iaps INTERNATIONAL ASSOCIATION PEOPLE-ENVIRONMENT STUDIES

UNIVERSITY OF SURREY

SUSTAINABILITY AS WELLBEING

29th Conference of the
International Association for People-Environment Studies

University of Surrey, Guildford, United Kingdom
Monday 29 June to Friday 3 July 2026

Book of Abstracts

Table of Contents

Welcome to IAPS 2026 Conference 3
IAPS Hall of Fame 4
Keynote speakers 5
Tues 30 June: Prof. Marketta Kyttä 5
Weds 1 July: Prof. Jenny Roe 6
Thurs 2 July: Dr. Charles Ogunbode 7
Fri 3 July: Discussion panel with Prof. Linda Steg, Daniel Iacofano, PhD, Derviš Hadžimuhamedović, and Dr. Jonathan Reeves 8

Monday 29 June 2026 9
ECR Workshop: Sensory, nature, and place 9
ECR Workshop: Nature, health, and wellbeing 14
ECR Workshop: Communication, risk, and societal transitions 17

Tuesday 30 June 2026 22
10:00 Presentation sessions 23
11:45 Presentation sessions 39
14:15 Presentation sessions 56
15:45 Poster Café 1 80

Wednesday 1 July 2026 97
10:00 Presentation sessions 98
11:45 Presentation sessions 112
14:15 Presentation sessions 128
16:15 Presentation sessions 147

Thursday 2 July 2026 168
10:00 Presentation sessions 169
11:45 Presentation sessions 184
14:15 Presentation sessions 201
15:45 Poster Café 2 221

Friday 3 July 2026 238
10:15 Presentation sessions 239
12:00 Presentation sessions 253

Welcome to IAPS 2026 Conference

It is our pleasure to welcome attendees to IAPS 2026, the 29th Conference of the International Association for People-Environment Studies, organised by the University of Surrey, Guildford, United Kingdom.

IAPS conferences happen every two years and are major international, interdisciplinary meeting places for people-environment researchers. This is a key opportunity to share cutting-edge research on transactions between people and their physical surroundings, and to gain new knowledge about theories, evidence, applications, and methods in this area.

Between Monday 29 June and Friday 3 July 2026, we are honoured to include seven internationally recognised keynote speakers, individually and in a discussion panel format; 21 participants in our Early Career Researchers Workshop; over 320 oral presentations; and more than 60 posters. These contributions reflect both the theme of IAPS 2026 (*Sustainability as wellbeing: Towards healthy, green, and equitable communities*) and the vibrant diversity of research across people-environment studies.

In our Call for Abstracts for IAPS 2026, we especially invited contributions that cover impacts on both people and environment; use of varied and/or innovative research methods; critical research approaches; environmental justice; equity, diversity, and inclusion; and/or engagement with diverse actors and knowledge-holders. We are delighted to see these concepts reflected in so many ways across the conference.

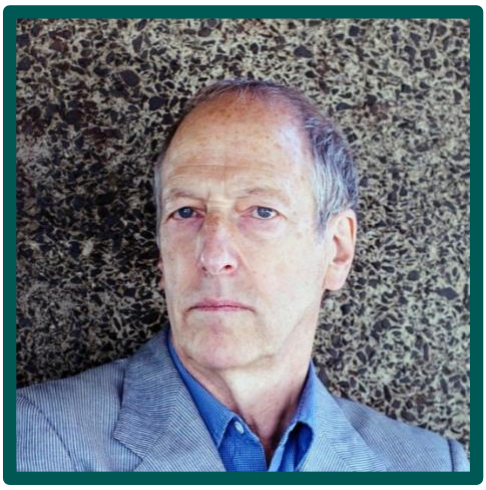
We are very grateful to all those who made a submission to IAPS 2026, to those whose contributions form our Scientific Programme, to our peer reviewers, and to the IAPS Board for their advice and support. We very much appreciate the kind support of Surrey's School of Psychology, Faculty of Health and Medical Sciences, and Institute for Sustainability; the ESRC-funded ACCESS Network; and the British Psychological Society's Environmental Psychology Section. We especially thank the IAPS 2026 Organising Committee members, ECR Workshop Mentors, and our Volunteer Facilitators. These individuals have contributed hugely to the preparation of this event, and it would not be possible without them.

Thank you for joining us here at Surrey. We hope that you enjoy the conference.

Eleanor Ratcliffe Birgitta Gatersleben

IAPS 2026 Conference Co-Chairs

IAPS Hall of Fame Award



Prof. David Canter

This year, IAPS is honoured to welcome Professor David Canter into the IAPS Hall of Fame, with the award to be presented on 29 June during the Opening Ceremony of the IAPS 2026 Conference at Surrey. This award recognises David's exceptional contribution to environment-behaviour studies and his distinguished legacy in research, teaching, and practice.

David Canter's legacy in environment-behaviour studies is both foundational and far-reaching. Over more than half a century, he has shaped the field through pioneering theories and methods for understanding human transactions with built and natural environments, from his early work on office design and architectural psychology to his landmark book *The Psychology of Place*. He established the MSc in Environmental Psychology at the University of Surrey, co-founded the *Journal of Environmental Psychology*, and played a central role in the creation and development of IAPS, while mentoring generations of scholars through his teaching, supervision and international leadership. His influence also extended beyond environmental psychology into investigative and forensic psychology, where he demonstrated the profound importance of place.

David Canter was nominated for the IAPS Hall of Fame by Professors Gary W. Evans, Mirilia Bonnes and Ricardo García Mira, and will be introduced at the award ceremony by Professor Evans.

Keynote Speaker
Tuesday 30 June

09:00 - 09:50 in **03 MS 01**
Chair: Sarah Payne

Prof. Marketta Kyttä

Professor in Land Use Planning, Aalto University, Finland

Place-based approach to environmental health promotion and participatory planning

As cities grow, we must identify urban features that support physical, mental, and social wellbeing. A place-based approach, using online public participation GIS (PPGIS), gathers large-scale, localized, experiential knowledge through user-friendly tools. Collaboration with city officials shows this place-sensitive method clarifies how environments promote health and helps translate findings into planning. Developed at Aalto University, PPGIS has been used in 40 countries across 15,000+ projects. For example, Espoo, Finland collected input from over 6,500 residents, including 2,500 children and young people, enabling broad, impactful engagement. Our goal is to co-create solutions with residents that improve individual wellbeing and advance planetary health.

Marketta Kyttä has her background in environmental psychology and participatory planning. Her research covers various topics: child- and human-friendly environments; environments that promote wellbeing and health; urban lifestyles; perceived safety; and new methods for public participation. Currently, her multidisciplinary research team concentrates on place-based person—environment research with public participation GIS methodology. The team has worked on numerous real-life public participation projects in cities in Finland. Professor Kyttä's work aims to integrate the fields of land use and transportation planning without forgetting the human focus.

Keynote Speaker
Wednesday 1 July

09:00 - 09:50 in **03 MS 01**
Chair: Eleanor Ratcliffe

Prof. Jenny Roe

Mary Irene DeShong Professor Emerita of Design and Health, University of Virginia, USA; Visiting Professor, Edinburgh College of Art, University of Edinburgh; Honorary Professor, The Research Centre for Urban Studies, Heriot Watt University, UK

Restorative architecture for mental health and wellbeing

Restorative architecture focuses on creating built environments that actively improve mental health, reduce stress, and enhance wellbeing. By incorporating nature, light, colour, texture and pattern, optimizing sensory experiences and encouraging social interaction, these strategies transform spaces for psychological restoration. Drawing on decades of restorative environment theory and science, this presentation sets out a framework by which the research findings can be integrated directly into the design of everyday places to improve quality of life, equity and sustainability. Prof. Roe will also take a critical look at some core attributes of restorative environments ('compatibility' and 'extent' for example) and offer some future research ideas.

Jenny Roe is an environmental psychologist and former head of Landscape Architecture for an international architectural practice. She writes, lectures, and consults for a wide range of academic and public audiences on human health-centered design for the built environment. She is an expert in restorative environments that support mental health including an important role for public parks and urban green space. Her book on this subject, *Restorative Cities: Urban Design for Mental Health and Wellbeing* (Roe and McCay, 2021) explores a new way of designing cities that puts mental health at the forefront. A companion book under development will set out an evidence-based approach for designing interiors for mental health, *Restorative Architecture, the Science of Design for Mental Health and Wellbeing* (Bloomsbury, 2027).

Keynote Speaker
Thursday 2 July

09:00 - 09:50 in **03 MS 01**
Chair: Melissa Marselle

Dr. Charles Ogunbode

Assistant Professor in Applied Psychology, University of Nottingham, UK

Mental weathering: Unpacking the psychological toll of climate change in urban West Africa

Dominant frameworks for understanding the psychological impacts of climate change have been developed largely in Global North contexts. This talk draws on research in urban West Africa to challenge these frameworks. The talk will introduce three concepts: mental weathering, bounded agency, and conceptual deprivation, to explain how cumulative climate impacts erode coping resources, how structural constraints foreclose meaningful action, and how the absence of interpretive frameworks compounds psychological harm, particularly among young people. The talk concludes by outlining efforts to develop contextually appropriate measures and interventions for climate distress in African settings.

Charles Ogunbode completed his PhD in Psychology at the University of St Andrews and specialises in the psychological dimensions of climate change and sustainability. His research explores how emotions, values, and social identities shape the way people respond to environmental issues around the world. Dr. Ogunbode has published widely on topics such as environmental experiences and attitudes, climate anxiety, and public understanding of climate justice. He is recognised for his internationally-minded research and for promoting perspectives from the Global South.

Keynote Discussion Panel
Friday 3 July

09:00 – 10:00 in **03 MS 01**. **Chair:** Birgitta Gatersleben

How can people-environment research help promote healthy, green, and equitable communities?

The ultimate aim of most people-environment research is to help promote sustainable, healthy, green, and equitable communities for all. So, what impact has people-environment research had to date? If, when and how does it inform design, policy and practice? How can we strengthen the link between academic research, policy and practice? These are the questions that will be addressed in this keynote panel discussion. Four international experts, working in different fields, will share their experiences and perspectives. The discussion will start with a brief introduction from each speaker reflecting on their experiences and thoughts for the future.

Prof. Linda Steg (Professor of Environmental Psychology, University of Groningen, The Netherlands) will discuss her experiences as member of the Dutch Scientific Climate Council, which recently published an advice to the Dutch government about how to develop better climate policy targeting behaviour change: *Engage with behaviour change*.

Daniel Iacofano, PhD (Chief Executive Officer, President of MIG, USA) will reflect on the field's relatively untapped potential for addressing major issues such as the design of healing environments, climate change and energy conservation, flood risk reduction, children's play and learning environments, etc.

Derviš Hadžimuhamedović (Project Manager, City Service for Sustainable Development, Sarajevo, Bosnia and Herzegovina) has been involved in initiatives such as Sarajevo's Climate Assembly and transforming neglected public spaces into greener, more inclusive neighbourhood environments through participatory processes. He will share practical insights into the challenges of implementing long-term sustainability strategies in the public sector of Sarajevo, while coordinating collaboration between researchers, city institutions, and local communities.

Dr. Jonathan Reeves (Principal Research Officer (Health & Wellbeing), WWT - The charity for wetlands and wildlife, UK) works at the research-practice interface. One of the areas where the biggest impact of research on policy and practice in the UK has been seen is around nature-based social prescribing. Jonathan will reflect on his experiences working in this field.

Monday 29 June 2026

ECR Workshop - Sensory, nature, and place

09:20 – 16:25, 32 MS 03

Mentors: Nicole Bauer, Sarah Payne, Clara Weber, and Kayleigh Wyles

664 Why darkness matters: Non-material values of darkness in the urban nighttime

Kathrin Ehlert, Antal Haans, Yvonne de Kort
Eindhoven University of Technology, Eindhoven, Netherlands

Light pollution is a global phenomenon that diminishes opportunities to experience natural darkness. Although the adverse effects of light pollution on human health and ecosystems are well researched, large-scale strategies to preserve darkness are missing. As calls to reduce light pollution increase, questions arise about darkness's contributions to our quality of life and whether darkness is worth preserving. Aiming to contribute to this discussion, this empirical study identifies the non-material values that people derive from darkness and explores nighttime experiences in urban spaces. Nighttime walking interviews (n=20) were conducted in the Dutch city of Eindhoven over the course of one year (May-June, November-January). A thematic analysis is conducted to map out urban nighttime experiences, alongside a qualitative content analysis to classify non-material values according to the IPBES' Nature's Contribution to People's (NCP) framework. Data collection has been completed, and the qualitative content analysis is being carried out by two independent coders. We anticipate that this study will provide a comprehensive understanding of human-darkness relations in an urban context. First impressions from the analysis process indicate that darkness contributes both positively and negatively to people's lives. Perceived relaxation, related to the NCP category of physical and psychological experiences, is exemplary of this duality, with positive values being connected to calmness and negative values to feelings of unsafety. We aim to contribute to discussions on light pollution through a novel darkness-focused perspective and contribute to the conceptual exploration of negative human-nature relations, which are not explicitly addressed within the current IPBES categorisation.

289 Toward a more sensory-inclusive city: Effects of visual-olfactory interactions in urban greenspaces

Danqing Xie
Cornell University, Ithaca, United States

Olfaction plays a crucial role in human health, emotion, and behavior, and interacts with vision to shape environmental perception and evaluation. Congruent visual-olfactory (V-O) cues (e.g., natural views paired with natural smells) can enhance comfort and landscape preference, whereas sensory conflicts (e.g., seeing trees while smelling garbage) may provoke discomfort and avoidance. However, environmental design research has privileged vision, overlooking olfaction and multisensory interactions, which is particularly consequential for neurodivergent populations with heightened sensory sensitivity. This study addresses these gaps by exploring how V-O interactions in urban greenspaces shape environmental perception, emotional responses, and behavioral intentions with focus on sensory congruency and individual differences in sensory processing ability.

A multiphase mixed-methods design is employed. Phase 1 involves semi-structured interviews and sensory walks with neurotypical and neurodivergent residents in New York City (n=16-18). Reflexive thematic analysis identifies commonly encountered V-O combinations, sensory expectations, and embodied reactions. These findings inform Phase 2, a series of within-subject laboratory experiments (n=60-80) that manipulate congruent and conflicting V-O cues to examine effects on perception, emotion and behavior while accounting for sensory processing differences. Outcome measures include perceived comfort/coherence/safety, physiological indices (e.g., HRV and salivary cortisol), behavioral indices (e.g., dwell time and revisit intention), and complementary neural indicators (EEG/fNIRS). Phase 3 comprises follow-up interviews regarding contextualized interpretations of experimental findings.

By integrating qualitative insights with experimental evidence, this research advances theoretical understanding of multisensory interactions in urban environments and provides evidence-based guidance for planners and designers to create more sensory-inclusive and restorative cities.

---

193 Human affectome-based model of acoustic comfort: A theoretical contribution linking soundscape and physiology

Rodrigo Vassallo
TU Delft, Delft, Netherlands

22 million people in the EEA live exposed to unsafe levels of environmental noise (<55 Lden, WHO, 2018) primarily caused by road, rail, and air traffic (EEA, 2021). Noise exposure and annoyance increase the risk of Non-Communicable-Diseases (NCD) such as cardiovascular diseases (CVDs), anxiety and depression via a psycho-physiological stress response (negative affect coupled with HPA/SNS activation) described in the Noise-Stress Hypothesis by Babisch (2001), (Hahad et al. 2024).

This workshop paper proposes an updated model to describe how people perceive and emotionally appraise their surrounding sound environment based on the Human Affectome framework (Schiller, 2025). This model serves as base for my upcoming PhD research focused on investigating the effectiveness of passerine birdsong (a positively rated biophonic source) at mitigating the negative effects of aircraft noise. In a listening and VR experiment, we will test the effect of birdsong on human affect, soundscape ratings, aircraft noise annoyance (measured using questionnaires) as well as physiological stress response (measured using Pupil diameter and EDA) during an aircraft flyover event with and without added birdsong. We hypothesize that birdsong mitigates noise annoyance by inducing positive affect, increasing soundscape pleasantness and calmness, and lowering post-aircraft physiological arousal levels faster than when birdsong is absent.

Collaborating with municipalities near Schiphol Airport, we will conduct in situ experiments (playback and landscape design/maintenance interventions) to validate our hypotheses. These ecologically-informed interventions aimed as supporting avian species in urban green spaces, provide a novel type of Nature-based design that supports both human and ecosystem health.

