that is, a good fit between the environment and a person's goals and intentions (Kaplan 1995). Arguably all four constructs have not been well defined or operationalized in the literature, particularly the properties of extent and compatibility (Neilson et al. 2019, Joye and Dewitte 2018, Joye, Köster et al. 2024).

The dominant theories in restorative environment research

The physical environment is proposed to affect mental health through a process called psychological restoration, which involves positive changes in cognitive, affective and physiological states that occur in response to certain environments. Two theories, Attention Restoration Theory (ART) (Kaplan and Kaplan 1989) and Stress Recovery Theory (SRT) (Ulrich 1983) have dominated thinking in this field since their conception in the 1980s. Both theories posit that our everyday activities and commitments deplete our cognitive resources (in the case of ART) and/or our emotional and stress regulation (in the case SRT). Both theories argue that depletion of these resources is further exacerbated by urban environments that demand our attention dramatically. On the contrary, a restorative environment, from an ART perspective, engages our involuntary attention, capturing our focus without conscious thought and opening scope for attention restoration and reflection. From an SRT perspective, a restorative environment triggers an immediate affective (like) response followed by stress recovery.

The attributes of the physical environment that are believed to be most restorative are, according to SRT (1) savanna-like landscapes with structural properties that include moderate complexity, an even ground surface, the presence of a focal point and water (Ulrich 1983) and, in the case of ART (2) softly fascinating stimuli that draw one's attention effortlessly and without cognitive effort (Kaplan and Kaplan 1989; Kaplan 1995). Fascination is believed to play the critical role in psychological restoration with the other three attributes (being away, extent, compatibility) assigned a supporting role. But Stephen Kaplan argued that the compatibility concept was critical in defining what constitutes a supportive, restorative environment (Kaplan 1983,1995). Compatibility, the Kaplans argued, 'is one of the many topics that cry out to be explored' (Kaplan and Kaplan 1989, p.195). In subsequent years, the research has predominantly focused on soft fascination, an omission acknowledged by Stephen Kaplan in 1995: "It is evident that some researchers have failed to understand that fascination, although important, is but one component of the model.' (Kaplan 1995, p.172).

Defining the compatibility concept

Compatibility was defined by Stephen Kaplan in 1983 in terms of the fit between an environment and a person's goals. He described a compatible environment as a 'two-way street' in which, on the one hand, the environment fits one's goals, and on the other hand,

provides the necessary information needed to meet one's goals (Kaplan 1995, p.173). Kaplan argued that we are more effective at pursuing our goals in a compatible environment because of less distractions and attentional demands (Kaplan 1995). Conversely an unsupportive environment exacerbates directed attention and results in further cognitive fatigue and stress. Kaplan illuminated the concept (Kaplan 1983, 2001) by focusing on compatibility's opposite, incompatibility, with some subsequent empirical support showing how a bad fit between an individual goal and an environment exacerbates stress and fatigue (Herzog et al. 2011b). Kaplan named six environmental categories of incompatibility that hinder our goal pursuits, for example, distractions and deficits in information (Kaplan 2001), but this framework has not been widely adopted, likely because it doesn't effectively explain the phenomena of restoration but rather, it's opposite.

The role of reflection in psychological restoration

Whilst reflection is theorized to be a distinctive benefit of psychological restoration this process, too, has received little empirical attention over the last 60 years.

A highly compatible (and supportive) environment is thought to permit reflection, which can contribute to particularly profound and lasting restorative outcomes (Hartig et al.1997). The ART model originally proposed four successive stages in a restorative experience (Kaplan and Kaplan,1989, pp.196–197): firstly, 'clearing the head' of distracting thoughts; secondly, recovery of directed attention capacity; thirdly, a process of contemplation or 'cognitive quiet'; fourthly, a deeper state of restoration, reflection on one's life, priorities, possibilities, actions and goals. The latter process of reflection is a more deeply restorative experience, defined as 'the most demanding of all in terms of both quality of the environment and duration required' (Kaplan and Kaplan,1989, p.197). Subsequently, Herzog et al. (1997) grouped the first two benefits under the rubric of 'attentional recovery' and the last two benefits under the rubric of 'reflection'. A restorative experience is therefore multi-faceted, involving both attentional recovery and reflection. Herzog and colleagues – and many subsequent researchers – have attributed greater prominence to the role of soft fascination in these restorative processes, arguing that 'the major feature that distinguishes environments with greater potential to promote reflection is the kind of fascination they evoke' (Herzog et al. 1997, p.166).

