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PRESENTER ABSTRACTS
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In Search of Beneficial Distractions: Exploring Restorative Environmental Distractions in Workplace Design

MEREDITH BANASIAK, M.ARCH., ASSOC. AIA
 Program in Environmental Design
 University of Colorado, Banasiak@colorado.edu
 Broomfield, CO 80023

CASEY LINDBERG, PH.D., M.ARCH.¹; BRIAN GREEN M.S. TECH. MGMT.²; MARC G. BERMAN, PH.D.³
 Co-Investigator, HabLab¹; Research Lead – Work Environments²; University of Chicago³

This study examines how visual stimuli presented during task performance, and during breaks between tasks, can function as a positive distraction on task performance and emotional regulation. Two parallel studies were conducted in an office environment in order to test whether restorative nature image presentation would impact performance and emotional regulation during a creative reasoning task (Remote Associates Test [RAT]) and a directed attention task (visual Backward Digit Span [BWDS]). Thirty-two office workers were shown counterbalanced sets of nature images, urban images, and no images during three fifteen minute intervals of RAT. Before and after each interval, Positive and negative affect scale (PANAS) ratings and BWDS tasks were interspersed. A separate set of thirty-two office workers were shown counterbalanced sets of nature images and urban images before and after each task set. A within subjects analysis of task performance, PANAS ratings, and tonic hrv are discussed for each study. Workplace design implications are also addressed.

1. EXTENDED ABSTRACT

Workplace design and furniture specifications are often aimed at preventing disruptive distractions in order to facilitate inhibition and sustained attention. Distractions have been linked to a decrease in the cognitive mechanisms of inhibition and sustained attention, demonstrated by decreases in perceptual speed, reaction time and cognitive processing. Attention can be driven by external stimulation (bottom-up from the environment) and by internal mechanisms (top-down). When inhibitory control is compromised, a person is more prone to sensory interference and distraction, and to decreased “interference control”, the ability to free behavior from being controlled by the immediate environment (Brocki and Bohlin, 2004). We aimed to investigate whether there may be receptive distractions (our term) linked with increased productivity and protective health benefits in the workplace. Attention Restoration Theory (ART) suggests that directed attention processes, such as focused concentration, are fatigable, but can be restored by facilitating bottom up/involuntary attention processes captured by stimulating features, particularly nature, in the environment (Kaplan, 1995; Kaplan & Berman, 2010). This differs from harshly fascinating stimulation such as bright lights and loud sounds which also capture attention automatically, but do so in much harsher and more consuming ways. Additional studies have indicated that ART persists in restoring creative reasoning processes after exposure to nature (Atchley et al, 2012). Others have linked exposure to green space with a reduction in stress (Thompson et al, 2012) suggesting that interaction with nature may mediate the effects of stress and enhance coping mechanisms in the presence of distractions. Thus, we hypothesized that softly fascinating features, implemented as moving nature images, introduced directly into the work space would serve as receptive distractions which would restore directed attention, improve creative task performance, and improve emotional regulation.

This research was conducted in an operational office setting. Participants performed three 15-minute self-paced RAT task sets (Bowden & Jung-Beeman, 2003; Mednick, 1962) across three counterbalanced distraction conditions: no images/distraction (control), receptive nature images, and neutral urban images. Between task sets, participants completed a PANAS scale and performed a directed attention task associated with attentional fatigue (visual backwards digit span). In order to test if there was a restorative advantage above any observed effects from the distraction-version, a second study was conducted in which images were presented during breaks between tasks sets. In each study, measures of HRV were analyzed as indicators of emotional regulation (Appelhans and Luecken, 2006; Thayer and Lane, 2009), i.e., the ability to self-regulate in response to changing environmental demands (Thayer et al, 2012).

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3. AUTHOR BIOS

Meredith Banasiak is a member of the Program in Environmental Design faculty at the University of Colorado. In 2012, she launched Humans and Buildings Laboratory (HabLab), a research group committed to studying interactions between people and environmental settings established with funding from an Innovative Seed Grant Program award.

Casey Lindberg, Ph.D., M.Arch. completed his Ph.D. in psychology from Stanford University in 2010 with an emphasis in life-span development, and he completed his Master of Architecture from the University of Colorado in 2013. Casey's research interests include investigating how the built environment, particularly workspaces, interact with individual differences to affect outcome variables like well-being and productivity. He co-launched the Humans and Buildings Laboratory (HabLab).

Brian Green M.S. Tech. Mgmt. and his team gather information about behaviors, like workplace collaboration, and convert data into real world solutions by studying people, places, and the ways they work. Part of this work includes the study of the role of distractions in the office environment and their effect on productivity.

Marc G. Berman, Ph.D. is an Assistant Professor of Psychology at the University of Chicago and the director of the Environmental Neuroscience Laboratory. Marc's research examines the interactions between individual neural, cognitive and affective processing with the social and physical environment to improve human mental and physical health.