---

255 Resonant human–nature relationships: The emergence of connectedness through sensory encounters in the Großglockner region

Natalie Kerschhofer, Sam Erpelding
University of Salzburg, Salzburg, Austria

Whether individuals perceive connectedness between humanity and the more-than-human environment is central to sustainability discourse. Personal experiences in ‘nature’ are crucial for recognizing mutual interdependence, fostering individual well-being as well as consideration for the

environment and others. Resonance theory conceptualizes the body and senses as a membrane-like interface between self and world. However, current research on nature connectedness remains anthropocentric, largely neglecting environmental participation. Addressing this gap, this study foregrounds sensory encounters between humans and 'nature' as a dynamic co-creation of resonant moments. Using a case study in the Großglockner region within Hohe Tauern National Park, it examines how connectedness emerges in a vulnerable conservation area through sensory engagements highlighting a relational, multi-sensory perspective. The study adopts a multi-method approach combining participatory photography and soundscape recording. Research sites are selected based on results from a visitor survey (AlpLakeChange Survey) identifying resonant locations. Sound analysis examines the temporal evolution of sound sources and applies qualitative, inductive coding of encounters. Photo analysis follows a more-than-representational approach, focusing on situated meaning, sensory qualities, and relational interactions. Integrating both methods enables exploration of resonance co-creation across sensory modalities. Findings are expected to be closely linked to the sensory qualities of locations. Interactions between silence and sound are shaped by landscape materiality, weather conditions, and the presence of animals or water, while social structures such as tourism forms and infrastructure influence modes of engagement. The results may inform sustainable visitor concepts in protected areas and contribute to a more relational design of nature experiences.

---

691 Does helping nature, help us? Exploring the health and wellbeing benefits of environmental enhancement and conservation (EEC) activities in office workers

Isabelle Dean
Cardiff University, Cardiff, United Kingdom

The health of humans and our planet is a complex interface gaining interest in both academia and policy. The benefits of nature-based solutions for human health and wellbeing (HWB) are recognised (e.g. nature-based social prescribing); as are the benefits for climate change response (e.g. reforestation). The co-benefits of certain behaviours, for both health and environment, have been explored and leveraged, such as for active travel and sustainable food choices. However, there is disparate literature on active engagement with nature for environmental and health co-benefits.

I aim to explore how helping nature helps us: what are the HWB co-benefits of environmental enhancement and conservation (EEC) activities? This will be investigated through the office worker context – an understudied population who may benefit from the restorative effects of being in nature and engaging in physical activities to mitigate a sedentary lifestyle.

I will conduct a scoping review to develop research questions and identify appropriate study methodologies. Potential studies include: quasi-experimental design assigning office workers to different nature-based activities (e.g. helping nature or just experiencing nature) to understand effects on HWB; interview studies or workshops with office workers to understand barriers and enablers to engaging in EEC activities; and perhaps systems mapping workshops with private sector organisation leaders to understand barriers and enablers to EEC as corporate volunteer offering.

The findings would add to the literature on nature-based interventions for HWB outcomes for a less-researched population. Implications may include changes to corporate volunteering practices, or better facilitation of cross-sector collaboration to deliver EEC activities.

---

730 Participatory methods right from the get-go: Co-designing research aims with water sports groups for planetary health. A case study of the Sligo catchment in Ireland.

Beth Brown[1], Ruth Quinn[1], Carmel Heaney[2], Maria Campbell[1]
[1]Atlantic University Ireland, Sligo, Ireland. [2]Atlantic University Ireland, Galway, Ireland

Water pollution is widely understood as a wicked problem, yet its management remains predominantly top-down, technocratic, and state-led. These approaches can fail to engage meaningfully with the communities embedded within water catchments and overlook the dynamic, relational nature of water itself. Such approaches often reinforce perceptions of water pollution as uncontrollable and detached from everyday life. This research responds to these limitations by working with local water sports groups to build community capacity against water pollution to protect both human and environmental health.

Using a participatory approach, this research will co-design and implement a citizen science water-quality monitoring initiative with local water sports groups in the Sligo catchment in Ireland. Even across participatory models, public involvement in research design is relatively uncommon, even though the research aims largely shape its direction and impacts. Hence, in this research prior to developing research questions, relevant stakeholders were interviewed. This paper will explore the themes and research questions that emerged, alongside critical reflection on the methodological process and its implications for wider participatory models and for developing more equitable, community-led approaches to water governance.

By empowering local groups to monitor water quality and co-produce knowledge, the research seeks to foster attentiveness, care, and agency among human, non-human, and more-than-human actors. Focusing on water sports and what Evers terms “polluted leisure,” the study aims to promote a relational understanding of health, hoping to demonstrate how community-led engagement can reframe water pollution as a shared social and ecological concern rather than a distant technical problem.

---

370 Building roots: How the built environment influences place attachment in emerging suburbs

Julia Johansson[1,2], Eliisa Kylkilahti[1,2], Anne Toppinen[1,2], Ritva Toivonen[1,2]
[1]University of Helsinki, Helsinki, Finland. [2]Helsinki Institute of Sustainability Science (Helsus), Helsinki, Finland

Global mobility and urbanization have redirected attention toward how individuals experience place. Previous research on place attachment has focused on long-established neighborhoods with length of residence as a consistent predictor. In newly developing areas with limited historical continuity, place attachment becomes largely mediated through the built environment. However, urban planning tends to prioritize large-scale infrastructure over the human-scale spaces between buildings.

Existing studies on built environment impacts show that accessibility, landmarks, green spaces, and municipal maintenance strengthen attachment, but most examine these factors in isolation. Research lacks integrative, multi-dimensional approaches to the built environment. This study addresses that gap by analyzing how building materials, façades, nature-based solutions, and spatial layout influence attachment in newly developed areas.

This study focuses on Kivistö, a growing suburban district in Vantaa, Finland. Three areas, dense Kivistö Center, Keimolanmäki with early signs of segregation, and the architecturally diverse Housing Fair District, were selected as case sites. Data collection is currently underway using a mixed-

methods approach with qualitative interviews (n=28) and participatory mapping with residents from diverse backgrounds. Thematic coding, spatial analysis of mapping outputs, and comparative analysis will examine dimensions of attachment: identity, dependence, social and nature bonding, and civic participation. Patterns will be compared across case sites and at neighborhood and district scales.

This study addresses issues relevant in areas like Kivistö, where rapid development and high mobility intersect with concerns about segregation, safety, and housing quality. Findings will inform urban planning by identifying physical qualities that strengthen attachment and support resilient, inclusive communities.

---

405 The sandbox technique: An exploration of children's experiences of place in temporary reception centers for asylum seekers in Spain

Camila Conte
University of Barcelona, Barcelona, Spain

Scholarship on place experiences and place attachment has increasingly challenged sedentarist assumptions. Rather than treating mobility and place as opposites, contemporary work understands them as mutually constitutive, expanding place-attachment research toward multiple, shifting, and ambivalent. These insights are especially relevant for asylum-seeking children, whose everyday lives are shaped by temporary environments and layered senses of home.

Although children's place attachments reflect a distinct developmental way of exploring and bonding with place, children's experiences are far from universal and vary across cultural and social contexts. Moreover, much existing research relies on adults' memories of childhood, leaving significant gaps in understanding how children themselves experience place. Addressing this requires approaches that recognise the multiplicity of childhoods and position children as active knowledge-holders.

This study examines the sandbox technique as a methodological tool for exploring children's place attachment and representations of place among children living in hotels used as temporary reception centres in Spain. Through embodied and multimodal forms of expression, children depict both the physical and symbolic dimensions that shape their senses of place and home. Data is generated through observation, photography of the constructed scenes, and follow-up conversations in which children articulate the meanings embedded in their worlds.

The overarching aim is to advance people–environment research by examining how children's everyday engagements with the built environment relate to their wellbeing and spatial agency. By centering children's perspectives within participatory and critically informed frameworks, this work aims to support more just and safe environments for asylum-seeking children.

ECR Workshop – Nature, health, and wellbeing

09:20 – 16:25, 33 MS 03

Mentors: Anna Bornioli, Freddie Lymeus, and Kayleigh Wyles

---

423 A Public Participation Geographic Information Systems (PPGIS) approach to analysing perceptions and use of urban woodlands

Jiayi Tian
University of Edinburgh, Edinburgh, United Kingdom

Public Participation Geographic Information Systems (PPGIS) integrate Geographic Information Systems with participatory approaches to capture public perceptions and values associated with specific places. A key strength of PPGIS lies in its ability to bridge official spatial datasets and public perceptions by enabling the direct spatial documentation of place-based evaluations, such as perceived safety and environmental quality. This approach translates subjective perceptions into spatially explicit evidence by enabling participants to directly locate their evaluations and patterns of use within specific geographic contexts.

This study presents a cross-sectional analysis of public perceptions and use of urban woodlands in central Scotland, conducted approximately twenty years after a baseline survey undertaken in 2004. PPGIS is applied to examine woodland use behaviours and perceived benefits. In contrast to traditional approaches employed two decades ago, which relied primarily on questionnaires and interviews, PPGIS enables the combined analysis of spatially explicit, location-based data and non-spatial, perceptual attributes. The integration of respondents' subjective evaluations with the objective spatial characteristics of specific locations enables a more detailed examination of the spatial factors associated with both positive and negative woodland experiences.

The analysis reveals pronounced spatial differentiation in public perceptions of urban woodlands, with perceived safety and accessibility consistently emerging as key factors underlying persistent mismatches between formal accessibility and observed patterns of use. By embedding public perceptions within a geospatial analytical framework, this study demonstrates the methodological advantages of PPGIS for analysing perception data and supports woodland planning and management.

---

648 Head waters: The mental health benefits of temporary headwater streams

Tim Sykes[1,2], Kayleigh J. Wyles[3], Rose O'Neill[4], Kelvin S.-H. Peh[1], Robert Holland[5]
[1]School of Biological Sciences, University of Southampton, Southampton, United Kingdom. [2]Environment Agency, Bristol, United Kingdom. [3]School of Psychology, University of Plymouth, Plymouth, United Kingdom. [4]Campaign for National Parks, London, United Kingdom. [5]Geography and Environmental Science, University of Southampton, Southampton, United Kingdom

Blue and green spaces are widely recognised for supporting psychological well-being, encompassing hedonic (HWB) and eudaimonic well-being (EWB). Yet, few studies have explored the restorative potential of dynamic freshwater ecosystems that seasonally vary in the extent they are blue *and/or* green, despite being prevalent in over half of the global river network. This study investigated the wellbeing benefits people can derive from such dynamic freshwater ecosystems in England (namely winterbourne streams that undergo cyclical transitions through flowing, drying, ponded, dry, and rewetting phases), and if these experiences vary across phases. Using a semi-structured solicited diary method, 36 participants documented their relationship and experiences with their local winterbourne over 12 months. We used qualitative reflexive thematic analysis to interpret narratives,

inductively creating insights into momentary HWB and EWB to examine restorative experiences associated with shifting biophysical states. Participants described rich and varied experiences, expressing wellbeing benefits both explicitly and implicitly. Although HWB was deeply contextual, participants consistently reported strong positive moods and relatively weak negative moods across all phases, with no significant variation in mood strength between phases. Participants described profound EWB that was mostly related to the flowing phase, including personal growth, self-discovery, and a sense of purpose and meaning that was mainly associated with *how* people engaged with the environment e.g. river-based citizen science initiatives. Our findings reveal how the periodic rhythms of dynamic freshwater ecosystems foster psychological well-being and restorative experiences, advancing understanding of human–nature relationships and emphasising their importance in conservation and management frameworks.

---

56 From mind to body: Discovering the interactive restoration of emotion and attention in internet-addicted students during nature contact

Xiaojie (Gillian) Du[1], Lok Hang (Tommy) Lam[2]
[1]The Hong Kong Polytechnic University, Hong Kong, China. [2]Hong Kong Shue Yan University, Hong Kong, China

Problem: Internet addiction can substantially impair university students, primarily due to two critical challenges: attentional deficits and emotional dysregulation. While nature contact shows promise in restoring both conditions, there is limited evidence explaining if interactive regulation pathways exist. Specifically, the study seeks to address two critical questions: (1) How do attentional and emotional restoration interact during nature contact? (2) Do heterogeneous attention-emotion recovery pathways exist, and are there corresponding biomarkers associated with these pathways? Answering these questions could further enhance our understanding of individual receptivity to nature-based therapies.

Methodology: We recruited internet-addicted university students (n = 25, Internet Addiction Test (IAT) ≥60). Each participant completed campus nature contact with pre- and post-intervention assessments. A multi-modal approach was employed to examine interaction effects across attentional and emotional domains: (1) Attentional control (AX-Continuous Performance Task (AX-CPT) for proactive and reactive attention control; Sustained Attention Response Task (SART) for sustained attention; (2) Emotional restoration (Short Form of the Profile of Mood States (POMS-SF)).

Physiological signals were recorded to provide data for mind-body regulation: fNIRS (prefrontal zone) to assess possible top-down regulation, and electrodermal activity (EDA) to capture bottom-up regulation. We employed linear mixed models (LMM) to analyze treatment effects. Furthermore, an exploratory cluster analysis was conducted to classify individuals into distinct mind-body recovery trajectories.

Significance: This study contributes to elucidating the attentional and mood regulation mechanisms of nature contact among internet-addicted students, and informs campus mental health policy by identifying specific individual profiles which could pave the way for precision nature contact interventions.

---

415 Beyond the physical garden: A bottom-up approach to designing socio-ecological nature interventions in care homes

Ki Tong
University of Edinburgh, Edinburgh, United Kingdom

Background: Spending time outdoors in care homes improves well-being, yet only 22% of residents access gardens daily. Current research lacks clarity on how specific physical design features associate with health outcomes. Furthermore, barriers to person-centred care are not only physical but socio-ecological. Designs addressing these barriers are often hindered by top-down approaches and cost concerns.

Aims: The study addresses: 1) specific pathways between nature-based interventions and health outcomes; 2) socio-ecological facilitators and barriers to nature access; and 3) the benefits of bottom-up co-production and cost-effectiveness in design.

Method: The study employed a systematic review to identify health mechanisms, followed by in-depth interviews to examine socio-ecological factors. Finally, three workshops were conducted with care home members to facilitate co-production of a stakeholder-led and cost-sensitive design.

Findings: Systematic review results were mixed, as few interventions isolated specific environmental elements. Interviews identified innovative barriers, including overcrowded garden programming and a lack of alignment with residents' personal interests. Staff expressed a desire to take residents outdoors but lacked specific activities, suggesting a need for structured interventions rather than just physical space. Co-production workshops indicated that involving cost considerations assists in prioritising interventions that satisfy both member interest and feasibility.

Implications: Findings suggest health outcomes are best achieved by incorporating nature as an intervention through design. Structuring physical garden elements alongside suggestive instructions and nodes can maximise space utility, avoiding overcrowded areas with unknown functions. Co-production provides a vital mechanism for developing these instructions while balancing resident interests with practical feasibility.

---

513 "Nature is not a place to visit, it is home": The value of outdoor nature on the quality of life of people with dementia

Lorna Smith[1], Nicolas Farina[1], Kayleigh Wyles[1], Hannah Wheat[1], Ben Hicks[2]
[1]University of Plymouth, Plymouth, United Kingdom. [2]University of Nottingham, Nottingham, United Kingdom

Background: Dementia profoundly affects cognitive, emotional, social, and physical functioning, making the maintenance of quality of life (QoL) a central priority in research, practice, and policy. Growing interest in nature-based approaches suggests that engagement with outdoor environments may play a meaningful role in supporting QoL for people living with dementia. However, existing evidence is fragmented, conceptually inconsistent, and largely focused on small-scale interventions in residential care settings, limiting generalisability and practical application, particularly for those living in the community.

Aim and objectives: This PhD aims to clarify how, why, and under what conditions engagement with outdoor nature supports QoL for people living with dementia. Objectives include mapping existing evidence, describing everyday patterns of nature engagement, examining associations between nature and multiple QoL outcomes, exploring short-term temporal dynamics, and understanding the lived experience of nature engagement in context.