Reflection is a somewhat vague and underdeveloped concept in psychological restoration. Reflection has largely been defined from within the philosophy of consciousness. Philosopher John Locke, for instance, defined reflection as the mind's perception of its own internal operations (Locke 1690). Reflection tends to be defined more broadly in terms of 'intentionally focusing one's attention on a particular content' (Bennett-Levy et al. 2009, p.121) whereas self-reflection is defined as a 'deliberate metacognitive process' (Knapp et al. 2017, p.167) directed towards oneself which 'leads to insight and change in one's behaviour or attitudes' (Knapp et al. 2017, p.167). The reflective component in psychological restoration happens largely unconsciously, prompted by a positive environmental interaction that includes soft fascination and effortless attention. The direction of focus might be inwards (analysing past experiences, for example) or outwards in terms of guiding future decisions and actions. Reflection is quite different from meditation, which is a conscious, effortful and deliberate attempt to seek tranquil respite from the world requiring mental effort and focus.

Reflective moments allow us to organize our thoughts, gain cognitive clarity and perspective on something, and anticipate new possibilities for the future. In my own research, drawing on ideas from personality psychologist, Brian Little (Little 1983), I've conceptualized reflection in terms of thinking, modifying and changing perspective on life tasks (Roe 2008). Reflection is a tool by which we gain a deeper understanding of what matters to us most and consider our core personal projects. This process works in concert with the environment; a restorative niche, for example, affords attentional recovery, reflection and (potentially) a change in goal focus. In this way we operate as 'prospective' individuals projecting into the future to envisage our goals and continually adapting and modifying them according to the dynamic context of

our lives (Little 2017).

Operationalizing the compatibility concept

In his early 1983 treatise on compatibility, Stephen Kaplan conceptualized compatibility as the degree of supportiveness provided by an environment in meeting one's goals and indicated that one way to capture it was using Brian Little's personal project techniques:

'Supportiveness in an environment can be studied in terms of people's assessments of the extent to which they can act meaningfully on their plans and inclinations. A useful tool in such a study would be the 'personal project' developed by Little (1983). The perceived supportiveness of an environment might be measured by the extent to which those personal projects identified as most salient are also those which the individual feels can be pursued most effectively.' (Kaplan 1983).

Personal projects are defined as 'extended sets of personally salient action in context' (Little 2007, p.25) and can range from trivial pursuits (e.g. 'tidying my room') to more ambitious or spiritual enterprises (e.g. 'improving my relationship with God'). Personal projects, it's argued, are the most appropriate unit for measuring goal-environment fit and widely represent other related goal concepts including life tasks (Cantor et al.1987) and personal strivings (Emmons1986) (Wallenius 1999). Personal Project Analysis (PPA) (Little1983) was developed to measure the psychometric criteria associated with successful project pursuit (such as manageability, efficacy, support) and capture the dynamic contextual factors that impinge on the success of a project, for example, the social context (with whom projects are carried out with) and the place context (where a project takes place).

A central tenant of Little's model is that personal projects act as a transactional conduit between an individual and their world, and directly (and indirectly) enhance mental health and wellbeing (Belsari-Palsule and Little 2020). Empirical evidence has shown that human wellbeing is related to having projects that are relatively high on meaning, structure, community, and efficacy and relatively low on stress (Little 1989).

