

Editorial

Landscape Architecture Design and Well-Being—Research Challenges and Opportunities

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For this Special Issue (SI), we set out to gather empirical studies that examine relationships between the design of public urban outdoor environments and the well-being of users of these spaces. We wanted to contribute to the body of knowledge on the importance of urban green spaces for health and well-being and help fulfil international agendas to design health-promoting spaces, neighbourhoods and cities [1–3]. The topic has been particularly relevant during the COVID-19 pandemic, with researchers finding an increased use of urban outdoor green spaces in several cities [4,5]. There have also been results indicating that green space usage buffered the negative effects of social distancing during the pandemic [6]. By adopting a broad understanding of well-being, this SI welcomed not only studies measuring users' well-being as a direct outcome of environmental exposure, but also studies on health promoting activities such as physical, recreational and social activities. As a result, the papers in this SI cover measures of landscape design preference (Vassiljev et al.), perceived safety (Evensen et al.), perceived psychological restoration (Neale et al.) and self-assessed stress recovery (Memari et al.). It also includes papers linking research and practice through an evidence-based design approach (Gramkow et al.) and demonstrating an example of how to implement research in landscape design education (McWilliam et al.). The studies cover different types of landscapes, from coastal “blue” spaces (Vassiljev et al.) to urban mixed environments (Evensen et al.; Neale et al.) and natural “green” settings (Memari et al.). In this editorial, we will refer to the six papers mentioned above (also see List of Contributors) and explore some of the methodological challenges and opportunities around conducting research within the field of landscape architecture design and its impact on health and well-being.

The body of research exploring the impact of exposure to urban green space on health and well-being is vast [2,3,7,8] and includes studies in several disciplines, such as environmental psychology, epidemiology and social sciences more broadly, including landscape architecture. The studies share the aim of understanding how various environments or environmental features affect people's psychological well-being, whether positively or negatively. However, the methodological approach differs across disciplines. A common methodological approach within studies on the experience of landscapes in the disciplines of environmental psychology and landscape architecture research is to experimentally present participants with different green space scenes, as in some studies in this SI (Memari et al.; Neale et al., Vassiljev et al.). This experimental approach enables the investigation of the impact of isolated environmental components. Advancements in technology in recent decades have enabled this field of study to move beyond traditional landscape preference studies based on photographs to those based on videos or moving imagery, as done by Neale et al., or virtual reality solutions, as done by Evensen et al. and Vassiljev et al. For future studies, we welcome other innovative methods, such as methods using multi-sensory stimuli, in research on landscape architecture design and well-being.



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In our study (Evensen et al.), we cooperated with municipal green space managers in an on-site field experiment to explore users' perceived safety before and after physical changes were made to an urban park. We see great research potential in small-scale green space management and maintenance projects such as this, which use maintenance to change the design of a place. First, they provide an opportunity to study an actual change in the landscape; second, they facilitate valuable cooperation between research and practice; and third, it is more affordable to make changes to an existing green space than to design a new one. Finally, this approach is more holistic than photo-based experiments and thus strengthens the ecological validity of studies. For future studies, therefore, we invite more researchers to take this methodological path. An ideal approach would be to follow a landscape design intervention for several years, from the early planning phase to several years after the establishment, using green space quality assessment tools. For examples of such tools, see [9] as well as user-oriented tools. This approach would generate valuable knowledge about how the design of a space affects the well-being of users or people living in the area. However, a challenge with such research designs is that landscape architects work with living material (vegetation) that takes time to establish, so it is not usually possible to accurately assess the effectiveness of the landscape design within a timeframe of three to four years, which is a common length for externally funded research projects. Additionally, onsite interventions or natural experiments are vulnerable to confounding factors, such as the presence of other green space users, a topic explored further in the paper by Neale et al. (this SI).

For several years, we have noticed an increased number of requests among stakeholders and grant funders for quantitative studies, such as randomized control trials or longitudinal epidemiological studies, from which one can detect causal relationships between exposure to physical environments and health and well-being. However, the step from these quantitative approaches, often conducted on national or city scale and at public health level, to the impact of various landscape designs at the local level is sometimes great. Often absent from these discussions are the site-specific or context-dependent conditions in which landscape architects operate. Qualitative studies may be more aligned with the approach used in the landscape architecture profession, but they do not provide the "hard" evidence that stakeholders request.

This leads us to the last challenge we would like to address: how to implement research in landscape architecture practice. Two papers in this SI discuss this topic (Gramkow et al. and McWilliam et al.). Gramkow et al. present an evidence-based design model that includes the four steps of evidence collection, programming, design and evaluation. Furthermore, they give an example of applying knowledge acquired through research (which they refer to as "evidence") in a concrete design context. A related concept that appears in other papers is knowledge-informed design [for a comparison of the two concepts, see [10]]. Both terms highlight the importance of using research or evidence rather than designers' individual preferences to inform design decisions. This is also addressed by McWilliam et al., introducing an evidence-based teaching approach for familiarizing students in landscape architecture with research and the implementation of empirical evidence in the design process.