Methods: The research adopts a sequential mixed-methods design: Stage 1, a scoping review mapping concepts, methods, and findings across the literature; Stage 2, secondary analysis of the DETERMIND cohort (n=360), examining patterns of nature engagement and connectedness, and associations with QoL; and Stages 3 and 4, a planned daily diary study (n≈120) and go-along interviews (n≈30), capturing real-time and in-situ experiences of nature engagement.

Implications and originality: By integrating quantitative and qualitative perspectives, this research moves beyond static and care-centred models to foreground everyday, community-based people–environment interactions. Findings aim to inform dementia-friendly environmental design, practice, and policy, offering a conceptually robust and context-sensitive contribution to people–environment and health research.

---

339 A lens toward healthy aging: Associations between environments, daily activity patterns, and loneliness

Yongchen Zou[1], Pauline van den Berg[2], Melvin Wong[1], Astrid Kemperman[1]
[1]Eindhoven University of Technology, Eindhoven, Netherlands. [2]Fontys University of Applied Sciences, Eindhoven, Netherlands

Loneliness significantly jeopardizes healthy aging. Neighborhood environments and public spaces have the potential to reduce loneliness by shaping older adults' daily activity behaviors and experiences. However, the associations between environments, activity patterns, and loneliness remain unclear, particularly in developing countries. This study integrates evidence from four complementary studies using baseline surveys, daily diaries, and ecological momentary assessment data, with more than 6,700 observations from older adults living in different neighborhoods. The combined approach captures both statistical differences between individuals and dynamic within-person changes in loneliness, while accounting for socio-demographic characteristics. The results show that digital, physical, and social environments are jointly associated with loneliness among older adults.

Preferences for different activity locations are linked to different levels of loneliness, indicating the importance of where daily activities take place. Within-person analyses further reveal that day-to-day changes in loneliness are influenced by engagement in both indoor and outdoor activity locations. In addition, visual pleasantness, perceived safety, and neighborhood walkability are significantly associated with the duration of activity engagement across different types of public spaces. This research provides multi-method and multi-scale evidence on how environments and daily activities interact to shape loneliness in later life. The findings offer practical implications for planners and policymakers in creating more age-friendly neighborhood environments and public spaces that support active engagement and reduce loneliness among older adults.

ECR Workshop - Communication, risk, and societal transitions

09:20 – 16:25, 81 MS 02

Mentors: Angela Castrechini, Chris Jones, Tom Roberts, and Freddie Lymeus

---

676 Urban mobility transition in the era of radical populism

Jimin Choi, Ian Walker, Becki Hafner
Swansea University, Swansea, United Kingdom

Background: Reducing society's car dependence is crucial for creating liveable urban environments. Yet public resistance to urban mobility transition from cars to greener modes remains strong, as populists brand them an attack on ordinary people and spread various misinformation (Gössling et al., 2024; Tapp, 2026). Why are some individuals receptive to such populist rhetoric? The answer may lie in the cognitive traits related to conservative ideology, such as the need for simple answers and avoidance of ambiguity (Jost et al., 2003). According to my hypothesis, these traits make

individuals readily accept populist rhetoric; triggering avoidance of facts, overreliance on heuristics while evaluating policies and, eventually, opposition to mobility transition.

Aims and questions: My project aims to understand why some individuals are easily persuaded by populist rhetoric to oppose mobility transition. The questions are: (1) What cognitive traits interact with populist rhetoric to affect political information processing and behaviour?; and (2) How can we make pro-environmental communication more persuasive to the public?

Method: Experimental manipulation of policy framing and contents will be used to track the effects of populist rhetoric on attitudes and behaviour. Actual information behaviour while browsing on online software, such as click latencies and viewing times, will be recorded to ensure high validity.

Implications: Policymakers are seeking ways to implement urban mobility transition yet face strong resistance. My project will aid them in crafting effective communications.

Originality: These will be the first studies of their kind to experimentally test the effects of populist rhetoric on political information behaviour.

---

627 Reframing environmental appeals: How identity-based messages moderate the relationship between collective narcissism and policy support?

Melisa Nakıp, Adrian Wojcik
Nicolaus Copernicus University, Toruń, Poland

Prior research indicates that collective narcissism is associated with lower support for environmental policies. However, little is known whether this relation may be affected by different identity framings in environmental messaging. The present projected study examines whether identity-based environmental messages (collective narcissism vs. secure national identity) moderate the association between collective narcissism and support for environmental policies. The study will recruit participants from Poland and Türkiye. Using a between-subjects experimental design, participants will be randomly assigned to one of three conditions. Two experimental conditions will involve reading a text in which pro-environmental policy arguments are framed in terms of collective narcissism or secure identity, whereas the control condition will involve reading a neutral text. Collective narcissism will be measured prior to message exposure, while support for environmental policies will be assessed before and after the manipulation. It is expected that exposure to a collective narcissism (based message) will attenuate or reverse the typically negative relationship between collective narcissism and support for environmental policies. In contrast, in the secure identity and control conditions, collective narcissism is expected to be negatively associated with policy support. This pattern is anticipated in both national samples, although effect sizes may vary. This research is expected to provide insights into identity-based interventions may help enhance public support for environmental policies and inform environmental communication and policy design.

Keywords: collective narcissism, identity-based messaging, secure national identification, environmental policy support

---

330 Using icon arrays to improve flood risk map comprehension and support community preparedness

Eve Norris[1,2], Jordan Harold[1,2], Irene Lorenzoni[2,3,4], Kenny Coventry[1]
[1]School of Psychology, University of East Anglia, Norwich, United Kingdom. [2]Tyndall Centre for Climate Change Research, University of East Anglia, Norwich, United Kingdom. [3]School of Environmental Sciences, University of East Anglia, Norwich, United Kingdom. [4]Science, Society and Sustainability (3S) Research Group, University of East Anglia, Norwich, United Kingdom

Flooding can be a devastating natural hazard, and climate change is expected to increase both its frequency and severity. However, only 45% of people in UK flood-prone areas are aware of their risk. Effective communication is therefore essential to improve understanding of and response to risk. The Environment Agency uses qualitative categories (e.g., “high chance”) to communicate flood risk, which are prone to inconsistent interpretation potentially leading to misunderstanding, underestimation of risk and inadequate preparedness. Icon arrays, widely used in medical risk communication, can improve understanding, especially for individuals with low numeracy, by reducing cognitive demands. However, their use to communicate flood risk is poorly understood.

Two online experiments investigate whether icon arrays improve comprehension of flood risks, influence risk perceptions, and support flood preparedness. In Study 1, participants view maps showing annual flood risk using qualitative categories or icon arrays (100 or 1000 icons), with timescales manipulated to show present or future climate risk. Study 2 extends this approach to cumulative risk over multiple years. Participants will complete measures of comprehension, risk perception and decision-making. Numeracy, graph-reading ability, and risk-taking tendencies will be measured as moderators.

Compared to qualitative risk categories, we anticipate icon arrays will improve comprehension, increase perceived risk, and support preparedness. Presenting cumulative risk, rather than annual risk, is expected to further enhance perceived risk. This novel research applies icon arrays to flood risk, where they remain seldom used, and contributes to people-environment research by offering practical insights for inclusive risk communication, supporting community resilience.

---

67 Using attribution science to improve people’s understanding of changing extreme weather events

Jonathan Ulrich, Astrid Kause
Leuphana University Lüneburg, Lüneburg, Germany

People need to understand changing extreme weather events to effectively protect themselves and to adapt to further climatic changes. Extreme event attribution (EEA) science has been claimed to support this. It studies how climate change affects the likelihood, severity and impacts of specific extreme weather events. First, drawing on the ‘science of science communication’, we use a correlational survey to study the accuracy of peoples’ estimates of the probability that three extreme weather events in Germany in 2024 and 2025 had with and without climate change. We also assess whether these estimates vary inter-individually by climate change risk perceptions, disaster experience, political orientation and numeracy. Second, EEA results often come with different uncertainty types, such as probability ranges, conflicting outcomes or no robust findings at all. We therefore test in a follow-up survey experiment how different uncertainty types in EEA results affect people’s estimates of how the probability of extreme weather events changed due to climate change and their perceptions of such EEA results. We will present initial findings from both studies. These are relevant for climate scientists and climate change communicators who want to support people to better understand change in extreme events, while staying true to the underlying science.

---

153 Multi-hazard resilience framework for tourism-dependent regions: A comparative study of Lombok, Indonesia, and Orchid Island (Lanyu, 蘭嶼), Taiwan

Putrawan Habibi[1], Chuan-Chung Hsieh[1], Tseng Tzuhui Angie[1], Luigi Di Sarno[2]
[1]National Tsing Hua University, Hsinchu City, Taiwan. [2]University of Liverpool, Liverpool, United Kingdom

Tourism-dependent regions are increasingly exposed to multiple natural hazards, yet resilience frameworks often overlook the role of Indigenous knowledge and cultural systems. Lombok, Indonesia, and Orchid Island (Lanyu), Taiwan, are both Austronesian Indigenous regions facing recurrent hazards, including earthquakes, landslides, typhoons, and flooding, while relying heavily on tourism-based development. This research aims to develop an integrative multi-hazard resilience framework by examining how Austronesian Indigenous knowledge, governance structures, and integrational learning contribute to community resilience in tourism-dependent contexts. The study investigates how cultural practices and local ecological knowledge shape adaptive capacity and how these interact with spatial patterns of hazard exposure.

The study adopts a mixed-method comparative approach, combining qualitative socio-cultural inquiry (semi-structured interviews, focus groups, expert surveys, modified Delphi, and Analytic Hierarchy Process) with GIS-based spatial analysis of multi-hazard exposure. The analytical framework integrates social-ecological resilience theory, nature-based solutions, and cultural evolution theory to examine how Indigenous knowledge systems adapt over time.

The research anticipates identifying culturally grounded community-driven resilience practices that complement infrastructural and policy-based strategies. Spatial analysis is expected to reveal uneven multi-hazard exposure across tourism areas, highlighting the importance of culturally informed adaptation. This study's novelty lies in integrating comparative Austronesian Indigenous knowledge with spatial and resilience analysis to produce a transferable, culturally grounded framework. Findings will inform research and practice by supporting inclusive, sustainable, and culturally appropriate resilience planning for disaster-prone tourism destinations across the Asia-Pacific, aligned with SDGs 9 and 4.

---

665 Can a city foster environmentally friendly behavior changes?

Emma Löfgren
Uppsala University, Uppsala, Sweden

Cities are key climate mitigation arenas, with growing research on how urban planning influence environmentally sustainable behaviour. However, the empirical evidence on place-specific and long-term effects of local interventions remains limited.

The city of Uppsala, Sweden, has set the goal of achieving climate neutrality by 2030 and implements local interventions to reach that goal. As part of this effort, two newly developed residential areas feature climate neutral housing and car-reduced planning, to encourage behavior changes.

The aim for this PhD project is to study if and how the municipality of Uppsala through local interventions can stimulate environmentally sustainable behavior and reduce the municipality's climate impact. This will be done through four studies in a close collaboration with the municipality.

The initial ongoing study is a conjoint analysis of the acceptance of combined push- and pull strategies to decrease car traffic in the whole municipality. Two subsequent studies focus on the inhabitants in the new areas, including residential self-selection, personal values, climate change concerns, and behaviors (consumption, dietary choices, etc.) aiming to explore if there are differences between these and other residential areas in the municipality. In a final longitudinal study, psychological factors and behaviors will be followed over time to evaluate whether these residential areas can drive behavior changes, through physical environment, social norms or their interactions. Planned methods include surveys, interviews, field studies, and mobility data.

This thesis combines longitudinal data, environmental psychology, and urban planning to evaluate how place-based interventions can drive environmentally sustainable behaviour in real-world cases.

---

463 Local energy transitions as social processes: a focus group study in Norway

Miriam Meuser
Norwegian University of Science and Technology, Trondheim, Norway

Background: Energy transition is a deeply social process, involving a complex network of stakeholder groups (Szulecki & Overland, 2020) and generating significant societal impacts (Sovacool, 2014).

Objective: This study aims to (1) identify social aspects of energy transitions that are relevant to diverse stakeholder groups and may have been overlooked in existing literature, (2) categorize these aspects, and (3) reflect their role within current theoretical and empirical frameworks of energy transition.

Methods: Focus group research will be conducted in Norway using a heterogeneous sample that reflects relevant socio-demographic and geographical characteristics and includes different stakeholders: The sample will include participants from rural and urban areas of the five Norwegian energy regions (Østlandet, Sørlandet, Sentral-Norge, Nord-Norge, and Vestlandet), covering major cities such as Oslo, Stavanger, Trondheim, Tromsø, and Bergen, and actors from relevant stakeholder groups. For the data analysis, a content analysis (Krippendorff & Bock, 2009) will be applied which involves (1) dividing raw material into sections, (2) identifying potential categories, (3) constructing preliminary category structures, and (4) quantitatively assessing category occurrences across focus groups.

Implications: Findings will provide policymakers with insights into what matters most to different stakeholder groups in energy transition processes, enabling them to integrate social considerations and manage potential trade-offs in decision-making. Further research can build a measurable indicator framework based on the identified aspects and categories.

Importance: By uncovering “blind spots” in existing literature and empirical work, this study seeks to generate an inclusive perspective on the social dimensions of energy transition from the viewpoint of diverse stakeholders.

Tuesday 30 June 2026

Schedule at a glance

Time	Room	Session
09:00-09:50	03 MS 01	Keynote: Marketta Kyttä
09:50-10:00		*Movement break*
10:00-11:15	03 MS 01	Exploring conceptualisation(s) of environmental psychology (EP) in the built environment
	AP 1	Mechanisms of the human-nature relationship - implications for wellbeing and mental health
	AP 2	Climate justice
	39 MS 02	Nature experiences
	72 MS 03	Healthy and sustainable workplaces
	32 MS 03	Transport and mobility
11:15-11:45	*AP 3/4*	*Tea and coffee*
11:45-13:00	03 MS 01	Understanding change to places and place attachments
	AP 1	Nature-based pathways to wellbeing and sustainability: Practical insights for communities and policy
	AP 2	Climate change emotions and cognitions in emerging adults: Resilience factors guarding wellbeing and promoting environmental behaviour
	39 MS 02	Blue space
	72 MS 03	Climate and sustainability policy (flash session, 11:45-12:20)
		Behaviour change (flash session, 12:25-13:00)
	32 MS 03	Tools for evaluating the quality and play value of outdoor playspaces: International perspectives on three emerging playspace audit tools
13:00-14:15	*AP 3/4*	*Lunch*
14:15-15:45	03 MS 01	New developments in place theory and research
	AP 1	Environmental risk
	AP 2	Climate anxiety
	39 MS 02	Design of healthcare settings
	72 MS 03	Architectural design
	32 MS 03	Urban greenspace and wellbeing
	80 MS 02	Sustainable systems (flash session, 14:15-14:55)
		Natural and urban environments (flash session, 15:05-15:45)
15:45-17:00	AP Foyer	Poster Café 1 (tea and coffee will be served in AP 3/4)
17:00-18:00		Network meetings (see programme for details)
18:00-18:30		*Movement break*
18:30-19:45	03 MS 01	Film screening of Wilding (book here)

SYMPOSIUM 30:
Exploring conceptualisation(s) of environmental psychology (EP) in the built environment

Tues 30 June, 10:00 – 11:15, 03 MS 01

Chairs: Amanda Gabriel[1] and Tamala Anderson[2]
[1]Swedish University of Agricultural Sciences, Alnarp, Sweden
[2]University of Surrey, Guildford, United Kingdom

This session explores the potential of EP to support sustainable wellbeing within the built environment, through pluralistic, globally inclusive, contextual and place-sensitive approaches. Interest in EP is growing across academic and applied domains, making reflections on the field's foundations timely. The broader project (*Conceptualisation(s) of EP*) has examined the field's foundations, assumptions about core concepts, and privileged forms of knowledge. Key concerns have emerged: insufficient epistemic diversity and the declining presence of built environment research in EP journals. In response, this session provides contextual, locally grounded perspectives, while also engaging with universal and global approaches within the built environment.

Contributors represent diverse disciplinary, geographic and career-stage perspectives. Amanda Gabriel presents the project's meta perspective. Karine Weiss discusses environmental risk management in residential contexts as local implications of a global problem. Maria Johansson discusses research as a tool for sustainable urban planning and design, drawing on collaborations with (landscape) architects, engineers and societal partners on the Nordic dark winter. Yannick Joye examines restoration research that manipulates "naturalness" in contrast with built settings. Instead, he proposes to compare bundles of environmental components (perceptual, social, and goal-relevant), thus accommodating mixed evidence and varied restorative experiences across contexts and needs. The session concludes with a collaborative and context-sensitive discussion to accommodate pluralism in EP research.