A handful of researchers have subsequently developed Brian Little's methods to explore the compatibility concept notably Marjut Wallenius (1999), Frances Kuo (2001) and faculty at OPENspace, Edinburgh College of Art. In my own research I've argued that a compatible restorative environment as any environment that supports the sustainable pursuit of core projects, that is, projects we are singularly invested in (Roe 2008). However, another perspective suggests that personal projects are valuable in and of themselves, and that mental health and well-being benefits are derived from simply working towards a goal (and reflecting on its complexity and importance) rather than from achieving the goal itself (Omodei and Wearing 1990). The environment, then, is not only important in terms of facilitating goal-orientated actions but in terms of facilitating reflection that allows us to formulate, adapt, modify, maintain or change our goal focus entirely. And personal project analysis (PPA), as Stephen Kaplan argued many years ago, is one way of measuring this concept.

Empirical support for the compatibility concept

Evidence in support of the Kaplans' compatibility concept is somewhat limited. This is reflected in systematic reviews of ART that have failed to identify any robust literature relating to the construct focusing instead on the cognitive processes relating to psychological restoration rather than the active ingredients of the environment promoting it (Ohly et al. 2016, Stevenson et al. 2018).

Natural restorative settings rich in soft fascination have been found to promote reflection together with attentional recovery (Herzog et al., 1997; Staats et al., 2003; Staats & Hartig, 2004). But the methods applied in this earlier research have relied on scenario techniques requiring participants to imagine a certain type of goal in a hypothetical setting rather than a personal (and meaningful) goal contextualised in a real-world context.

A significant advancement in operationalizing the compatibility concept, as flagged above, has been in the use of personal project analysis (PPA) which allows researchers to explore people's actual goals within the context of their everyday lives and the places they typically frequent. Using PPA, Ming Kuo's research in high-density public housing in inner-city Chicago

demonstrated that residents living with greener views and surroundings exhibited less mental fatigue and felt more effective in managing life tasks (Kuo 2001). This research concurred with the Kaplans' original proposition that improved attentional capacity mediates in reflective processes relating to life priorities and goals (Kaplan and Kaplan 1989).

Using personal project techniques, subsequent research has identified what types of environments offer higher (or lower) levels of perceived supportiveness (and compatibility) and for whom and the wellbeing implications. For instance, Wallenius (1999) identified that the perceived supportiveness of the physical environment (mainly the home, workplace, and sports facilities) was associated with more accomplishable projects and quality of life in adults in their 30s. Sugiyama and Thompson (2007) showed that neighbourhood environments supportive of activity (and healthy ageing) in older people offer good street connectivity, street trees, good quality footpaths, the availability of seating and public bathrooms, and are characterised by mixed land-use. Roe et al. 2022 identified that environments supportive of meaningful goals in the 'older old' (aged 85+) include 'restorative niches' supportive of health and wellbeing goals (parks and gardens, for example); 'affinity niches' that support socially-orientated goals (public buildings such as libraries, church or social centres), and 'flow niches' that support absorbing activities such as cookery and baking in one's own home. But overall, there is limited evidence to indicate how the physical environment supports individual goals or its role in goal reflection.

Little defined us as 'prospective creatures' continually modifying and changing what matters most to us in relation to contextual factors (Little 2017). I've argued that restorative environments (or niches) offer a channel for these transformations. Using PPA, psychologist Peter Aspinall and I have shown that contact with nature can generate positive changes in how people think and feel about their goals. A 60-minute walk in nature, for example, was found to improve people's perceptions of the extent to which they have control and autonomy over a goal, their belief in their ability to successfully execute a goal, increased the levels of fun attached to their personal projects and decreased the levels of stress. These changes were accompanied by positive changes in emotional wellbeing (Roe and Aspinall 2011a). Further studies have demonstrated similar changes in goal thinking amongst adolescents exposed to nature. Immersion in forest settings improved adolescents' perceptions of their competency in managing personal projects and increased the levels of support they perceived being available to them to execute a project. These changes were also accompanied by improvements in emotional wellbeing including reductions in anger and stress (Roe 2008, Roe and Aspinall 2011b).

In summary, reflection on goal thinking is an important aspect of psychological restoration with empirical research showing it is accompanied by cognitive (attentional recovery) and affective processes. But whether reflection is enabled by these processes or simply accompanies them is not currently understood.

