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Perceived interdependencies between settings as constraints for self-reported restoration

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ABSTRACT

Being away is considered a key requirement for restoring depleted cognitive resources. However, it is unclear which human-environment transactions promote or constrain the sense of being away. This study examines whether perceived interdependencies between cognitively demanding and leisure-time settings can reduce the perceived sense of being away. The results from an online survey of German adults indicated that self-reported health-related outcomes after leisure time were related to the perceived sense of being away during leisure time. Both the perceived sense of being away and self-reported health-related outcomes were impaired when people perceived more interdependencies between cognitively demanding and leisure-time settings. The findings suggest that people report a stronger sense of being away and increased health and well-being when perceived setting interdependencies are reduced. This application of behavior setting theory in the restorative environments framework provides a more sophisticated understanding of human-environment transactions that may constrain or promote health and well-being.

1. Introduction

Many researchers consider recreational behavior in natural environments both a powerful countermeasure against stress and mental fatigue and as a protective and promoting factor for health and well-being (e.g., Nielsen & Nilsson, 2007; Nilsson, Sangster, & Konijnendijk, 2011). Numerous studies emphasize the positive association between outdoor recreation, human well-being, and (mental) health (for overviews, see Abraham, Sommerhalder, & Abel, 2010; Barton & Pretty, 2010; Bowler, Buyung-Ali, Knight, & Pullin, 2010).

Concerning psychological restoration, one of the most prominent theories is attention restoration theory (ART; Kaplan & Kaplan, 1989; Kaplan, 1995). ART provides a theoretical framework that is well suited to explain why people benefit in terms of health and well-being from recreation, particularly when performed in natural environments like forests, parks, or other green spaces. The basic assumptions of ART are that everyday tasks and daily demands require directed attention. This is the case when we have to focus and concentrate on many different aspects to accomplish tasks in daily life. For example, when commuting to work, we have to be aware of traffic, other people, timetables etc. Kaplan and Kaplan (1989) assumed that we only have a limited (cognitive) capacity to maintain directed attention. Once our capacity is reached and the resources for maintaining directed attention are depleted, mental fatigue is supposed to follow (e.g., Boksem & Tops, 2008; Kaplan & Kaplan, 1989). It is further assumed that the cognitive resources needed for directed attention become depleted on a regular basis over the course of a day, particularly in the face of prevailing stressors and challenges for self-regulation (Kaplan & Kaplan, 1989). We can thus consider restoring depleted cognitive resources for directed attention as a fundamental for maintaining health and well-being. ART proposes that those environments that actively promote the opportunity to let our mind wander and enable us to not have to willfully focus on those things that need attention provide a more complete restoration compared to other environments (e.g., Berman et al., 2012; Hartig, 2012; Kaplan & Kaplan, 1989). Whether an environment provides effortless attention and thus may support restorative processes depends on the perception of the dimensions “fascination”, “extent”,

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"compatibility", and "being away" (e.g., Kaplan & Kaplan, 1989). *Fascination* comprises elements of the environment that draw attention to them, without us having to willfully concentrate or focus. Thus, these elements promote effortless attention, as no directed attention is needed. *Extent* relates to two aspects of an environment: it means both the perceived physical as well as imagined vastness and scope of an environment (Kaplan, Kaplan, & Ryan, 1998). *Compatibility* can be understood as the fit between a person and the environment. Compatibility is thus given if we find everything in an environment that we prefer, intend, and/or need at the moment when we are there. The fourth dimension, *being away,* means the perceived psychological distance from the demands of everyday life and associated mental effort (Kaplan et al., 1998). Being away does not mean the physical distance from environments where we experience high demands for directed attention or stress, but the degree to which the whole setting is similar or dissimilar to settings that provoke mental fatigue (Kaplan, 1995). Kaplan et al. (1998) concluded that environments that comprise fascinating elements; are perceived as coherent and of substantial scope; are compatible with what we want to do and have to do; and that allow us to have a strong sense of being away are most likely to support the restoration of depleted cognitive resources for directed attention, and thus contribute to our health and well-being. Such environments are commonly termed *restorative environments* (Kaplan & Kaplan, 1989; see also; Hartig, 2004; von Lindern, Lymeus, & Hartig, 2016).