Speakers: Amanda Gabriel, Karine Weiss, Maria Johansson, Yannick Joye

---

519 Conceptualisation(s) in Environmental Psychology: Pluralism, context, and the role of built environments

Amanda Gabriel[1], Tamala Anderson[2], Birgitta Gatersleben[2], Eleanor Ratcliffe[2], Caroline Hägerhäll[1]
[1]Swedish University of Agricultural Sciences, Alnarp, Sweden. [2]University of Surrey, Guildford, United Kingdom

Environmental Psychology (EP) explores the interplay between people and their environments and has seen significant global growth in recent years. This expansion prompts timely reflection on the field's disciplinary identity, as well as its epistemological foundations and orientations.

Over the past two years, we have developed a mixed-method project - *Conceptualisation(s) of Environmental Psychology* - to examine how EP's core concepts are defined, what forms of knowledge are valued, and what assumptions underpin dominant understandings.

This presentation offers a meta-level framing for the symposium by sharing emerging insights from this work. The project derives from a bibliometric analysis of journal publications, and draws from a global survey, and incorporates qualitative data from approximately 40 interviews and focus groups

with researchers across diverse geographic, disciplinary, and institutional contexts. Additional input comes from symposia, interactive conference posters, and conference discussions. Together, these materials reveal both shared understandings and areas of tension in how EP sees itself.

First, while pluralism is widely endorsed, epistemic diversity remains uneven, with dominant narratives shaped by particular theoretical, methodological, and regional influences. Second, research on physical and built environments appears to be declining in EP journals, even as material challenges intensify, such as climate change and rapid urbanisation.

These trends raise questions about how EP balances coherence with contextual responsiveness. The presentation sets the stage for the symposium discussion on pluralism, context, and the role of EP in contributing to sustainable built environments for wellbeing, and how these meta-topics are being addressed in particular research endeavours.

---

269 Addressing environmental risks in living spaces: An interaction approach to place relations

Karine Weiss
Nîmes University, Nîmes, France

The issue of environmental risks is particularly relevant when examining people-environment relationship: it highlights how the various dimensions of this relationship (emotional, cognitive, behavioural) are involved in decision-making (mitigation, adaptation). The issue raised here concerns this specific relationship with residential settings: why is the perception of danger not a sufficient condition for protecting one's living environment? To answer this question, this presentation will draw on two current research projects focusing on factors influencing adaptation to fire and flood risks : a systematic analysis of the literature on fire risk in wildland-urban interfaces, and a field survey in flood-risk areas (combining semi-structured interviews and questionnaires).

First, the systematic analysis of the literature highlights the importance of socio-environmental factors associated with individual and collective capacities to protect one's home: experience, place and landscape attachment, shared responsibility. Second, the field survey is being conducted in a flood-risk zone as part of the implementation of a protection programme. It looks at the conditions for accepting and committing to the protection strategies proposed by institutions, using the following main factors: place attachment, trust in institutional management, and perceived capacity for action. We suggest that these factors may explain the commitment to protective behaviours in response to different types of risk, and that our findings will allow to complete explicative models derived from the literature. In conclusion, we will show how this research is feeding into the debate on our relationship with our living environments, and regarding other environmental risks (e.g. climate change).

---

576 Challenges and opportunities of applying environmental psychology in urban planning and design for active mobility

Maria Johansson, Pimkamol Mattsson, Johan Rahm, Marlis Wullenkord
Lund University, Lund, Sweden

Background: In Sweden environmental psychology has its roots in close collaborations between psychology and architecture. While the scope of the discipline has expanded, some research groups are based at technical faculties and/or tied to architecture and landscape architecture. This context has generated a strong focus on the ”Environment” as physical and tangible, analysing features of buildings, urban neighbourhoods, and the local natural landscape associated with people’s psychological well-being. This presentation discusses challenges and opportunities of applying environmental psychology research in sustainable urban planning and design.

Approach: The discussion draws on multidisciplinary research projects on planning and design for active mobility during the Nordic winter season and conducted together with societal partners (the NorDark and the BELYSA). The role of environmental psychology has been to understand human needs and experiences under different lighting conditions.

Findings and implications: The key challenges and opportunities refer to:

1. Communicating about the technical features of the light and people's appraisal of a setting.
2. Adapting standards to integrate quantitative and qualitiative results on people's appraisals into new design solutions.
3. Connecting the tangible and local perspective of planning and design to the global challenges of climate change and biodiversity loss.

Our experiences suggest that the distinction between Technical Environmental Assessment and Observer Based Environmental Assessments is useful to bridge between disciplines, psychological theories on environmental perception could be helpful to assess new designs, and the concept of nature based solutions, and emotional appraisals could situate urban (lighting) design in relation to the global challenges.

---

266 Beyond nature vs. built: A bundle view of restorative experiences

Yannick Joye
Vilnius University, Vilnius, Lithuania. EAWAG, Dübendorf, Switzerland

Environmental psychology experiments on the restorative benefits of nature are often interpreted as manipulating the "naturalness" (vs. built character) of environments, thereby treating nature as a distinct causal category. This interpretation, however, is fraught with conceptual and methodological problems, ranging from persistent challenges in defining nature to the absence of principled criteria for selecting representative stimuli. In this presentation, I will argue that these challenges in part stem from a mischaracterization of what experimental manipulations actually do. Rather than manipulating "naturalness" as such, I propose to treat environmental manipulations as comparing multi-dimensional bundles of components, which may include perceptual, associative, social, and goal-relevant components. On this view, restorative effects are attributable to the components and their configuration, rather than to "nature" itself being restorative. I discuss how a bundle view of restoration research may help explain inconsistencies, guide future research, and accommodate diversity in restorative experiences, while also highlighting key challenges of this approach.

SYMPOSIUM 35:
Mechanisms of the human-nature relationship – implications for wellbeing and mental health

Tues 30 June, 10:00 – 11:15, AP 1

Chairs: Ewa Domaradzka[1] and Jane-Veera Paakkolanvaara[2]
[1]Polish Academy of Sciences, Warsaw, Poland
[2]JAMK University of Applied Sciences, Jyväskylä, Finland

This symposium explores the mechanisms and processes related to the human-nature relationship, as well as the implications of this relationship for wellbeing and mental health. The presentations included in the symposium cover a spectrum of approaches - from results of empirical research testing models that explore the mediators and moderators of the nature-wellbeing relationship and inter-individual variability in responsiveness to nature-based interventions, to a theory-informed conceptualization of the potential of incorporating the benefits of the human-nature connection into psychotherapeutic practice.

The first speaker will present data on the mediating role of emotion regulation strategies on various aspects of wellbeing in the context of contact with nature. The second speaker will present temperamental traits as moderators of the nature connectedness-wellbeing relationship. The third speaker will present results from a 12-week group programme designed to strengthen nature connectedness and coping with environmental emotions. The analysis highlights differences in participant responses and offers guidance for tailoring interventions. In the final talk, nature-based psychotherapy will be explored as a therapeutic triad in which nature operates as a co-therapist, subtly mediating the client–therapist relationship and facilitating deeper contact with the client's inner experiential world.

All the included talks share the common theme of exploring the benefits of contact with nature for improvement of wellbeing, while adopting various theoretical and methodological approaches. In times of mental health crisis, as well as climate-related challenges and declining opportunities for nature contact, exploration of the ways in which nature can improve wellbeing seems timely and crucial.

Speakers: Ewa Domaradzka, Ludmiła Rycielska, Julija Chichaeva, Jane-Veera Paakkolanvaara

---

287 The role of emotion regulation strategies in the nature-wellbeing relationship

Ewa Domaradzka[1], Ludmiła Rycielska[1,2], Katarzyna Bajkowska[1], Klaudia Modlińska[1]
[1]Institute of Psychology, Polish Academy of Sciences, Warsaw, Poland. [2]Educational Research Institute - National Research Institute, Warsaw, Poland

Background: The beneficial effects of contact with nature on human wellbeing have been well established in the literature. Among other positive effects, nature reduces stress and improves overall wellbeing. However, the mechanisms of this relationship are still not fully understood.

Aims: In order to address this gap, we propose a theoretical model with emotion regulation as a potential mediator. We conceptualize wellbeing in light of positive psychology, taking into account its various aspects.

Method: The study (N=2668) was conducted with the use of the CAWI method. The sample resembled the demographic structure of the Polish population. Questionnaires related to the amount of contact with nature, emotion regulation strategies, and various aspects of wellbeing. Mediation models were then tested to investigate the mediating effects of the emotion regulation strategies on wellbeing.

Findings: The results show evidence for the differential mediating effects of the various emotion regulation strategies on various aspects of wellbeing. Specifically, reappraisal significantly mediated the relationship between contact with nature and wellbeing, while rumination was not a significant mediator. Other effects (e.g., suppression) were mixed.

Implications: These results point to potential mechanisms involved in the nature-wellbeing relationship, suggesting that contact with nature may create affordances that allow for the use of adaptive emotion regulation strategies, which in turn enhance wellbeing.

Importance/Originality: In times of mental health crisis, investigation of the potential pathways to support wellbeing is crucial. In this research, we advance the knowledge in the human-nature interactions that may lead to creating interventions supporting wellbeing.

---

735 Who benefits most from nature? Temperament as a key to nature's well-being payoff. Temperament traits moderate associations between nature connectedness and well-being in a national Polish sample

Ludmiła Rycielska[1,2], Klaudia Modlińska[2], Bogdan Zawadzki[3], Ewa Domaradzka[2]
[1]Education Research Institute - National Research Institute, Warsaw, Poland. [2]Institute of Psychology, Polish Academy of Sciences, Warsaw, Poland. [3]Faculty of Psychology, University of Warsaw, Warsaw, Poland

Time spent in natural environments and subjective perception of connectedness are established predictors of well-being. However, details of the interplay between temperament and the magnitude of these positive influences lack mechanistic explanation to this date.

This study evaluates temperamental traits (Activity, Sensory Sensitivity, Emotional Reactivity and Endurance) as moderators of the association between nature connectedness and subjective well-being in a national sample of Polish adults (N = 2,665; age range: 18-65.; females: 49.5%).

Measures covered nature connectedness- the Connectedness to Nature Scale (CNS; Mayer & Frantz, 2004), number of hours spent in nature; well-being- the Depression Anxiety Stress Scale (DASS-12; Lovibond & Lovibond, 1995), the Satisfaction With Life Scale (SWLS; Diener et al., 1985), WHO-5 and temperament FCB-TI (the Cross-Culture Short Version for Temperament Markers Research, Cyniak-Cieciura, Zawadzki & Strelau, 2014).

Hierarchical linear regressions examined main effects and temperament × nature connectedness interactions. Significant positive moderation is observed for Activity, Sensory Sensitivity, while Emotional Reactivity indicates only a small non-significant positive interaction.

The findings suggest that temperament-informed adjustment of nature-based interventions (for example, providing more active or sensory-engaging experiences for those high in Activity or Sensory Sensitivity, and aligning exposure with individual rhythms) may maximise psychological benefits of the natural world.

---

310 Profiles of change in psychological well-being and pro-environmental behaviour: Subgroup analysis of the Act With Nature intervention

Julija Chichaeva[1], Jane-Veera Paakkolanvaara[1], Kirsi Salonen[2], Sampsa Puttonen[2], Katriina Hyvönen[1]
[1]JAMK University of Applied Sciences, Institute of Rehabilitation, Jyväskylä, Finland. [2]University of Tampere, Faculty of Social Sciences, Psychology, Tampere, Finland

Nature-based interventions (NBI) have emerged as a promising approach for simultaneously enhancing psychological well-being (PWB) and promoting pro-environmental behaviour (PEB). Building on this evidence, 12-week nature-based group intervention, the Act with Nature (AWN), aims to strengthen nature connectedness, support coping with environment-related emotions, and foster value-driven behavioural change. Although NBIs generally show positive effects, individuals vary in their emotional and behavioural responses to environmental issues, suggesting that interventions may benefit participant subgroups differently. Identifying these subgroups is essential for tailoring approaches that enhance effectiveness, adherence, and long-term impact.

This study investigates 1) what participant profiles can be identified based on levels of and changes in PWB and PEB across the AWN intervention, and 2) how baseline characteristics relate to benefiting from the intervention. Data were collected from AWN participants (n = 144) at baseline, post-intervention, and three-month follow-up, using validated measures of PWB (SWEMWBS), PEB (Cross-Cultural General Ecological Behaviour Scale), nature connectedness, environment-related emotions, coping strategies, and readiness for behaviour change. Latent profile analysis will be used to identify subgroups that are internally homogeneous yet distinct from one another in their trajectories of PWB and PEB.

This analysis advances understanding of how and for whom NBIs work by revealing differential patterns of benefit across participants. By identifying meaningful subgroups and their baseline predictors, the study contributes to the design of more targeted, emotionally attuned, and impactful nature-based interventions that foster both human well-being and the well-being of our planet. Initial results will be presented.

---

452 Beyond the therapeutic setting: Toward a triangular therapeutic relationship of client, therapist, and nature

Jane-Veera Paakkolanvaara[1,2], Kalevi Korpela[1]
[1]Tampere University, Tampere, Finland. [2]Jyväskylä University of Applied Sciences, Jyväskylä, Finland

Background: The therapeutic relationship is widely recognised as one of the most robust predictors of psychotherapy outcomes. However, emerging practices in nature-based psychotherapy suggest that therapeutic processes may extend beyond the traditional dyadic relationship between client and therapist.

Aims: The presentation introduces a novel theoretical framework that conceptualises psychotherapy in nature as a triangular relationship between client, therapist, and environment, welcoming nature as a gentle companion or co-therapist.

Method / Approach: Drawing on clinical observations from nature-based psychotherapy and integrating perspectives from environmental psychology and psychotherapy research, this presentation proposes a conceptual, model-building approach rather than an empirical intervention study.

Findings: Clients in nature-based psychotherapy often relate to the natural environment with experiences of trust, safety, acceptance, and emotional openness—qualities typically associated with a strong therapeutic relationship. These observations suggest that the natural environment may function as "meaningful third", or even a "co-therapist" within the therapeutic process.

Implications: Conceptualising nature as a relational presence challenges indoor, human-centred psychotherapy models and invites a broader understanding of therapeutic relationships. This perspective may help explain the distinctive benefits of nature-based psychotherapy and support its systematic integration into mental health practices.

Importance / Originality: Might clients form therapeutic connections not only with their therapists, but also with the natural environment itself? Could nature meaningfully complement, or even extend beyond, the benefits of traditional indoor-based, dyadic psychotherapy?

INDIVIDUAL ORAL PRESENTATIONS:
Climate justice

Tues 30 June, 10:00 – 11:15, AP 2

Chair: Adriana Portella
Heriot-Watt University, Edinburgh, United Kingdom
Federal University of Pelotas, Pelotas, Brazil

---

738 What people from different countries associate with the term 'climate justice'

Rouven Doran[1], Charles A. Ogunbode[2], Karlijn van den Broek[3], Arin Ayanian[4], Andreas Zick[4], Jihane Ghorayeb[5], Joohna Park[6], Akira Utsugi[6], Sibele Aquino[7], Samuel Lins[8], Marc E. S. Reyes[9], John J. B. R. Aruta[10], Susan Clayton[11]
[1]University of Bergen, Bergen, Norway. [2]University of Nottingham, Nottingham, United Kingdom. [3]Utrecht University, Utrecht, Netherlands. [4]Bielefeld University, Bielefeld, Germany. [5]Zayed University, Dubai, United Arab Emirates. [6]Nagoya University, Nagoya, Japan. [7]Pontifícia Universidade Católica do Rio de Janeiro, Rio de Janeiro, Brazil. [8]University of Porto, Porto, Portugal. [9]University of Santo Tomas, Manila, Philippines. [10]Sunway University, Jaya, Malaysia. [11]College of Wooster, Wooster, United States

References to perceived injustices in the distribution of current and future climate impacts have emerged as a prominent feature in voices calling for mitigation action. Along with anecdotal reports from activists elaborating on their motivation to join local or global protest movements, traces of this can be found in media discourse on the historical emission records from industrialized nations. This study explores subjective conceptions of climate justice within and across different countries. Populations from the selected countries (N = 11 in total, n > 500 participants per country) vary in terms of their vulnerability to experiencing climate-related events as well as their capacity to cope with climate impacts. Based on a content analysis of responses to an open-ended question that asked the participants to provide their initial association with the term climate justice, we found several noteworthy patterns. Personal accounts of the concept remained rather abstract and vague, indicating that public awareness of climate justice trails behind its use in media and academic discourse. Compared to participants from Global North countries, however, there was a greater trend among participants from Global South countries to incorporate perspectives on distributional and procedural justice. The presentation concludes with a discussion of implications for climate change communications that incorporate notions of climate justice in different countries.

