

Editorial

Design for Behavioural Change, Health, Wellbeing, and Sustainability

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The relationship between design and behavioural change has never been more crucial than in today's world, where health, wellbeing, and sustainability are at the core of societal transformation [1]. In the face of widening health inequities, environmental degradation, and ageing populations, design is increasingly recognised not merely as a means of creating products or aesthetics, but also as a strategic enabler of behavioural and systemic change [2]. The growing complexity and urgency of these global challenges, ranging from climate change and public health crises to social inequality, demand innovative, interdisciplinary responses. This Special Issue of Sustainability explores how design can be a transformative force in promoting behavioural change to advance individual and collective wellbeing, health, and environmental sustainability. Unified by a shared commitment to addressing the United Nations' Sustainable Development Goals (SDGs), the studies featured respond to urgent global challenges, including post-pandemic recovery, the climate crisis, and ageing populations. Across built environments, digital health technologies, and inclusive service systems, these papers illustrate how design can empower individuals and communities to make healthier, more sustainable choices.

Design for Behavioural Change (DfBC) has emerged as a multidisciplinary, human-centred approach that can support individuals and communities to adopt healthier, more sustainable, and safer behaviours through thoughtful design interventions. By reconfiguring products, services, environments, and communication systems, designers can encourage specific actions aligned with health, safety, and sustainability goals [3–5]. This approach draws from behavioural science, psychology, and social theory, reflecting a shift from solely user-centred design to a more systemic and impact-driven methodology [6,7]. DfBC has gained traction in its application across various fields, including health [3], sustainability [8,9], and safety [10], reinforcing design's potential to facilitate beneficial habits while inhibiting harmful habits. This aligns with increasing public concern about climate change and environmental degradation, reinforcing the role of design in supporting policy priorities and cultural shifts [11].

In the health domain, design is being harnessed to create supportive environments and tools that promote healthy behaviours, such as improved dietary practices [12] increased physical activity [13], and mental health support [14]. Integrating theory on behavioural science, such as that suggested by Orji et al. [15], can enhance the effectiveness of these interventions. Despite its promise, the application of DfBC to health remains underexplored due to the complexity of health-related behaviours, which are shaped by multifaceted psychological, contextual, and technological factors [16].

This Special Issue sets out to explore the methods, strategies, and real-world applications implemented by designers, researchers, and policymakers to encourage socially



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beneficial behaviour. This collection of articles reflects a rich interdisciplinary landscape spanning architecture, interaction design, health informatics, urban planning, and environmental psychology. They can be grouped into three key thematic strands.

As societies age and healthcare systems face increased strain, several of the contributions therefore explore digital strategies for sustainable care:

Xu et al.'s study investigates the willingness of adults to use mobile escort services for their elderly parents. Using the UTAUT2 framework, the authors show how trust, social influence, and perceived risk affect behavioural intention. This work advances our understanding of the adoption of digital health services and offers a predictive model that could prove useful for designers and service developers.

Chen et al.'s microethnographic study explores how interior design can support people with dementia in maintaining their habitual activities. By analysing three case studies of long-term care, the authors identify environmental and social factors that help sustain a sense of home. This paper provides valuable principles for care-focused design that respects dignity and routine.

Using structural equation modelling, Xu et al.'s study reveals how older adults' subjective perceptions of community environments affect their physical and mental health. Mediated by leisure and social activities, environmental features such as safety, greenness, and walkability are shown to be critical. This supports the growing emphasis on person-centred urban design for ageing populations.

Velciu et al.'s paper offers a European perspective on the co-design of eHealth technologies with older adults and their caregivers, highlighting the importance of wearable devices and self-monitoring tools while arguing for a user-driven approach in developing these sustainable digital health solutions. This study bridges technological design and healthcare empowerment.

Several of the included papers explore how physical spaces shape habits and wellbeing:

Franceschini and Rocha investigate how Design for Sustainable Behaviour (DfSB) can be applied to children's use of washrooms in schools. Through a toolkit designed to reduce resource use, the authors measured the changes in consumption and collected feedback from children and staff. Although the toolkit had a modest direct impact, it offered valuable insights into how playful, nature-themed visual cues can create a more pleasant environment that indirectly shapes behaviour. Importantly, this study contributes a novel way to categorise DfSB strategies, enriching designers' toolkits with targeted behavioural insights.