To conclude, research on the relationship between the design of public urban outdoor environments and well-being is positioned within several disciplines. This SI calls for interdisciplinary cooperation in both research and design practice. In this SI, we see several examples of innovative methods exploring landscape architecture design and its impact on health and well-being. For the future, we welcome the use of other innovative methods and methods that include multi-sensory stimuli. We also welcome green space management projects and landscape design interventions that use maintenance to transform and design a place. We call for a shift among stakeholders, grant funders and research fellows to promote and recognize small-scale quantitative and qualitative studies that allow for exploring the impact landscape architecture design on peoples' well-being, within its site-specific contexts in which landscape architects operate.

Conflicts of Interest: The authors declare no conflict of interest.

List of Contributors:

- Evensen, K.H.; Nordh, H.; Hassan, R.; Fyhri, A. Testing the Effect of Hedge Height on Perceived Safety—A Landscape Design Intervention. *Sustainability* **2021**, *13*, 5063.
- Gramkow, M.C.; Sidenius, U.; Zhang, G.; Stigsdotter, U.K. From Evidence to Design Solution—On How to Handle Evidence in the Design Process of Sustainable, Accessible and Health-Promoting Landscapes. *Sustainability* **2021**, *13*, 3249.
- McWilliam, W.; Wesener, A.; Sukumar, A.; Brown, R.D. Reducing the Incidence of Skin Cancer through Landscape Architecture Design Education. *Sustainability* **2020**, *12*, 9402.
- Memari, S.; Pazhouhanfar, M.; Grahn, P. Perceived Sensory Dimensions of Green Areas: An Experimental Study on Stress Recovery. *Sustainability* **2021**, *13*, 5419.
- Neale, C.; Lopez, S.; Roe, J. Psychological Restoration and the Effect of People in Nature and Urban Scenes: A Laboratory Experiment. *Sustainability* **2021**, *13*, 6464.
- Vassiljev, P.; Bell, S.; Balicka, J.; Amrita, U.A.A. Urban Blue Acupuncture: An Experiment on Preferences for Design Options Using Virtual Models. *Sustainability* **2020**, *12*, 10656.

References

1. United Nations. Sustainable Development Goals. 2015. Available online: <https://sustainabledevelopment.un.org/> (accessed on 28 March 2022).
2. WHO Regional Office for Europe. Urban Green Spaces and Health. A Review of Evidence. 2016. Available online: https://www.euro.who.int/__data/assets/pdf_file/0005/321971/Urban-green-spaces-and-health-review-evidence.pdf (accessed on 22 March 2022).
3. WHO Regional Office for Europe. Green and Blue Spaces and Mental Health. New Evidence and Perspectives for Action. 2021. Available online: <https://apps.who.int/iris/bitstream/handle/10665/342931/9789289055666-eng.pdf> (accessed on 22 March 2022).
4. Korpilo, S.; Kajosaari, A.; Rinne, T.; Hasanzadeh, K.; Raymond, C.M.; Kyttä, M. Coping With Crisis: Green Space Use in Helsinki Before and During the COVID-19 Pandemic. *Front. Sustain. Cities* **2021**, *3*, 713977. [[CrossRef](#)]
5. Venter, Z.S.; Barton, D.N.; Gundersen, V.; Figari, H.; Nowell, M. Urban nature in a time of crisis: Recreational use of green space increases during the COVID-19 outbreak in Oslo, Norway. *Environ. Res. Lett.* **2020**, *15*, 104075. [[CrossRef](#)]
6. Reid, C.E.; Rieves, E.S.; Carlson, K. Perceptions of green space usage, abundance, and quality of green space were associated with better mental health during the COVID-19 pandemic among residents of Denver. *PLoS ONE* **2022**, *17*, e0263779. [[CrossRef](#)] [[PubMed](#)]
7. Lachowycz, K.; Jones, A.P. Towards a better understanding of the relationship between greenspace and health: Development of a theoretical framework. *Landsc. Urban Plan.* **2013**, *118*, 62–69. [[CrossRef](#)]
8. van den Bosch, M.; Ode Sang, Å. Urban natural environments as nature-based solutions for improved public health—A systematic review of reviews. *Environ. Res.* **2017**, *158*, 373–384. [[CrossRef](#)] [[PubMed](#)]
9. Knobel, P.; Dadvand, P.; Maneja-Zaragoza, R. A systematic review of multi-dimensional quality assessment tools for urban green spaces. *Health Place* **2019**, *59*, 102198. [[CrossRef](#)] [[PubMed](#)]
10. Peavey, E.; Vander Wyst, K.B. Evidence-Based Design and Research-Informed Design: What’s the Difference? Conceptual Definitions and Comparative Analysis. *HERD Health Environ. Res. Des. J.* **2017**, *10*, 143–156. [[CrossRef](#)] [[PubMed](#)]