---

425 From justice to action: Environmental psychology of climate related behavior in participatory biodiversity and sustainability interventions

Eirini Papadopoulou
Norwegian University of Science and Technology, Trondheim, Norway. Aristotle University of Thessaloniki, Thessaloniki, Greece

Climate change and biodiversity loss represent deeply interconnected challenges for planetary and human well-being, with their impacts shaped by social, structural, and environmental inequalities. Understanding the psychological drivers of climate-related behavior is critical for advancing equitable and effective sustainability transitions. Drawing on environmental psychology, this research examines how participatory, justice oriented environmental initiatives influence climate-relevant behaviors while simultaneously supporting biodiversity conservation and community well-being. Using a mixed-methods, community-based approach, the study combines ecological indicators (e.g., biodiversity and ecosystem functioning) with psychological and social measures, including climate risk perceptions, nature connectedness, perceived collective efficacy, place attachment, and pro-environmental behavioral engagement. The research is co-produced with local stakeholders through inclusive participatory processes, foregrounding lived experience, local knowledge, and underrepresented perspectives in environmental decision-making. Anticipated findings suggest that co-designed interventions foster sustained climate friedly behaviors such as energy conservation, stewardship, and collective action by strengthening psychological engagement, social norms, and a sense of agency, while also delivering co-benefits for local biodiversity and mental well-being. The study explicitly explores trade offs, power relations, and distributional outcomes, highlighting how climate action can either reinforce or challenge environmental injustices. The novelty of this work lies in its integration of climate behavior research with more than human perspectives and environmental justice within a One Health and planetary wellbeing framework. The findings offer actionable insights for designing inclusive climate interventions that align behavioral change with ecological resilience and social equity, informing research, policy, and practice.

---

728 Climatic subjectivities in motion: Home unmaking in contexts of water insecurity

Laís Pinto de Carvalho[1], Elisa Tironi Rodó[2], Esteban Silva Peñaloza[3], Marina Araya Vera[4], Raúl Solano-Molina[4], Gabriela Abarca Paillacan[5], Agustín Herrera Ramos[6]
[1]Universidad de Valparaíso, Valparaíso, Chile. [2]Independent Researcher, Pucón, Chile.
[3]Universidad Andrés Bello, Viña del Mar, Chile. [4]Universitat de Barcelona, Barcelona, Spain.
[5]Universidad de Chile, Santiago, Chile. [6]Universidad Diego Portales, Santiago, Chile

Background: Chile is among the countries most exposed to climate-related water insecurity, yet little is known about the subjective dimensions of climate-induced displacement. Research has documented the disruption of socio-spatial bonds but rarely examines how people actively unmake home under slow-onset environmental stress. This gap limits the capacity of psychology and policy to address the lived realities of climate mobility.

Aims: This study aims to examine how people affected by water insecurity in Monte Patria (northern Chile), a territory documented by United Nations agencies as undergoing climate-related displacement, enact and make sense of processes of home unmaking. It asks: How are meanings, temporalities, and body-territory relations reconfigured through climate displacement?

Method: Using a qualitative, biographical and relational approach, the study combines three methods: (1) life stories with participant-selected photographs, (2) walking life stories using photovoice, and (3) collective body-territory mapping. Data are analysed through critical biographical-narrative and thematic analysis, grounded in critical environmental psychology.

Findings: Preliminary results indicate multiple modes of home unmaking, ranging from abrupt rupture to slow cumulative detachment; differentiated temporalities of displacement; embodied traces of distress and re-anchoring; and community-based strategies of care, mobility, and agroecological adaptation. Strong tensions emerge between lived experiences of wellbeing and institutional framings of climate displacement.

Novelty and implications: The study advances a feminist, more-than-human understanding of climate mobility by centring body-territory relations and environmental justice. It provides actionable insights for climate adaptation, housing, and public health policies by foregrounding local knowledge, gendered impacts, and the psychosocial dimensions of climate displacement.

---

234 From ancestral territories to spatial technologies: Co-producing climate solutions with Indigenous communities in the Amazon

Adriana Portella[1,2], Eduardo Rocha[2], Sinval Cantarelli Xavier[3], Dayse Albuquerque[4], Luisa Felix Dalla Vecchia[2]

[1]Heriot-Watt University, Research Centre for Urban Studies (RCUS), Edinburgh, United Kingdom. [2]Postgraduate Programme in Architecture and Urbanism, Faculty of Architecture and Urbanism, Federal University of Pelotas (UFPel), Pelotas, Brazil. [3]School of Engineering, Federal University of Rio Grande, Rio Grande, Brazil. [4]Federal University of Amazon, Faculty of Education, Manaus, Brazil

This research examines the increasing vulnerability of Indigenous territories in the Brazilian Amazon to climate change, with particular emphasis on water scarcity, food insecurity and ecosystem degradation, while critically addressing the continued marginalisation of Indigenous knowledge within dominant climate governance frameworks. The project seeks to co-produce climate knowledge with Indigenous communities, exploring how ancestral territorial wisdom can inform more just, effective and place-based climate adaptation and mitigation strategies, grounded in the understanding that Indigenous-led knowledge production generates socially legitimate and environmentally responsive solutions. Employing a participatory and transdisciplinary approach, the research is based on in-depth field immersion with Indigenous communities in the Amazon Rainforest and integrates participatory mapping, GIS-based StoryMaps, large-scale 3D physical territorial modelling, qualitative interviews, collaborative workshops and visual methodologies. Throughout all stages of the project, Indigenous leaders act as co-researchers, shaping research questions, guiding methodological choices and validating outcomes. The findings demonstrate that Indigenous territorial ontologies offer sophisticated interpretations of climate dynamics, risk prevention and natural resource management that challenge technocratic, externally imposed climate models. These perspectives reveal locally grounded strategies for water governance, food resilience and biodiversity protection that are deeply embedded in long-term relationships with territory and ecology. The project's originality lies in repositioning Indigenous communities as epistemic leaders rather than passive data providers and in its innovative integration of GIS-based spatial technologies with ancestral knowledge systems. By bridging Indigenous epistemologies and spatial analysis tools, the research delivers methodological advances with significant implications for climate research, policy design, education and inclusive, ethical global climate governance.

Tues 30 June, 10:00 – 11:15, 39 MS 02

Chair: Tuomas Kari
Natural Resources Institute Finland (Luke), Helsinki, Finland

---

739 Examining the industrial-agricultural landscape of Iowa to create a landscape classification system based on the rural-urban context as it relates to the opportunities for nature experiences for children and youth.

Adina Cox
Iowa State University, Ames, United States

Studies indicate that Nature Connectedness (NC) can be measured and is related to pro-environmental behaviors and human well-being. Children may develop their place on the NC scale based on the NC of their caregivers and the direct contact with nature experienced in their day-to-day environments. Urbanization and land-use are qualities that affect NC, with a general assumption that rural landscapes allow for more opportunities for children to engage with nature. But in rural America, is this an accurate assumption? The industrial-agricultural landscape of Iowa, USA, accounts for 92% of Iowa's total landscape, with most of that land planted in corn and soybeans. Conservation land accounts for only 3.26% of the landscape. But how does this affect NC in children?

This study aims to classify Iowa based on state-wide GIS analysis of the Urban-Rural continuum to develop a range of classifications for further measurement of NC in children. Using data such as density of housing units, land-use, and proximity to conservation land (including parks, cemeteries, and hunting lands) a state-wide classification will be developed. That will be further divided into regions based on school catchment areas and a further microanalysis of the schoolyards themselves.

The final goal of this study is to create a target list of a variety of school environments across a classification scale to further assess the NC of children and young people. The further study will be to determine how environmental opportunities might affect NC in children of Iowa.

---

409 Across the playscape continuum: Examining differences in children's play behaviours and interactions afforded by naturalized versus conventional playspaces

Janet Loebach
Cornell University, Ithaca, United States

While research has firmly established the superior benefits of nature-engaged outdoor play, few studies to date have directly compared play behaviours supported by natural playspaces versus conventional outdoor playspaces, and examined differences in play characteristics and diversity. This gap is in part because of the dearth of data collection methodologies capable of capturing both children's in-situ play behavior and related environmental supports. This study utilizes the *Tool for Observing Play Outdoors* within a behavioural mapping protocol (Loebach & Cox, 2020) to examine differences in children's play and social interaction behaviours in outdoor playspaces across the continuum from convention to natural(ized). Play behaviours were observed and mapped at five (5) public outdoor playspaces in San Francisco, USA; study sites included a conventional playground, a highly naturalized playground, and three 'hybrid' playspaces which still primarily feature play structures but utilize natural materials in a more nature-rich setting. This presentation will share findings including the impacts of playspace type on diversity of play, peer & adult social interactions,

nature & wildlife interaction and risky play behaviours. The results have important implications not only for how we design compelling, diverse playspaces which support the needs and preferences of children but also how we define and research 'natural playgrounds'.

---

530 Nature of Creative Expression: Examining participants' experience of flow, well-being, and nature connectedness through a still life art activity in varying environmental settings

Nadia Lowe, Birgitta Gatersleben
University of Surrey, Guildford, United Kingdom

Well-being has been linked to creative engagement, flow experiences, and nature connection, yet the experiential processes through which these emerge remain underexplored. The following environmental psychology-based research study investigates participants' individual experiences of flow, well-being, and nature connectedness when engaging in a creative activity, and the influence of the environmental setting on their overall experience. A qualitative-led, mixed methods approach, including arts-based research, was adopted to analyse how these states of being shape human experience and illuminate the affective context of participants' art pieces and unspoken perceived experiences. Four workshops were conducted on the University of Surrey campus: two within the built environment and the other two in a natural green, blue space. The workshops' varied conditions of music, no music, and environmental setting differed across groups consisting of 3-7 participants, and consistency in the creative activity schedule allowed for comparison. Experiences of nature connection were not reducible to exposure to the natural environment, and participants who intentionally wove natural elements into their compositions reported a stronger connection to nature. Despite initial self-doubt, perceived flow experience and incorporating personal significance sustained creative engagement, while connection to nature was experienced through meaning-focused attention. When facilitating these workshops, considering sensory stimuli and accessibility in group settings mattered. Where music enhanced indoor creativity, the outdoor setting often supported participants' flow experience but also could present distractions. These findings suggest practical applications for designing creative, nature-attuned interventions, beyond nature exposure-based activities, and theoretical evidence between flow dimensions and meaning-making pathways to nature connection.

---

606 Virtual nature in promoting nature connectedness, self-efficacy for spending time in nature, and intention to spend time in nature: Comparing different delivery technologies

Tuomas Kari, Ann Ojala, Mika Kurkilahti, Liisa Tyrväinen
Natural Resources Institute Finland (Luke), Helsinki, Finland

Background: Nature visitations are associated with considerable public health benefits. However, an increasing number of people have become alienated from nature. Technological development has enabled delivering nature environments virtually. There has been some positive findings on the ability of virtual nature to promote nature engagement and nature connectedness, but research is still limited.

Aims: To examine the benefits of virtual nature exposure delivered through three different technologies (TV, VR-headset, and virtual nature room) on nature connectedness, self-efficacy for spending time in nature, and intention to spend time in nature.

Method: We applied randomized trial with a crossover design and pre-post assessment; 62 participants visited once in each condition for a 15-minute virtual nature exposure.

Findings: Nature connectedness (except for TV), self-efficacy for spending time in nature, and intention to spend time in nature increased during the exposure. The VR-headset and VN-room conditions had a better effect on nature connectedness than the TV. There were no statistically significant differences between the VR-headset and VN-room conditions.

Implications: This study demonstrates the potential of virtual nature in promoting state nature connectedness as well as intentions and self-efficacy for spending time in nature. In practice, providing opportunities for virtual nature exposure can be a feasible way to promote nature connectedness and encourage people towards actual nature contact.

Importance and originality: As the first study to compare these outcomes between a room-scale virtual nature and VR-headset or a TV, our study increases the understanding on the effects of virtual nature exposure and delivery.

INDIVIDUAL ORAL PRESENTATIONS:
Healthy and sustainable workplaces

Tues 30 June, 10:00 – 11:15, 72 MS 03

Chair: Margherita Pasini
University of Verona, Verona, Italy

---

554 Worried at work? Identifying eco-anxiety profiles in relation to worker wellbeing and pro-environmental culture

Simon Coulombe[1,2,3,4], Maude Villeneuve[1], Joël Gagnon[1]
[1]Université Laval, Québec, Canada. [2]VITAM-Centre de recherche en santé durable, Québec, Canada. [3]Centre de recherche CERVO, Québec, Canada. [4]Centre d'études et d'interventions en santé mentale, Québec, Canada

Background: Eco-anxiety has been widely studied in the general population, yet little is known about its manifestation among workers and links to their wellbeing. As climate change intersects with working life, eco-anxiety may constitute a psychosocial demand with implications for worker health and organizational sustainability.

Objectives: a) Identify profiles of eco-anxiety among workers; b) Examine how these profiles differ in terms of general wellbeing, workplace functioning, and perceptions of pro-environmental organizational culture.

Method: A survey was conducted with 2,020 Canadian workers in small and medium-sized enterprises. Eco-anxiety was measured using two dimensions (Ágoston et al., 2022): environmental worry and negative functional consequences. Cluster analyses identified eco-anxiety profiles, which were compared on indicators of wellbeing, work functioning, and pro-environmental organizational culture.

Findings: Three profiles emerged, all characterized by high negative functional consequences, but differentiated by worry levels (high, moderate, low). The high-worry profile reported greater distress, lower flourishing and resilience, higher burnout and presenteeism, and lower performance. This profile also reported the highest meaning at work and the strongest pro-environmental organizational culture. Compared with the low-worry profile, the moderate-worry profile showed higher distress and burnout.

Novelty/Implications: By showing that functional impacts are uniformly high while concern levels vary, this study advances people–environment research and identifies environmental worry as a key intervention-relevant dimension of eco-anxiety. The co-occurrence of poorer wellbeing with stronger meaning and pro-environmental culture points to a complex relationship between eco-anxiety, values and health, highlighting the need for organizational responses that support wellbeing while engaging employees' environmental concerns.

---

569 Soft and green skills for sustainability and health promotion: A case study with healthcare and recycling professionals

Zenith Delabrida[1], Thalita Damasceno[2], Beatriz Santana[1], Solange Alfinito[3]
[1]Federal University of Sergipe, São Cristóvão, Brazil. [2]Federal University of Ceará, Fortaleza, Brazil. [3]University of Brasília, Brasília, Brazil

Traditionally, learning processes have focused on the application of technical knowledge (hard skills), often overlooking interpersonal abilities and paying little attention to environmental competencies. After a systematic review identified a gap in the literature regarding the integration of these competencies, this study investigated the dynamics and presence of soft, hard, and green skills across two distinct work contexts and their relationship with health promotion and sustainability through the One Health framework. A qualitative approach was adopted through two distinct case studies using semi-structured interviews. The first case study involved healthcare professionals (n=10), while the second involved recycling professionals (n=6). Data were analyzed through thematic content analysis to identify how these skills emerge in the participants' discourse. Results indicate that soft skills are essential for both groups, mediating interpersonal interactions and, in healthcare settings, driving humanization processes. Among healthcare professionals, green skills are less frequent but emerge when explicitly linked to the environment's impact on health. In contrast, recycling professionals demonstrate frequent green skills in both work and family environments, while soft skills serve as strategies for managing occupational stress. This research advances the One Health discussion by demonstrating that green and soft skills are potentially essential for sustainability and health promotion. It suggests that training programs should integrate soft and green skills to strengthen sustainability and health promotion, rather than focusing only on hard skills.