The shifting content of people's goals in different settings

The above literature explored changes in people's thoughts and feelings about their goals whilst encountering restorative (natural) niches. Below I explore whether the content of goals can change or adapt according to different settings. This theme has largely been examined from the perspective of intrinsic versus extrinsic goal motivations. Intrinsic goals (coming from within) are generally associated with higher levels of mental health and include activities that are pleasurable (and intrinsically rewarding) in their own right, as opposed to extrinsic goals that are externally motivated and typically involve monitory rewards or changes in social status.

Restorative natural environments appear to have the power to shift people's goal focus away from extrinsically motivated goals towards more intrinsically motivated goals (McDonnell et al., 2025). Our reward sensitivity – which is intertwined with our impulsivity – changes in contact with nature. We become less impulsive and less sensitive to extrinsic rewards after exposure to nature, which in turn, may shift our goal priorities (McDonnell et al. 2025, Joye, Köster, et al. 2024; Joye, Lange, et al.

2024).

This finding is accompanied by a host of studies showing that contact with nature can enhance prosocial behaviours and make us more caring and altruistic (Goldy and Piff 2020, Castello et al. 2021). Compared to urban (or control) settings, natural settings have been found to make individuals more empathetic, less self-focused and less interested in materialistic values (Goldy and Piff 2020). When exposed to nature people tend to place greater importance on self-transcendence (higher order) goals and pursue intrinsic rather than extrinsic aspirations (Weinstein, Przybylski & Ryan, 2009). There appears to be decreased sensitivity to the perceived value of extrinsic, monetary reward in nature (McDonnell et al. 2025). Extrinsic reward may simply be less meaningful to individuals while in nature, perhaps owing to the experience of awe, the 'de-selfing', and connection with a vaster world that accompanies it. Or it may be that a shift of focus inwards and enhanced self-reflection leads to greater understanding of one's core values and purpose. It's been proposed that the experience of nature is, in and of itself, rewarding (Valtchanov and Ellard 2015, McDonnell et al. 2025) and that this prompts a shift in goal-motivations (Joye, Lange et al. 2024, Joye, Köster et al. 2024). Simply by being in beautiful and pleasurable nature, the experience of reward may, in turn, prompt a shift in individual motivational focus to seek greater reward through one's own actions, that is, you feel rewarded (from the experience of nature) so seek greater reward in a self-reinforcing cycle.

Muddiness in measurement

The measurement of compatibility is somewhat muddy and underdeveloped. Psychologist Thomas Herzog developed and tested measures of 'compatibility' (Herzog et al., 2011a) and 'incompatibility' (Herzog et al. 2011b) showing them as distinct constructs aligned with restorative outcomes. Incompatible environments, for example, were shown to be both mentally fatiguing and stressful. But these outcome measures have not been widely used in the field to reinforce the compatibility concept.

The most frequently used instrument for capturing compatibility is the Perceived Restorative Scale (PRS) which also captures measures of 'being away', 'extent' and 'soft fascination' (Hartig et al., 1997). Research typically shows that these four components yield higher scores for natural settings than for urban settings indicating they are more restorative. But the factorial structure of the 'extent' and 'compatibility' sub-scales have been problematic (i.e. unstable) with these items often not loading as expected and merging with other factors. Hartig subsequently indicated that whilst the 'being away' and 'fascination' dimensions of the scale were robust indicators of a restorative experience, the measures of extent and compatibility (as described in attention restoration) remain problematic (Hartig, 2012). This has resulted in shortened scales that rely on capturing perceptions of 'being away' and 'fascination' (Gonzalez et al., 2010). Devising valid and reliable measures of 'extent' and 'compatibility' (in line with the ART model) remains a significant gap and problem in the field.