Busciantella-Ricci et al. present a design-led, participatory approach to improving urban health through a toolkit that helps communities co-design healthier environments. By integrating research and co-creation, this study emphasises the importance of local knowledge and situated interventions and the power of design to bridge community and policy agendas.

In investigating high-density living environments, Cao and Huang's study shows how different courtyard landscape layouts can alleviate the spatial oppressiveness caused by high-rise buildings. This work underscores the psychological and emotional dimensions of spatial design and highlights the influence of landscape configurations on resident wellbeing.

Lai et al.'s timely study applies natural language processing to analysing user sentiments across 100 urban parks in Shanghai, revealing a post-pandemic shift toward neighbourhood parks and features that support accessible, nature-connected experiences. Their findings offer planners and designers a compelling case for adapting urban green spaces to evolving behavioural and emotional needs, particularly in response to global health crises.

Several papers in this issue investigate how digital technologies can facilitate behavioural change.

In their paper, Fu et al. investigate mobile health apps and analyse user feedback with the aim of improving user satisfaction and sustained engagement. They propose a set of measurement tools that can translate users' needs into design priorities, emphasising iterative design and feedback loops in m-health development.

Using a playful design intervention, a bubble machine, Yang et al.'s study evaluates how playground design can encourage peer interactions among children aged 3 to 6. Their results show increased cooperation and reduced solo play, demonstrating the power of interactive, sensory stimuli to enhance social behaviour in early childhood.

Ouyang et al.'s empirical study compares the impact of two visual designs for instructional atlases on the prevention of work-related musculoskeletal disorders among construction workers. The eye-tracking data reveal that diagrams that demonstrate the incorrect actions attract more attention and improve workers' learning outcomes, offering actionable guidance for the design of safety training and workplace health communication.

The COVID-19 pandemic has starkly illuminated the critical role of design in promoting health, equity, and resilience. The need for integrative, cross-disciplinary responses that protect communities while promoting individual agency has never been clearer. Resilient systems—those that empower individuals and adapt to crises—are increasingly seen as the foundation for sustainable health and wellbeing. Yet the application of DfBC raises important ethical and practical concerns. Behavioural interventions risk placing the burden of change on individuals rather than addressing structural inequalities. As Welsh and Farrington [17] caution, such approaches must ensure psychological safety, inclusivity, and equity, particularly when working with vulnerable populations or in high-risk settings. As DfBC continues to mature, the opportunity arises to push its boundaries beyond sustainability to encompass health, safety, and social equity in more robust, interdisciplinary ways [7]. This Special Issue reflects that design is not merely a tool for shaping objects or services but also a way to shape systems, social futures, and collective behaviours.

The contributions to this Special Issue illustrate the breadth and depth of the applications of DfBC across sectors and geographies. They show that behaviourally informed design can foster inclusive, responsive, and resilient systems—in education, healthcare, ageing populations, public spaces, and beyond. The integration of behavioural science with design practice is unlocking new pathways to sustainable living and the promotion of public health and emotional wellbeing. However, challenges remain in ensuring these innovations are scalable, equitable, and culturally sensitive. Future research should deepen its engagement with underrepresented issues such as mental health, long-term behavioural changes, and design that includes marginalised groups. Co-design and participatory methods should play a central role in empowering users as agents of change.

We hope for this Special Issue to serve as a springboard for continued collaboration among designers, researchers, and policymakers. As the field evolves, we call for a more sustained commitment to transdisciplinary research and practice that not only addresses immediate behavioural challenges but contributes to lasting societal transformation. We thank all of the contributing authors, reviewers, and readers for their engagement with this important topic. This collection stands as a testament to the potential of design to shape healthier, more sustainable futures.