---

264 From planning to implementation: A mixed-methods field study on drivers and barriers of environmental sustainability practices in organizations

Kristien Klaka, Marie Ritter, Simone Kauffeld
Technische Universität Braunschweig, Braunschweig, Germany

Environmental sustainability practices in organizations often rely on the active involvement of employees. While research on pro-environmental behavior at work has primarily focused on individuals, teams are increasingly acknowledged as central units of organizational sustainability. Existing research suggests that sustainability-related outcomes are shaped by the individual, team, and organizational level, yet empirical evidence examining these influences jointly and over time remains limited.

This study addresses this gap using a mixed-methods field design. Participatory in-house workshops are conducted in companies and organizations to support the collaborative planning and implementation of sustainability practices. A longitudinal survey design with assessments before, immediately after, and several weeks following the workshops was combined with qualitative interviews to identify key drivers and barriers of collective organizational sustainability promotion at multiple organizational levels.

Preliminary analyses based on initial 54 follow-up survey responses and 11 interviews indicate that facilitating factors operate across multiple levels. On the individual level, motivation, sustainability-related knowledge, and perceived competencies support engagement. On the team level, shared goals, constructive communication, and mutual support appear critical for advancing sustainability practices. At the organizational level, supportive structures, effective networking, and transparent processes foster implementation. In contrast, time constraints, limited financial resources, entrenched routines, and unclear responsibilities emerge as major barriers.

Overall, the findings point to a multi-level configuration of interrelated conditions shaping collective organizational sustainability promotion. By the time of the conference, further data will allow statistical examination of these patterns and the derivation of implications for theory and practical approaches to collective organizational sustainability development.

---

284 Mindfulness, nature, and work-related wellbeing: A digital training approach across European workplace contexts

Margherita Brondino[1], Camilla Marossi[1], Alicia Arenas[2], Patrícia Costa[3], Donatella Di Marco[2], Elisa Menardo[1], Sara Ramos[3], Sílvia Silva[3], Margherita Pasini[1]
[1]Department of Human Sciences, University of Verona, Verona, Italy. [2]Department of Social Psychology, University of Seville, Seville, Spain. [3]Department of Human Resources and Organizational Behavior, ISCTE, Lisbon, Portugal

Background: Work-related stress is a growing public health concern affecting individual well-being, organisational sustainability, and equity. While mindfulness-based approaches support adaptive coping, environmental psychology highlights the restorative role of contact with nature. Access to such resources, however, remains uneven in small and resource-constrained workplaces.

Aims: This presentation introduces *MindLiven*, a digital training approach integrating mindfulness-based practices with exposure to natural environments, and examines its potential to support coping resources and perceptions of the work environment in real-world workplace contexts.

Method/Approach: MindLiven is delivered through an online learning platform and open-access resources, enabling voluntary and anonymous participation. A mixed-method evaluation was conducted during a European pilot phase, including repeated-measures analyses (n = 74) and an engagement-based comparative analysis (n = 325), using validated measures of psychosocial work conditions, emotion regulation strategies, and contact with nature at work.

Findings: Results indicate improvements in adaptive emotion regulation, perceived job resources, and indoor nature contact and restorativeness among users engaging with the training, with consistent patterns observed across multiple European countries.

Implications and originality: The findings suggest that integrating mindfulness and nature-related affordances can support well-being and psychosocial sustainability in workplaces, particularly where access to outdoor nature is limited.

Tues 30 June, 10:00 – 11:15, 32 MS 03

Chair: Mark Wilson
University of Bath, Bath, United Kingdom

---

170 Housing and mobility as experiential infrastructure: Density, access, and lived urban environments

Livia Catao Cartaxo Loureiro, Davi De Lima Vaz Xavier
University of Nebraska-Lincoln, Lincoln, United States

As populations increasingly migrate to areas with consolidated infrastructure, everyday relationships among people, housing, and mobility become central to questions of urban equity and well-being. Rising housing costs, longer commuting times, and uneven access to services reshape how residents perceive, inhabit, and move through cities. In this context of rapid urbanization, housing and mobility must be understood not as isolated technical systems but as interconnected people–environment infrastructures that structure daily life. This research investigates how urban density and mobility shape lived experience, accessibility, and perceptions of belonging, asking how housing conceived as infrastructure can mediate everyday movement and reduce socio-spatial inequalities.

The study is grounded in Avenida Epitácio Pessoa, a major urban corridor in João Pessoa, Brazil, whose layered history of growth, modernization, and gentrification provides a laboratory for examining people–environment relations across scales. Using design simulations as qualitative and interpretive tools, the research develops architectural prototypes to test flexible housing configurations, mixed-use arrangements, and multimodal mobility networks that connect pedestrians, cyclists, and public transport. These simulations enable the examination of everyday movement patterns, accessibility, exposure to light and air, and navigation within dense urban environments.

Findings indicate that integrating housing and mobility enhances perceived accessibility, supports more equitable daily routines, and improves the experiential quality of density, reframing it as a qualitative condition shaped by spatial configuration rather than a numerical index. The study shows how design can reveal urban form's impact on wellbeing, inclusion, and daily urban life.

---

590 Rethinking the 15-minute city: Children's mobility and equity challenges in peri-urban areas

Franziska Gehlmann, Hampus Karlsson, Marianne Ryghaug
SINTEF, Trondheim, Norway

The 15-minute city (15mC) aims to promote sustainable urban environments by ensuring access to everyday services within short travel times, yet research and implementation have largely focused on dense urban cores. Peri-urban areas with lower service density and weaker public transport provision pose distinct mobility challenges for children, who often dependent on parents and private cars. This reliance restricts independent movement, social participation, and autonomy, raising questions about how the 15mC can be adapted to better support vulnerable and disadvantaged groups such as children, increase well-being, and reduce car dependency in peri-urban settings.

The Norwegian case in the INCLUCity+ project examines shared demand-responsive transport (DRT), as an alternative to private car use and complement to public transit, often promoted as an

inclusive solution for vulnerable groups. Our review of scientific literature from 2015-2025 assesses the potential and limitations of shared DRT for advancing transport equity through a multidimensional justice lens, showing that equity is often assumed rather than critically assessed, and how digital requirements, cost structures, and limited service coverage may reinforce socio-spatial inequalities. This underlines the need to move beyond technical performance metrics toward equity-by-design governance models and participatory approaches when considering DRT for supporting children's mobility in peri-urban 15mC contexts. Building on these insights, a systematic and interdisciplinary approach to site analysis, stakeholder mapping, and identification of user needs in peri-urban 15mC contexts is developed to capture structural conditions and lived experiences of mobility and access.

---

697 "Mobile in Your Own Way": Evaluation of a diversity-oriented citizen science study on healthy and just mobility

Karsten Valerius[1], Vivan Frick[2], Mira Tschorn[1], Siiri Tunn[1], Christina Klusch[2], Jan Keller[3,1]
[1]Freie Universität Berlin, Berlin, Germany. [2]Institute for Ecological Economy Research, Berlin, Germany. [3]Heidelberg University, Heidelberg, Germany

Background: People with limited opportunities for participation, such as older adults, people with disabilities or migration background, are often underrepresented in mobility research and citizen science. Traditional recruitment methods often reach people with higher levels of education.

Aims: This Citizen Science study aims to contribute to knowledge on healthy, just, and sustainable mobility and to recruit a diverse sample to strengthen civic engagement, trust in institutions, and involvement in mobility-related research.

Methods: A one-year citizen science study was conducted in Berlin between 04/2025 and 03/2026. In addition to the core study components, citizen scientists could voluntarily engage in participatory workshops on different mobility topics. Self-report data on civic engagement, trust in institutions, and learning experiences were collected through five three-monthly questionnaires. Research findings were presented jointly with citizen scientists at a final conference with stakeholders from politics, public administration, and civil society organizations.

(Anticipated) findings: A total of 207 citizens were enrolled in the study (M_{age}=49 years, 18 to 87; 59% female; 81% with higher education; 16% with disabilities; 24% with migration background). 110 (53%) participated in workshops, in which they conducted research on mobility-related topics: urban climate, inclusive mobility, and civic engagement. Self-report data will be analyzed.

Implications: The sample was relatively balanced regarding gender, age, disabilities, and migration background, but participants were predominantly highly educated. About half of the sample additionally participated in Citizen Science workshops and showed considerable engagement. Citizen science projects should implement targeted recruitment strategies and easy-to-understand study materials to lower participation barriers.

---

161 Evaluating the health, wellbeing and modal shift outcomes of Cornwall Council's Active Travel Social Prescribing pilot

Mark Wilson[1], Helen Frankland[2]
[1]University of Bath, CAST Centre, Bath, United Kingdom. [2]Cornwall Council, Truro, United Kingdom

Aim & Background: The pilot aimed to increase levels of physical activity through walking, wheeling and cycling among adults (n≤1992) with poor physical and/or mental health, or a disability, or aged 50+, or who are unemployed. The six-month intervention had two components: 1) a range of activities offered by 17 community-based service providers, such as guided walks or cycling coaching sessions;

and 2) one-to-one support by Health Improvement Practitioners who worked with clients to address barriers to using active modes.

Methodology: Pilot outcomes were evaluated using longitudinal data collected during 2024 – 2025. A pre- and post-intervention survey was conducted with clients (n=67) to measure changes in travel behaviours, their attitudes towards active travel, and their health and wellbeing. Clients' responses were compared with a control group (n=300). Statistically significant differences were identified using within- and between-group analyses. Semi-structured interviews (n=7) explored clients' experiences of taking part and qualitative surveys (n=14) captured service providers' views.

Findings: Most clients have a positive attitude towards using active travel, but lacked the confidence and capabilities to use active modes, particularly cycling. Quantitative and qualitative results indicated several positive outcomes: a shift to active modes, reduced inequalities in access and mobility, reduced psychological barriers, and improved wellbeing.

Implications: This study contributes to our practical and theoretical understanding of community-based interventions for achieving public health and modal shift outcomes. Engaging with Health Improvement Practitioners and service providers increases clients' motivation, capabilities and opportunities to use active travel (i.e., COM-B).

SYMPOSIUM 43:
Understanding change to places and place attachments

Tues 30 June, 11:45 – 13:00, 03 MS 01

Chairs: Patrick Devine-Wright[1] and Elianne Carrier[2]
[1]University of Exeter, Exeter, United Kingdom
[2]University of Quebec in Montreal, Montreal, Canada

This symposium explores how place attachments (and related processes such as place identity and sense of place) are reshaped by mobility, relocation, and environmental transformation. It aims to advance understanding of how bonds to place are disrupted, defended, or reconstructed when people leave meaningful places or when places themselves undergo profound change.

The five contributions address this aim from complementary perspectives. The first (D.C.) proposes a life-course framework linking changes in place attachment to identity development and psychological challenges across life stages. The second (S.H.) examines how place attachment is reconstructed in flood-affected communities, highlighting the role of sense of place in adaptation and resilience. The third (É.C.) focuses on the lived psychological process of leaving, proposing a process-oriented model of place attachment disruption before, during, and after relocation. The fourth (P.D-W.) adopts a critical perspective that questions the normative valorization of place attachment and introduces the concept of "place exceptionalism" to examine how claims of place distinctiveness can hinder socially necessary change in the context of climate and energy transitions.

By bringing together diverse speakers and theoretical, empirical, and critical perspectives, the symposium advances understanding of people–place relations and aligns with the conference focus on One Health and planetary wellbeing by examining how transformations to places affect human wellbeing and broader socio-environmental systems.

Speakers: David Canter, Sungju Han, Élianne Carrier, Patrick Devine-Wright

---

79 Identity development and changes in place attachment

David Canter
University of Liverpool, Liverpool, United Kingdom

The determinist proposal that bonds to place are reshaped through changes of place, is challenged by focussing on human agency. Erickson's theory of life changes in a person's identity leads to the hypothesis that physical change in place attachment requires an understanding of the stages of an individual's dialectic crises. The stages can be summarised as:

- Trust versus mistrust
- Autonomy versus shame
- Initiative versus guilt
- Industry versus inferiority
- Identity versus role confusion
- Intimacy versus isolation
- Generativity versus stagnation
- Integrity versus despair

For example, a child whose home life did not support the development of trust would be expected to find moving from it a relief. At a later stage, when a person's dwelling contributes to their identity and helps define their social role, leaving that place can reflect either clarification or challenges to their identity. In the later stages of life, the frequency with which older people are reluctant to move from a house far larger than they need, reflects how that place supports the integrity of their identity. Leaving it can contribute to feelings of despair.

This is a novel way of thinking about identity. It is a changing, evolving process. Each person is always in the throes of grappling with some inherent individual challenge out of which a further aspect of their identity emerges. The proposal is that studies of place attachment, and related changes, will be well served by considering the stages in identity development at which any change of place occurs.

---

474 Understanding how sense of place shapes community flood resilience

Sungju Han
University of Potsdam, Potsdam, Germany. Helmholtz Centre for Environmental Research - UFZ, Leipzig, Germany

Sense of place in flood contexts presents a paradox: the deep connections that make communities vulnerable by keeping them in high-risk areas can also become resources for recovery. Floods transform places—altering landscapes, disrupting social fabrics, and reshaping symbolic meanings. The 2021 European floods exemplify this: despite trauma and dramatic environmental change, many residents stayed and rebuilt, drawing on place bonds and social networks. Their experiences of staying, rebuilding, and adapting reveal that recovery involves not merely physical reconstruction but ongoing renegotiation of place meanings. Yet, research typically examines sense of place, social capital, and resilience in isolation, limiting understanding of how these interact as communities navigate place transformation.

This presentation introduces a project investigating how a sense of place shapes community flood resilience. Drawing on sense of place theory (Jorgensen & Stedman, 2001), social capital theory (Aldrich & Meyer, 2015), the project employs mixed-methods using longitudinal datasets from four cases: the Ahr Valley floods, recurring floods in Saxony and in Vietnam, and a five-wave panel survey (US, Netherlands, China, Indonesia, UK). It focuses on the integrated theoretical framework and research design. Anticipated findings will identify both universal mechanisms and context-specific

patterns in place attachment reconstruction, informing place-sensitive approaches to flood risk communication and management.

References:
Jorgensen, B. S., & Stedman, R. C. (2001). Sense of place as an attitude: Lakeshore owners attitudes toward their properties. *Journal of Environmental Psychology*, *21*(3), 233–248.
Aldrich, D. P., & Meyer, M. A. (2015). Social capital and community resilience. *American Behavioral Scientist*, *59*(2), 254–269.

---

600 Before, during, and after leaving: Psychological process of place attachment disruption

Élianne Carrier, Janie Houle, Liesette Brunson
University of Quebec in Montreal, Montreal, Canada

Background: Brown and Perkins' (1992) model of place attachment disruption proposes that the impact of losing a place depends on initial attachment strength and the circumstances of leaving, followed by a rebuilding process based on available resources. While research on residential and forced displacement has documented loss and grief associated with leaving meaningful places (Fried, 1963; Fullilove, 1997), existing models remain limited in their ability to account for the psychological processes and temporal dynamics through which disruption is experienced.

Aims: This presentation describes a grounded, process-oriented theorization of place attachment disruption that identifies the psychological mechanisms unfolding before, during, and after relocation.

Method: The study draws on in-depth cross-sectional interviews conducted in Quebec, Canada, with adults aged 65 and over (N = 72) within 12 months of relocation to assisted living. Analyses focus on a subsample reporting high levels of place attachment disruption (n = 25) and follow a theory-building thematic analysis.

Findings: Place attachment disruption is not a single event but a temporally structured psychological process. Prior to leaving, participants described avoidance or resistance, as well as cognitive and emotional overload linked to relocation demands. During departure, experiences ranged from emotional release and ritualized farewells to distress or emotional numbness. After relocation, disruption is marked by disorientation, delayed emotional processing, and efforts to restore continuity through symbolic or practical strategies.

Implications: Findings show that place attachment disruption involves a dynamic, temporally structured psychological process rather than a discrete event, calling for temporally sensitive research and phase-specific psychosocial support.

---

468 Taking a critical approach to place attachment: Questioning 'place exceptionalism' in an environment and climate emergency

Patrick Devine-Wright
University of Exeter, Exeter, United Kingdom

Background: Place attachment (and related terms such as place identity) is typically presented as a 'good thing' in the literature, leading to positive psycho-social outcomes such as rootedness, belonging and self-esteem (Relph, 1974; Scannell and Gifford, 2016). Yet place attachments can have a 'dark side' (Manzo, 2003), even if this is less strongly emphasised by research to date.

