Spaces for Creative Thinking- Integrating Neuroscience Research Findings in Real-Time & Spaces

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INTRODUCTION

Neuroscientists have comprehensively assessed the form of environments that support creative thinking, most often in studies that detail the effects of a single physical factor. These research projects have determined that aspects of indoor physical environments influence the likelihood of creative thinking taking place in a space (e.g., Thoring, Desmet, and Badke-Schauf, 2018).

Creativity linked design elements include color (surface and light), visual complexity, plants in view, natural lighting, visible wood grain, aesthetic factors, comfortable levels of environmental control, audio and visual distractions, ceiling height, opportunities for movement, access to needed tools/task support, chance for cognitive restoration, and nonverbal messages sent by a place, for example (e.g., Batey, Hughes, Crick, and Toader, 2021; Studente, Seppala and Sadowska, 2016; Weitbrecht, Barwolff, Lischke, and Junger, 2015).
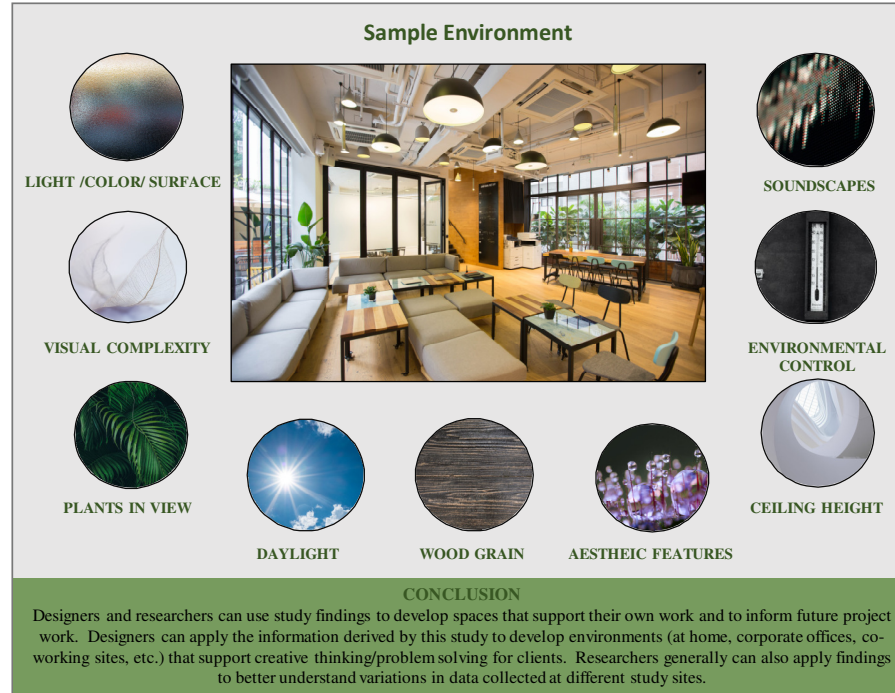
METHODOLOGY

In a real-world setting, multiple factors linked by previous research studies to enhanced creative performance were investigated simultaneously.

Study participants first completed a task that assessed their individual creativity at a particular moment in time (Green, Spiegel, Giangrande, Weinberger, Gallagher, and Turkeltaub, 2017). Then the study participants categorized/described the components of the physical environment in which they did that task using the criteria noted above (e.g., surface color).

RESULTS

Findings confirmed hypothesized consistencies between aspects of the physical environment previously identified as supporting creative thinking and the forms of the physical environments where participants whose creativity test scores were among the highest 30% (this group will be called the "highest scorers" throughout the rest of this document) completed the creativity task.

Sample Environment

LIGHT /COLOR/ SURFACE

VISUAL COMPLEXITY

PLANTS IN VIEW

DAYLIGHT

WOOD GRAIN

AESTHEIC FEATURES

SOUNDSCAPES

ENVIRONMENTAL CONTROL

CEILING HEIGHT

CONCLUSION

Designers and researchers can use study findings to develop spaces that support their own work and to inform future project work. Designers can apply the information derived by this study to develop environments (at home, corporate offices, co-working sites, etc.) that support creative thinking/problem solving for clients. Researchers generally can also apply findings to better understand variations in data collected at different study sites.

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RESULTS

The highest scorers completed the creativity task in spaces with:
-Greater concentrations of plants
-Visible wood grain
-Possible and present natural light; all of the highest scorers were working with a view of a window. The two response alternatives provided to describe view were "mainly of nature" and "mainly of buildings or other manmade things".
-Cool colors predominating (used as a surrogate for previously identified links between seeing the color green and productivity) Also, in the areas in which highest scorers worked, surface colors were more likely to have levels of saturation and brightness that have been tied to positive, relaxed moods of the sort that support cognitive work
-Relatively more curved than straight lines. Curved lines were more likely to dominate in areas where the highest scorers worked than where other participants answered survey questions.
-Ceiling heights previously linked to enhanced creative performance

The highest scorers were more likely to perceive that the place where they answered survey questions would support mental work than other participants
-Other participants were more likely to hear nature as they worked than the highest scorers but the highest scorers were more likely to hear white noise-type sounds
-The highest scorers and the other participants were equally likely to work in relatively warm light.
-The highest scorers were likely to have roughly the same levels of comfortable environmental control as other participants.
-The highest scorers and the other participants were equally likely to have answered survey questions while working at a sit-stand desk (used as a proxy for movement options generally).
-The highest scorers were more likely to have experienced audio and visual distractions than other participants.

Relatively low to moderate visual complexity (instead of stress inducing high complexity) was more likely to be found in the places where other participants answered questions than where the highest scorers worked

Data collected using Desmet's 2015 system for categorizing mood indicated that the other participants were more likely to categorize their moods as either calm-serene or relaxed-carefree than those the highest scorers.