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

References

1. Broc, G.; Brunel, L.; Lareyre, O. Dynamic Ecosystem Adaptation through Allostasis (DEA-A) Model: Conceptual Presentation of an Integrative Theoretical Framework for Global Health Change. *Int. J. Environ. Res. Public Health* **2024**, *21*, 432. [\[CrossRef\]](#) [\[PubMed\]](#)
2. Schmidt, R. A model for choice infrastructure: Looking beyond choice architecture in Behavioural Public Policy. *Behav. Public Policy* **2024**, *8*, 415–440. [\[CrossRef\]](#)
3. Anger, R.; Curtis, V. Behaviour Centred Design: Towards an applied science of behaviour change. *Health Psychol. Rev.* **2016**, *10*, 425–446. [\[CrossRef\]](#) [\[PubMed\]](#)
4. Baedeker, C.; Piwowar, J.; Themann, P.; Grinewitschus, V.; Krisemendt, B.; Lepper, K.; Zimmer, C.; von Geibler, J. Interactive design to encourage energy efficiency in offices: Developing and testing a user-centered building management system based on a living lab approach. *Sustainability* **2020**, *12*, 6956. [\[CrossRef\]](#)
5. Christmas, S.; Michie, S.; West, R. *Thinking About Behaviour Change: An Interdisciplinary Dialogue*; Silverback Publishing: Sutton, UK, 2015.
6. Ploos van Amstel, D.; Heemskerk, M.; Jan Renes, R.; Hermesen, S. The value of agile methods in designing for behavioural change: A case study. *Des. J.* **2017**, *20*, S681–S690. [\[CrossRef\]](#)
7. Niedderer, K.; Ludden, G.; Clune, S.; Lockton, D.; MacKrill, J.B.; Morris, A.; Cain, R.; Gardiner, E.; Evans, M.; Gutteridge, R. Design for behaviour change as a driver for sustainable innovation: Challenges and opportunities for implementation in the private and public sectors. *Int. J. Des.* **2016**, *10*, 67–85.
8. Bhamra, T.; Lilley, D.; Tang, T. Design for Sustainable Behaviour: Using Products to Change Consumer Behaviour. *Des. J.* **2011**, *14*, 427–445. [\[CrossRef\]](#)
9. Lockton, D.; Harrison, D.; Stanton, N. Exploring design patterns for sustainable behaviour. *Des. J.* **2013**, *16*, 431–459. [\[CrossRef\]](#)
10. Morris, A.; Hancox, G. Designing for behavioural safety. In *Design for Behaviour Change*; Routledge: London, UK, 2017; pp. 200–215.
11. Kecinski, M.; Messer, K.D.; McFadden, B.R.; Malone, T. Environmental and regulatory concerns during the COVID-19 pandemic: Results from the pandemic food and stigma survey. *Environ. Resour. Econ.* **2020**, *76*, 1139–1148. [\[CrossRef\]](#) [\[PubMed\]](#)
12. Watson, D.; Mushamiri, P.; Beer, P.; Rouamba, T.; Jenner, S.; Proebstl, S.; Kehoe, S.H.; Ward, K.A.; Barker, M.; Lawrence, W. Behaviour change interventions improve maternal and child nutrition in sub-Saharan Africa: A systematic review. *PLOS Glob. Public Health* **2023**, *3*, e0000401. [\[CrossRef\]](#) [\[PubMed\]](#)
13. Sallis, J.F.; Floyd, M.F.; Rodríguez, D.A.; Saelens, B.E. Role of built environments in physical activity, obesity, and cardiovascular disease. *Circulation* **2012**, *125*, 729–737. [\[CrossRef\]](#) [\[PubMed\]](#)
14. Oliveira, M.; Zancul, E.; Fleury, A.L. Design thinking as an approach for innovation in healthcare: Systematic review and research avenues. *BMJ Innov.* **2021**, *7*. [\[CrossRef\]](#)
15. Orji, R.; Vassileva, J.; Mandryk, R. Towards an effective health interventions design: An extension of the Health Belief Model. *Online J. Public Health Inform.* **2012**, *4*, e61050. [\[CrossRef\]](#) [\[PubMed\]](#)
16. Rusoja, E.; Haynie, D.; Sievers, J.; Mustafee, N.; Nelson, F.; Reynolds, M.; Sarriot, E.; Swanson, R.C.; Williams, B. Thinking about complexity in health: A systematic review of the key systems thinking and complexity ideas in health. *J. Eval. Clin. Pract.* **2018**, *24*, 600–606. [\[CrossRef\]](#) [\[PubMed\]](#)
17. Welsh, B.C.; Farrington, D.P. Effects of improved street lighting on crime. *Campbell Syst. Rev.* **2008**, *4*, 1–51. [\[CrossRef\]](#)

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