Aims: In this presentation, I wish to advance understanding of place attachment's 'dark side' by taking a critical perspective on ways that people with strong place attachments defend or protect places from unwanted change.

Method: I draw on qualitative data from several case studies in the UK and Sweden, in which interviews and focus groups were used to investigate community objections to energy infrastructure proposals.

Findings: Analysis reveals 'place exceptionalism' - a form of spatial bias that exaggerates the positive distinctiveness of a place. Place exceptionalist arguments are used to discriminate between that place and other places that are considered less exceptional, thereby arguing that those other places are more suitable for whatever changes are proposed, in this case, low carbon energy projects.

Implications: While recognising that place exceptionalism may yield psychological benefits for people as a way of coping with threat or uncertainty, I question whether place exceptionalist arguments are responsible, fair or adaptive, in the context of an unfolding environment and climate emergency. I conclude by calling for more critical research on the 'dark side' of place attachments.

SYMPOSIUM 36:
Nature-based pathways to wellbeing and sustainability: Practical insights for communities and policy

Tues 30 June, 11:45 – 13:00, AP 1

Chairs: Jane-Veera Paakkolanvaara[1] and Ewa Domaradzka[2]
[1]JAMK University of Applied Sciences, Jyväskylä, Finland
[2]Polish Academy of Sciences, Warsaw, Poland

How can connecting with nature improve both human wellbeing and care for the planet? This symposium brings together four studies offering insights for community programmes, urban planning, and interventions.

First, Eleanor Ratcliffe (on behalf of Emily A. MacDonald, University of Surrey) examines favourite places in nature and how they change over time. These places help people relax, manage stress, and encourage behaviours that protect the environment, showing how personal experiences of nature can support wellbeing and sustainability in a changing world. Next, Kirsi Salonen (University of Tampere) introduces the Comprehensive Nature Connectedness (CNC) scale, a novel tool capturing emotional, self-experiential, and negative aspects of human–nature connection across diverse nature types. Tested in Finland and the UK, the CNC scale provides a dynamic measure of nature connectedness, offering guidance for community programmes and interventions. Salla Seppänen (University of Tampere) presents how emotions—such as interest, empowerment, or scepticism—shape sustainable behaviour. Using three waves of data from Finnish adults, the study reveals how emotional responses interact with people's connection to nature and influence pro-environmental action. Finally, Sampsa Puttonen (University of Tampere) shares findings from a global review of nature-based interventions, identifying what works best to improve wellbeing and foster sustainable behaviours, and highlighting strategies that make these interventions effective.

Together, these studies show how personal experiences, measurement tools, emotional dynamics, and evidence-based interventions can inform practical strategies to create healthy, green, and equitable communities, reflecting the conference theme of "Sustainability as Wellbeing."

Speakers: Eleanor Ratcliffe, Kirsi Salonen, Salla Seppänen, and Sampsa Puttonen

---

389 Exploring relationships between favourite places, nature connectedness, coping with environment-related emotions and pro-environmental behaviour across 3 years

Emily MacDonald[1,2], Bethany Harries[1], Hazel Wallace-Williams[1], Julia Chichaeva[3], Katriina Hyvönen[3], Jane-Veera Paakkolanvaara[3], Sampsa Puttonen[4], Kirsi Salonen[4], Eleanor Ratcliffe[1]

[1]University of Surrey, School of Psychology, Guildford, United Kingdom. [2]University of Bath, Department of Psychology, Bath, United Kingdom. [3]JAMK University of Applied Sciences, Institute of Rehabilitation, Jyväskylä, Finland. [4]University of Tampere, Faculty of Social Sciences, Psychology, Tampere, Finland

Existing research indicates favourite places in nature function as important sources of psychological restoration and emotional regulation, thus supporting individual wellbeing (Korpela et al., 2001; Ratcliffe & Korpela, 2016). In parallel, evidence linking place attachment to nature connectedness and pro-environmental behaviours suggests having a favourite place in nature may also contribute to broader planetary wellbeing (Basu et al., 2019; Daryanto & Song, 2021; Wilkie & Trotter, 2022).

However, research has largely been limited to investigating favourite places as static phenomena via cross-sectional designs. Little is known about how favourite places in nature develop or change over time, or how such changes relate to trajectories of nature connectedness, emotional regulation, and pro-environmental behaviour in the long-term. Understanding these dynamics is increasingly important in the context of climate change and biodiversity loss, which are reshaping natural environments and increasing experiences of distressing emotions (Cosh et al., 2024; Speakman et al., 2013).

The present study addresses this gap by examining longitudinal data collected across three yearly online surveys (Act with Nature UK - 2023: N = 1,210; 2024: *N* = 226; and 2025: N = 132). Qualitative favourite place type and reason data are coded and integrated with quantitative analyses to examine stability and change in favourite place relationships across time and associations with changes in nature-connectedness, coping with environment-related emotions, and pro-environmental behaviour.

By adopting this approach, this research offers insights into favourite places as dynamic psychological resources that may support human and more-than-human wellbeing in a period of environmental change.

---

643 Comprehensive nature connectedness: A measure of individuals' emotional oneness with nature

Kirsi Salonen[1], Sadhana Jagannath[2,3], Sampsa Puttonen[1]

[1]University of Tampere, Tampere, Finland. [2]Institute of Global Health Innovation, Imperial College London, London, United Kingdom. [3]University of Surrey, School of Psychology, Guildford, United Kingdom

A close connection with nature supports both human and environmental well-being (Capaldi et al., 2014; Whitburn et al., 2019), yet existing measures of nature connectedness mostly conceptualize nature connectedness as a stable trait and overlooking variation across nature types, forms of contact, negative experiences, and change over time. To address these limitations, we developed the Comprehensive Nature Connectedness (CNC) scale, which integrates trait and state dimensions, emotional and self-experiential aspects, and key characteristics of human–nature interactions. The 16-item CNC scale was developed through literature review and expert input and tested using longitudinal survey data from the Act with Nature project in Finland and the UK collected across three

waves (2023–2025). Psychometric properties were assessed using internal consistency, expert-based content validity, and confirmatory factor analysis. Preliminary results supported a three-factor structure—Mindful presence, Emotional connectedness, and Mental distraction—with mostly good to moderate reliability and moderate structural and content validity across samples. These findings suggest that the CNC scale shows promise as a novel tool for assessing nature connectedness in a more dynamic and comprehensive way, beyond current definitions and commonly used scales.

References:

Capaldi, C. A., Dopko, R. L., & Zelenski, J. M. (2014). The relationship between nature connectedness and happiness: A meta-analysis. *Frontiers in Psychology, 5*, 92737.
Whitburn, J., Linklater, W., & Abrahamse, W. (2020). Meta-analysis of human connection to nature and proenvironmental behavior. *Conservation Biology, 34*(1), 180-193.

---

566 Exploring the relationships between environmental emotions, comprehensive nature connectedness, and pro-environmental behaviour in a three-wave study

Salla Seppänen, Kirsi Salonen, Yasushi Suko, Kalevi Korpela, Sampsa Puttonen
University of Tampere, Tampere, Finland

Transitioning towards sustainable lifestyles requires understanding psychological factors that promote pro-environmental behaviour (PEB). Previous research highlights human–nature connectedness as a key predictor of PEB, while environmental emotions can either encourage or discourage such actions. However, limited research has examined these relationships within the same sample and across time.

This study examined cross-sectional associations and insights across three waves regarding positive and negative environmental emotions, comprehensive nature connectedness (CNC), and PEB. This study explored (1) which environmental emotions are most strongly associated with PEB and (2) whether these emotions moderate or mediate the relationship between CNC and PEB.

Data were collected from Finnish municipalities through random sampling as part of the longitudinal research project Act with Nature. Three waves of online surveys were conducted in 2023 (N = 656), 2024 (N = 308), and 2025 (N = 249), targeting Finnish working-age adults. Participants completed online surveys that measured 21 positive and negative environmental emotions as well as CNC and PEB. Analyses involved Pearson and Spearman correlations, multiple linear regression, and structural equation modeling (SEM).

Preliminary results indicated that interest, empowerment, and scepticism were the most significant predictors of PEB. Notably, interest was found to partially mediate the relationship between CNC at one point in time and PEB at a later stage. Additional findings and implications will be detailed at the conference.

By integrating environmental emotions into models of human–nature connectedness and sustainable behaviour, this study contributes novel insights to people–environment research and supports holistic approaches to sustainability.

---

371 Nature-based interventions for pro-environmental behaviour and well-being: A scoping review

Julija Chichaeva[1], Bethany Harries[2], Eleanor Ratcliffe[2], Kalevi Korpela[3], Kirsi Salonen[3], Jane-Veera Paakkolanvaara[1], Sampsa Puttonen[3], Katriina Hyvönen[1]
[1]JAMK University of Applied Sciences, Institute of Rehabilitation, Jyväskylä, Finland. [2]University of Surrey, School of Psychology, Guildford, United Kingdom. [3]University of Tampere, Faculty of Social Sciences, Psychology, Tampere, Finland

Nature-based interventions have the potential to enhance pro-environmental behaviour and well-being. As global attention to sustainability grows, it is crucial to understand how these interventions affect behaviour and health. This review systematically maps existing literature on nature-based interventions that promote both PEB and well-being/health. The objectives are to: (1) identify types of nature-based interventions addressing both PEB and well-being/health; (2) describe and synthesise their outcomes, measures, and results; and (3) identify behaviour change mechanisms underlying successful interventions.

The review followed the JBI Manual for Evidence Synthesis and the PRISMA Extension for Scoping Reviews checklist. The protocol was registered in OSF Registries (https://doi.org/10.17605/OSF.IO/JAENX). Eligible studies included those involving general populations, working-age adults, or students, with interventions conducted in natural environments or using nature simulations (e.g., virtual reality). The nature-based interventions were required to address both pro-environmental behaviour and well-being/health outcomes. Both qualitative and quantitative evidence, including experimental, observational, and grey literature published within the last decade, were synthesised.

A comprehensive search was conducted in February 2025 across six databases: Medline (Ebsco), CINAHL (Ebsco), APA PsycInfo (Ebsco), APA PsycArticles (Ebsco), and Web of Science. Screening was performed independently by two researchers and data extraction by one researcher. Data is analysed using descriptive qualitative content analysis and basic coding to classify interventions, strategies, and behaviours. The presentation will share the findings of the review, which are currently under analysis. Findings can inform the design of interventions and policies that foster planetary well-being through synergistic benefits for people and nature.

SYMPOSIUM 25:
Climate change emotions and cognitions in emerging adults: Resilience factors guarding wellbeing and promoting environmental behaviour

Tues 30 June, 11:45 – 13:00, AP 2

Chair: Sohvi Nuojua
University of Oulu, Oulu, Finland

The symposium comprises four presentations addressing climate emotionality and cognitions, with pro-environmental behaviour and wellbeing as key outcomes of interest. Presenting primary data from four countries, the symposium focuses on emerging adults who are in a critical stage of life in terms of gaining independence – both in climate engagement and generally – as well as being psychologically affected by climate change.

Contribution 1: “Eco-anxiety and environmentally friendly consumption in young adults: Longitudinal exploration and the role of hope and coping” (Šorytė, D.) investigates how eco-anxiety relates to pro-

environmental behaviour in Lithuanian young adults over time, with particular attention to the roles of hope and coping.

Contribution 2: “Youth eco-anxiety in Chile: Patterns of emotional fluctuation among Chilean youth in a national qualitative study” (Hoffmann, T.) is a national qualitative exploration of eco-anxiety among Chilean youth from different macro-zones.

Contribution 3: “Young people's outcome expectancy regarding climate-engagement: The role of dialectical thinking and black-and-white thinking” (Palmo, S.) explores the associations between thinking strategies, climate engagement and outcome expectancy in two cohorts of Swedish youth.

Contribution 4: “Climate worry and wellbeing: Exploring nature connectedness and contact as resilience factors in rural and urban emerging adults in Finland” (Nuojua, S.) outlines a survey study on the role of nature connectedness and contact in associations between climate worry and psychological wellbeing.

The symposium provides a variety of perspectives on the topic of climate emotionality and cognition, also from the Global South, with evidence from both quantitative and qualitative inquiry.

Speakers: Dovilė Šorytė**,** Tamara Hoffmann**,** Sonja Palmo**,** Sohvi Nuojua

---

184 Eco-anxiety and environmentally friendly consumption in young adults: Longitudinal exploration and the role of hope and coping

Dovilė Šorytė, Audra Balundė, Aistė Bakaitytė-Bagdonė, Rita Žukauskienė
Mykolas Romeris University, Vilnius, Lithuania

Growing research highlights significant yet complex links between eco-anxiety and pro-environmental behaviour (PEB). It remains unclear to what extent this relationship is shaped by additional factors, and longitudinal investigations are particularly needed to capture the dynamic interplay between the constructs. This study examines how eco-anxiety relates to PEB in young adults over time, focusing on the roles of hope and coping.

The study employs a longitudinal two-wave design. A convenience sample of 560 participants was collected for the first wave of the study. After excluding data due to several reasons, the final sample comprised 455 adults aged 18 to 35 years (M = 22.47; SD = 4.40), with 71.5% female. The participants who agreed to be further contacted will be invited to participate in the second wave of the study at the beginning of 2026. Items from the Climate Change Anxiety Scale (Clayton & Karazsia, 2020), the Coping Strategies instrument (Ojala, 2012; Ojala & Bengtsson, 2019), and the Hope Index (Sangervo et al., 2022) are used, together with questions about environmentally friendly consumption. The structural equation modelling framework will be applied to data analysis.

Drawing on prior findings and theories such as the transactional model of stress and coping, we expect robust longitudinal links between eco-anxiety and PEB, with hope and coping playing significant explanatory roles. Anxiety is anticipated to predict the behaviour over time, while coping strategies and hope may uniquely mediate/moderate this relationship. Clarifying these mechanisms is crucial for designing interventions that foster adaptive responses to environmental crises.

---

207 Youth eco-anxiety in Chile: Patterns of emotional fluctuation among Chilean youth in a national qualitative study

Tamara Hoffmann
University of Chile, Santiago, Chile. Catholic University of Chile, Santiago, Chile. MIDAP, Santiago, Chile. IMHAY, Santiago, Chile

This study is a national qualitative exploration of eco-anxiety among Chilean youth from different macro-zones, characterized by diverse geographies and climates—from the arid deserts of the north, to polar ecosystems and temperate climates in central Chile—which are facing increasingly severe ecological problems exacerbated by climate change. National surveys indicate that Chilean youth experience high levels of emotional distress in relation to the present and future effects of these crises. This study explores the phenomenon of eco- anxiety through young people's lived experiences, using a qualitative approach with a Grounded Theory design. Six online focus groups were conducted with 28 participants aged 20 to 29 years (M = 23.85; 78.6% women) from different regions of the country, with focus groups organized according to Chilean macro-zones. The findings reveal differentiated forms of eco-anxiety across territories, depending on whether young people have experienced ecological traumas in their local environments or belong to Indigenous communities, versus those who primarily understand the issue through environmental education or information acquired via the media, and according to their level of ecological awareness. Furthermore, fluctuating emotional patterns were observed, ranging from low-activation emotions (sadness, disappointment, nostalgia, discouragement) to high-activation emotions (anger, frustration, rage), alongside alert emotions (worry, fear, anxiety), which tend to cluster into specific patterns. Overall, the results highlight the complexity of eco-anxiety in Latin American contexts such as Chile and underscore the importance of studying this phenomenon in relation to socio-territorial conditions.

---

309 Young people's outcome expectancy regarding climate-engagement: The role of dialectical thinking and black-and-white thinking

Sonja Palmo[1], Maria Ojala[1,2]
[1]Frontiers of Arctic and Global Resilience (FRONT), Faculty of Education and Psychology, University of Oulu, Oulu, Finland. [2]School of Behavioural, Social and Legal Sciences (Psychology), Örebro University, Örebro, Sweden

Studies show that young people struggle with low outcome expectancy related to climate engagement, i.e., they do not feel that their engagement matters. The aim of the current study is to give insight into some, yet not studied, factors that might help or undermine late adolescents' outcome expectancy regarding climate mitigation. We investigate how two thinking strategies, namely dialectical thinking, i.e., to embrace complexity by transcending dichotomies and conflicts, and black-and-white thinking, i.e., making assessments in terms of mutually exclusive "good-or-bad" opposites, are related to outcome expectancy regarding climate-friendly food choices (Study 1) and climate-friendly behavior in general (Study 2). We analyzed data from two age cohorts of late adolescents in Sweden, Study 1 (n = 470, M_{age} = 17.91) and Study 2 (n = 599, M_{age} = 17.34), using correlation and regression analyses. Our results indicate that black-and-white thinking is negatively and dialectical thinking positively related to outcome expectancy. After controlling for other factors, such as gender and parental descriptive norms, only dialectical thinking was a unique predictor of outcome expectancy in Study 1. In Study 2, however, both thinking strategies were significant predictors of outcome expectancy: dialectical thinking a positive predictor and black-and-white thinking a negative predictor. Our results indicate that promoting dialectical thinking and preventing black-and-white thinking could help young people to deal constructively with feeling that their actions don't matter, helping this age group overcome this barrier related to making climate-friendly choices in their daily lives.