However, the kind of restoration has to correspond with the source of stress and mental fatigue. Hartig, Catalano, and Ong (2007) pointed out that sleep, for example, might not help people to recover from depleted social resources; an active, shared behavior would be more likely to support restoration in this case (Hartig, Catalano, Ong, & Syme, 2013). This notion as well as the definitions of fascination, extent, compatibility, and being away suggest that restorative characteristics are not *per se* attributes of any given environment, but that the amount of actually experienced restoration also depends on human-environment and human-human transactions. Hartig (2004, p. 274) concluded that "some form of contrast with another relatively demanding environment" is needed for the successful restoration of depleted cognitive resources.

1.1. Constrained restoration

The constrained restoration concept is particularly relevant in the above-mentioned regard. Imagine hiking with a close friend on a beautiful trail that is winding along the banks of a small river. It is easy to understand such a hiking trip as taking place in a restorative environment, as it fulfills most, if not all, criteria for qualities that are associated with restorative environments. We might thus conclude that the imagined hiking trip likely supports restorative processes that result in feelings of improved health and well-being. But what happens if your accompanying friend receives a phone call during that hiking trip, informing him/her that his/her work contract will not be renewed at the end of the month? This certainly does not affect the qualities of the physical environment. However, it is, in this situation, very unlikely that the hiking trip actually sustains restorative processes anymore, as these processes will be undermined by stressful thoughts about possible future unemployment. This example should serve as an illustration of what can be understood as a case of constrained restoration.

Recent studies have provided empirical evidence supporting the concept of constrained restoration. As illustrated in the study of cold summer weather and the dispensation of antidepressants (Hartig et al., 2007), restorative processes may be constrained not only by directly stressful events, but also indirectly by other, more subtle aspects that are not in and of themselves particularly demanding. Further, restoration reported to have occurred with forest visits during leisure time was constrained for people who had a profession related to forests (von Lindern, Bauer, Frick, Hunziker, & Hartig, 2013). People who visited a wilderness park during their leisure time reported a weaker sense of being away and less restoration the more they perceived people, activities, or had cognitions that they associated with daily stress and demands (von Lindern, 2015). Further, Collado, Staats, and Sorrel (2016) recently reported empirical evidence for an impaired sense of being away for children who helped out on farms and spend their free time in agricultural areas compared to children who did not have to help out on farms and also spend their free time in agricultural areas.

The results of the studies mentioned above suggest that the constraint of restoration occurs not only because of direct or indirect exposure to some kind of stressor, but rather because we find it harder to achieve a sense of psychological distance from work-related demands, or from challenges in private life and through daily hassles. Thus, "having a sense of being away" seems to be very susceptible to circumstances that can be considered constraints for restoration. These findings suggest that the sense of being away is a construct that is worth analyzing in more depth.

We typically measure the sense of being away without looking deeper into *why* a certain socio-physical environment promotes while another one undermines a sense of being away. What is problematic with this kind of measurement is that the sense of being away is assessed only on a general and descriptive layer. Respondents and study subjects can only indicate to what degree they do or do not have a sense of being away in a certain context. While this kind of measure of being away could very well be associated with restorative outcomes (e.g., relief from unwanted demands, relax one's focus, gives one a break, refuge from unwanted distraction), the sources that actually promote or impair having a sense of being away are not explicitly covered by it. This is problematic when, for example, planning interventions with the aim to increase the sense of being away and the related likelihood of stronger restorative outcomes. Without a theoretical concept of what psychological processes underlie a sense of being away or how a sense of being away can be created, a socio-physical environment cannot systematically be utilized for supporting health-promoting interventions that aim at increasing the likelihood of restoration through an increased sense of being away. We can therefore argue that generating a deeper understanding of *why* people perceive a sense of being away is an important task for research in environmental and health psychology.

1.2. Complementing attention restoration theory with behavior setting theory

Behavior setting theory (BST) (Barker, 1978) provides a promising approach in this regard. BST integrates psychological, social, and physical aspects of environments and combines them with specific behavior, resulting in behavior settings (hereinafter simply "settings"). Settings can be defined as physical and psychological frames, which inherit specific social functions and roles (Wicker, 1992). In our daily life, we usually move from one setting to another, and thus take over different roles and use different functions of settings (e.g., the setting changes both from "home/family" to "work" when we physically leave home to go to work, but also when we stay at home and work out of a home office). Barker (1968) stated that events that occur in a setting as well as the (physical) characteristics of the setting itself impact our perception and behavioral or affective response. Interaction between humans and physical objects is essential for settings. Settings are therefore