Incomplete investigation of the compatibility concept

It's worth noting that environmental compatibility is a dimension excluded in Roger Ulrich's SRT model which focuses on affective recovery and stress reduction and the visual structure of the environment (complexity, depth, focal points etc.). The compatibility concept, Ulrich and colleagues argued is based on cognition, and that cognition is too slow a process to play a role in restoration (Ulrich et al. 1991). But this proposition has been turned on its head in recent years, since neuroscience is now demonstrating that affect and cognition occur hand in hand.

Rather, I'd suggest, researchers have been too preoccupied with the concept of soft fascination in the model arguing that fascination is the 'core active ingredient' of a restorative experience (Gonzalez et al. 2010, p.316). This focus seems to stem from the original factor loading of the PRS being stronger for the dimension of fascination (and being away) and the problematic interpretation of the original 4-component model. Consequently, the research has prioritized unpicking what low-level visual qualities of soft fascination are associated with psychological restoration,

fractal patterns, for instance, or the edge content of a scene. The limited research exploring the compatibility concept has done so largely using hypothesized scenarios with participants, asking simple questions like, does this setting fit with things you want to do here? (Herzog et al. 1997). Hypothesized scenarios and/or 2D nature imagery viewed on a computer screen in a laboratory, I'd argue, cannot match the full multi-sensory experience of contact with nature or the complexity and dynamic nature of a person's goal (or project) system in a real context. It's not surprising then that recent research has shown that simulated nature utilised in a laboratory setting does not match the power of real nature immersion in activating the core networks of the brain associated with reward sensitivity (McDonnell et al. 2025).

Newer alternative goal-orientated theories

Newer theories suggest that we need to look beyond the visual system for explanations of psychological restoration and consider alternative accounts for how restorative benefits accrue, including the brain's reward and goal systems. Research by Valtchanov and Ellard (2015) suggests there is an association between the restorative response to nature and activation of the brain's reward pathway triggered in the ventral striatum through the anticipation and pleasure experienced whilst viewing nature settings. This theory is mostly based on evidence of an association between activation in the brain's reward regions and subjective pleasantness ratings in different domains, such as occurs with photographs, music, odours, food and nature imagery (Kuhn and Gallinat 2012) Yue et al 2007). It's an interesting proposition, suggesting that nature, in and of itself, is rewarding.

Another recent theoretical framework proposes a goal-directed account of restorative experiences (Joye, Köster et al. 2024), arguing that we are primarily goal-directed individuals and that our levels of stress, negative affect or mental fatigue can be best understood as a discrepancy between our goal(s) and our current situation. According to this process, restorative environments (such as nature) reduce the discrepancies between our current situation and goals, providing a better fit (and greater compatibility) therefore leading to affective and cognitive benefits. It's posited that nature experiences can reduce the gap between a situation and individual goals by changing a perspective (via modification or reinterpretation), or by affording opportunities to fulfil a goal (Joye, Köster et al. 2024). This theory is mostly based upon goal-directed accounts of human behaviour in which affect is shaped by goal processing (Moors et al. 2017, Moors 2022) and challenges the conventional view in psychology that emotion is an automatic, unconscious reaction to external stimuli. This alternative theory of restoration challenges the dominant paradigm in the research which argues that a drained affective and/or cognitive state is a priori condition for psychological restoration. Joye and colleagues argue that depletion is not necessary for psychological restoration and that the process emerges from purposeful goal behaviour, that is, it's enabled by goal-directed decision processes and not by any prior affective or cognitive state. Whilst empirical evidence for this proposition is limited, environmental neuroscience will likely untangle how these processes are intertwined in the brain.

Neural biomarkers of goal-thinking and reflection

Neuroimaging studies have identified domain-specific brain regions activated by goal thinking and reflection which – which if applied to the context of environmental neuroscience – promise to expand the above findings. Different types of goals and their time frame activate distinct neural regions such as the medial prefrontal cortex (PCC) and the anterior cingulate cortex (ACC) (Packer and Cunningham 2009). Valtchanov and Ellard (2015) have identified that the ventral striatum, the brain's reward system, is stimulated by viewing nature images. But generally, the field has been slow to identify how the physical environment modifies the neural correlates of goal thinking.

One recent neural study shows that the brain's reward processing system is sensitive to restorative natural settings and does indeed have the capacity to shift goal motivations. McDonnell and colleagues (2025) used electroencephalography (EEG) to capture

reward positivity (RewP) in participants viewing nature images in a laboratory versus real-nature immersion experienced whilst walking. In simple terms, Reward Positivity (RewP) is a small burst of electrical activity in the brain that occurs when something rewarding occurs and is captured using EEG. This study showed that immersion in nature decreased neural sensitivity to extrinsic, monetary reward, suggesting a shift in goal-orientated priorities towards intrinsic motivated goals. This study also showed that visual stimuli alone cannot trigger this process, it requires full sensory immersion in nature. It appears that full immersion in a real-world natural environment uniquely influences reward processing in the brain in a way that viewing nature images in a laboratory cannot (McDonnell et al. 2025). This study lays the groundwork for future research to delve deeper into how restorative environments impact reward processing in the brain and shift goal priorities. An important area to better understand would be what aspects of experiencing nature affect reward systems, for example, viewing a scene from different perspectives whilst moving through it in the real world.

Extending the compatibility concept

Compatibility, I argue, is a multifaceted and more complex construct than the original framework lends itself to. We do not operate in isolation, independent from the rest of life. What does it mean for our relationship to the environment to be described as compatible? Compatibility is defined in the Oxford English Dictionary (1989) as 'the ability of people or things to exist or work together harmoniously'. The etymology of 'compatible' directly links it to 'compassion' derived from the Latin word compati (to feel with, be sympathetic to) suggesting an affective aspect to compatibility and hinting that the condition may reflect an intention to understand or accommodate another. In the context of planetary health, I suggest that compatibility might describe a state where humans and the earth's natural systems co-exist in harmony without problems or conflict. The term reflects our emotional connection to the planet which has moved from a peripheral concern in the early 1980s (when the original ART framework was coined) to a central driver of behaviour in the context of global climate change and the 2030 Agenda for Sustainable Development. Compatibility infers a compassionate respect for the planet as well as being 'in sync' or 'in harmony' with it. The operational definition of compatibility within psychological restoration therefore needs to be extended beyond the original Kaplan 1983 definition to reflect current human-environment relationships and their complexity. A multi-faceted construct is needed to capture how well we function alongside the planet in a reciprocal relationship rather than one that simply meets our demands and needs. This has huge implications for collective mental health considering the deepening ecological crisis and growing eco-anxiety. New constructs of compatibility might be measured in terms of our interconnections with the planet, and our empathy, respect and emotional relationship with the natural world. Where these transactions are more harmonious better human mental health should arise. It's a construct that is well recognized (and explored) in conservation (or ecological) psychology but could be better integrated in the psychological restoration literature.

Conclusion

This research dialogue has argued that compatibility is a complex but central component of psychological restoration that has largely been construed and measured from the perspective of how well a setting fits with individual goals and aspirations. In addition, goals are valuable in and of themselves and goal reflection (and what is core to our beliefs and values) is an important facet of the restorative process. Furthermore, there is evidence to suggest that restorative natural settings can promote positive changes in goal-thinking (for example, in the manageability, efficacy and stress dimensions) and change individual goal focus towards more intrinsically motivated goals, thereby contributing to mental health and wellbeing. Highly compatible environments (that is, supportive of goals) are believed to prompt reflection, potentially offering deeper and longer lasting restorative outcomes, but this has not been empirically examined to date. Nor is there any consensus amongst researchers on whether affective and cognitive processes accompany compatibility, enable it or follow it. These issues will

likely be further spotlighted in the future by advancing techniques in environmental neuroscience elucidating the neural correlates of goal processing and how this interacts with the neural networks associated with affect and cognition. In addition, this dialogue has argued that the compatibility concept be extended to include our emotional connection to the planet and how a mutually reciprocal and harmonious relationship with nature supports human mental health and wellbeing. In summary, compatibility is a significantly more multi-faceted and complex construct than the psychological restoration literature has recognized to date.

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