---

181 Climate worry and wellbeing: Exploring nature connectedness and contact as resilience factors in rural and urban emerging adults in Finland

Sohvi Nuojua[1], Maria Ojala[1], Marjo Seppänen[2]
[1]University of Oulu, Oulu, Finland. [2]Aalto University, Espoo, Finland

The presentation “Climate worry and wellbeing: Exploring nature connectedness and contact as resilience factors in rural and urban emerging adults in Finland” outlines the results of a cross-sectional survey study on Finnish emerging adults aged 16 to 18 years, with data collection commencing in early 2026. Previous findings on both adults and adolescents suggest that high levels of climate worry are associated with declined mental wellbeing. Furthermore, nature connectedness has emerged as a potential resilience factor that may guard wellbeing in the face of negative climate emotionality. Yet, the different dimensions of nature connectedness, namely its affective, cognitive and behavioural components, may play different roles in the relationship between climate worry and wellbeing. Furthermore, nature contact may more directly alleviate the burden of life stressors, such as climate worry, on mental wellbeing. The associations between climate worry and mental wellbeing (positive and negative affect, anxiety and life satisfaction) are tested in a target sample size of 600 emerging adults from both rural and urban locations in Finland. In addition, moderator analyses are conducted in order to explore the affective, cognitive and behavioural dimensions of nature connectedness, as well as nature contact, as resilience factors that may protect adolescents from climate-associated declined wellbeing. The research findings will increase our understanding of the types of nature connection (connectedness and contact) that are most influential in terms of their potential in guarding wellbeing in the face of negative climate emotionality.

INDIVIDUAL ORAL PRESENTATIONS:
Blue space

Tues 30 June, 11:45 – 13:00, 39 MS 02

Chair: Elizabeth Gabe-Thomas
Plymouth Marine Laboratory, Plymouth, United Kingdom

---

373 The coast as a public health resource: Physiological, psychological and cognitive responses to coastal vs. urban exposure in older adults

Julia Kinet[1,2], Elias De Craene[2,1,3], Sara Vandamme[1], Mazarine Six[1], Mirko Petrovic[1], Greet Cardon[1], Jan G. Bourgois[1], Colin Janssen[1], Gert Everaert[2], Jana Asselman[1]
[1]Ghent University, Ghent, Belgium. [2]Flanders Marine Institute (VLIZ), Ostend, Belgium. [3]KU Leuven, Leuven, Belgium

With populations ageing, identifying effective preventive strategies to maintain functional health has become increasingly important. Exposure to natural environments has emerged as a promising contributor to physical and mental well-being, yet experimental evidence on coastal environments remains limited, particularly regarding physiological and cognitive effects in older adults and the added value of environmental context beyond physical activity alone. To address these gaps, a within-subject cross-over study was conducted with 48 older adults (60–86 years, 54% male). Participants were exposed to both a coastal and an urban environment, each comprising a 15-minute seated phase followed by a 30-minute walk. Physiological measures (heart rate, heart rate variability and salivary cortisol) were collected before, during and after exposure. Self-reported stress, mood and cognitive performance (visual attention and processing speed) were assessed before and after exposure. During recovery (20 min after the walk), parasympathetic activity remained elevated after coastal walking but decreased after urban walking (–13%, p = .043) and sustained reductions in

cortisol were observed only after coastal walking (–15%, p = .008). Furthermore, coastal walking was associated with reduced perceived stress (post–pre contrast: –6.66, p = .039), improved visual attention (+38.91 test score points, p < .001) and larger gains in processing speed (+7.48 test score points, p < .001). Mood did not change significantly (all p > .05). In conclusion, coastal walking was associated with stronger physiological, psychological and cognitive benefits than urban walking in older adults, suggesting it may represent a scalable nature-based preventive strategy to support healthy ageing.

---

488 Emotional experiences across different coastal environments: An innovative video experiment

Elias De Craene[1,2,3], Julia Kinet[2,1], Filip Raes[3], Ann Buysse[2], Gert Everaert[1]
[1]Flanders Marine Institute (VLIZ), Ostend, Belgium. [2]Ghent University, Ghent, Belgium. [3]KU Leuven, Leuven, Belgium

Coastal environments represent a type of blue space characterized by distinct environmental qualities. While an increasing body of research points to beneficial health effects of coastal exposure, the emotional experiences evoked by these settings—and by different coastal sub-environments—remain insufficiently explored. To address this gap, a randomized cross-over study was conducted in which 60 adults were exposed to standardized videos representing different coastal and urban environments. Participants viewed four coastal videos (beach, breakwater, dike, and dunes) and four urban videos (two church scenes and two streets with visually attractive façades) using an immersive audiovisual setup. Throughout each video, participants reported valence and arousal in real time using a joystick, capturing two fundamental dimensions of affect. After each video, they also rated the extent to which they experienced two complex emotions: awe and connectedness to the environment (CE). Prior to the experiment, participants filled in online questionnaires on traits and demographics. Results indicated significantly stronger emotional responses during coastal compared with urban exposure, reflected in more positive valence, higher arousal, and greater awe and CE. Within the coastal condition, the dike environment elicited lower scores across all measures relative to the other coastal scenes. Furthermore, higher trait emotional connectedness to the ocean was associated with stronger emotional responses across outcomes. These findings underscore the emotional impact of coastal environments and emphasize the relevance of differentiating health effects of coastal sub-environments.

---

422 Evaluation of satisfaction among persons with disabilities using a Universal Beach

Takayuki Kumazawa
Ibaraki University, Hitachi, Japan

In recent years, *Universal Beaches*—coastal environments that provide facilities and support enabling persons with disabilities to enjoy the sea—have been increasingly introduced. While the development of amphibious wheelchairs has progressed, research on the environmental design of Universal Beaches and user satisfaction remains limited. This study examines Oarai Sun Beach, one of the first Universal Beaches in Japan, to clarify the current state of its environmental design and to evaluate satisfaction among persons with disabilities and their accompanying caregivers.

Questionnaire surveys revealed three key findings. First, most users with disabilities had physical impairments, followed by individuals with intellectual or developmental disabilities. Although overall satisfaction with the Universal Beach experience was high, many users reported difficulties related to mobility and changing clothes. Nevertheless, they strongly valued the opportunity to interact with seawater, indicating that enjoyment of the sea outweighed these challenges. Second, compared with caregivers, persons with disabilities reported a greater increase in confidence in their overall outing

behavior after entering the sea, suggesting potential benefits for independence and self-efficacy. Third, evaluations of physical environmental design—particularly mobility on sandy surfaces—were relatively low, highlighting the need for improved designs that accommodate diverse disability characteristics. Amphibious wheelchairs were also found to be effective in supporting seaside access for a wide range of disabilities.

These findings indicate that improving the environmental design and infrastructure of Universal Beaches can promote greater use by persons with disabilities and expand safe and enjoyable coastal leisure opportunities.

---

117 Measuring ocean connectedness: Scale development and validation

Elizabeth Gabe-Thomas, Océane Marcone, Andrew Edwards-Jones
Plymouth Marine Laboratory, Plymouth, United Kingdom

Ocean connectedness is an emerging construct that extends the concept of nature connectedness specifically to a marine context. Recent evidence suggests that ocean connectedness affects pro-ocean behaviour (Nuoja, Pahl & Thompson, 2022; 2024) and well-being benefits from the marine environment (Hooyberg et al., 2022). Existing measures have primarily been used as covariates, with limited attention to their validity or comprehensibility. The present research aimed to develop, for the first time, a valid and reliable scale to measure ocean connectedness using best-practice scale construction principles (Boateng et al., 2018).

We first developed an item pool by conducting a scoping literature review of existing measures of ocean connectedness. The item pool was pre-tested and refined through eight interviews with the target population and review by five domain experts. The final scale was developed & evaluated through an online psychometric survey with 688 participants from the UK.

Survey analysis resulted in a highly reliable 4-item scale demonstrating construct and criterion validity through comparisons with other relevant measures. Our scale was a consistently stronger predictor of childhood coastal experience, emotions associated with the ocean and recent coastal activities than nature connectedness & an ocean-adapted Inclusion of Nature in Self measure. This novel scale provides a robust tool for advancing research on human–ocean relationships, with implications for ocean & human health.

FLASH PRESENTATIONS:
Climate and sustainability policy

Tues 30 June, 11:45 – 12:20, 72 MS 03

Chair: Ferdinando Fornara
University of Cagliari, Cagliari, Italy

---

224 Beyond climate concern: The influence of party origin and message framing on climate policy support in the UK

Clara Kübler
University of East Anglia (UEA), Norwich, United Kingdom

Elections provide an important opportunity for climate action. Parties range in their support for climate policy, from strong ambitions to complete rejection. The party cues arising from these stances, in

combination with negative partisanship (NP), or disidentification with a political party, may influence public support for proposed climate policies beyond pure climate concern.

Current knowledge about which specific climate policies individuals support is still limited. The majority of studies focus on framing climate change itself—such as risks and consequences—rather than specific policies and their goals. Developing research suggests that economic frames may be more persuasive. However, prior studies typically examine the framing alone, without considering the message source, such as the associated party.

To address these gaps, this study examines which climate policies individuals with different political identities support. Specifically, the study explores (1) relationships between NP and climate policy support; (2) relationships between policy framing and support; and (3) whether policy framing can mitigate barriers posed to climate policy support by NP.

This 2×2 survey vignette experiment manipulates party origin (fictional left- and right-wing parties) and the framing of a renewable energy policy (economic versus climate), using a representative UK sample (n=800). We anticipate that NP may reduce support for policies from opposing parties, that economic framings may moderate this effect, and that results may differ between urban/rural respondents. Findings will inform how climate policies can be communicated to build broader public support across partisan divides.

---

351 Blocking streets and throwing paint at artworks: How radical does the flank need to be to be effective?

Dominika Jurgiel, Adrian Wojcik
Nicolaus Copernicus University, Toruń, Poland

The present study examined whether radical collective climate actions enhance the support for moderate actions, contributing to emerging research on contextual influence underlying the radical flank effect. The study was preregistered and conducted on a representative sample of adult Poles (N = 452). Participants were randomly assigned to a control condition or one of four experimental conditions in which they read a text describing the activities of pro-environmental groups that differed in their level of radicalism. Then they read an identical description of the actions of a moderate group. Participants were asked to assess their identification with, support for, and willingness to engage in actions on behalf of each group, as well as to declare their support for pro-environmental policies and their willingness to undertake pro-environmental behaviours. The results revealed contextual effects in evaluations of the moderate group that depended on the difference in radicalness between the groups. In line with a contrast effect, the moderate group was perceived as least radical following exposure to extremely radical actions. Additionally, participants in the condition featuring the most radical actions showed increased support for the moderate group and a greater willingness to act on its behalf. This relationship was mediated by identification with the moderate group. At the same time, the radicalism of the actions did not affect support for pro-environmental policies or willingness to engage in pro-environmental behaviours. The findings suggest that a positive radical flank effect requires a substantive difference between the compared groups.

---

86 Exploring the longitudinal relationships between perceived policy credibility and sustainable transport choices across two German Federal States

Marvin Helferich[1,2], Josephine Tröger[1], Elisabeth Dütschke[1]
[1]Fraunhofer ISI, Karlsruhe, Germany. [2]RPTU University of Kaiserslautern-Landau, Landau, Germany

The current political debate in Germany is ambivalent about the future which is envisioned for the transport sector. While the government is still granting climate-damaging subsidies like tax reductions for diesel, tax benefits for commuters and the company car privilege, there are also some subsidies that clearly aim to reduce transport-related emissions (e.g., tax reductions for public transport or the partial financing of the "Deutschlandticket"). Against the backdrop of this ambivalence, we investigate whether people in Germany perceive a lack of political will to reduce transport-related GHG emissions and in how far this perception is associated with individual behavior and behavior change. We use longitudinal data collected in four waves between June 2023 and December 2024 in the German Federal states of Baden-Württemberg and Mecklenburg-Western Pomerania, with a total of 540 people who participated in all waves. Using longitudinal data enables us to investigate both inter- and intra-individual change as well as to factor in the impact of political events like the abolishment of the purchase premium for battery-electric vehicles in 2023. Building on previous research, we derived two contrary assumptions: On the one hand, a stronger perception of a lack of political will and thus societal support may lead to fewer individual sustainable transport choices. On the other hand, it could potentially drive an increase in sustainable transport choices to counteract the lack of political will. To explore this potential bidirectionality, we are currently analyzing the data using random-intercept cross-lagged panel models.

FLASH PRESENTATIONS:
Behaviour change

Tues 30 June, 12:25 – 13:00, 72 MS 03

Chair: Giuseppe Carrus
Roma Tre University, Rome, Italy

---

268 Dusting off the social identity approach to overcome barriers from climate change communication to pro-environmental behaviours

Tuva Bræin[1], Freja Nanadowa Rhode Monney[2], Tina Venema[3]
[1]NTNU - Norwegian University of Science and Technology, Trondheim, Norway. [2]Aarhus University, Aarhus, Denmark. [3]Utrecht University, Utrecht, Netherlands

At IAPS 2026, I wish to present the following published article: https://doi.org/10.47368/ejhc.2024.401. For climate change communication to result in pro-environmental behaviours that could mitigate the negative consequences of climate change, a thorough understanding of the factors that prevent communication from having its intended effects is needed. In this theoretical article, we propose an additional perspective on Per Espen Stoknes' model of the five barriers to climate action. We suggest that the innermost barrier, *Identity*, should be conceptualized as social identity rather than cultural identity, and that the model should be updated to incorporate the theoretical premises of the social identity approach (SIA). Moving towards a greater understanding of the interplay between communication and social factors is vital to avoid increasing polarization between social groups in discourses surrounding climate change. Specifically, we propose that climate communication can be unsuccessful (1) if it makes social identities that are incompatible with pro-environmental behaviours salient for the individual, (2) if it emphasizes intergroup conflict, and (3) if it creates intrapersonal conflict for the individual. This perspective may offer greater theoretical depth regarding how social identity processes can prevent the effectiveness of climate communication and the adoption of pro-environmental behaviours. By understanding these mechanisms, policymakers and stakeholders will be better equipped to design and communicate climate policy more effectively, without inducing unintended social outcomes. The article provides the foundation for my PhD project, in which I will map and investigate how different salient social identities influence judgement of green energy policy.

---

619 How perceived individual costs affect public acceptance of changes to food taxes

Hellen Temme[1,2,3], Cornelia Betsch[3,1], Philipp Sprengholz[2]
[1]Bernhard Nocht Institute for Tropical Medicine, Hamburg, Germany. [2]University of Bamberg, Bamberg, Germany. [3]University of Erfurt, Erfurt, Germany

Increasing the value added tax (VAT) on animal-based foods and lowering it for plant-based foods can substantially reduce CO2 emissions and thus help to mitigate climate change. Yet, public acceptance remains low.

Two online experiments in Germany examined whether acceptance of tax changes is linked to perceived individual costs due to the change. In the first experiment (N = 161), participants submitted grocery receipts and were assigned to a condition that increased VAT on animal-based foods, decreased VAT on plant-based foods, or combined both changes. Policy acceptance was measured before and after participants estimated price changes on their receipts and received feedback on the actual changes. Acceptance was highest in the decrease condition (M = 5.88, SD = 1.49) compared to both the combined policy (M = 3.48, SD = 1.95) and the animal-based tax increase (M = 3.00, SD = 2.07; p < .001). Overestimating price changes was related to greater policy acceptance (β = .07, p = .039), controlling for initial acceptance (β = .94, p < .001).

In a second 2x2 experiment (N = 1,074), participants were informed about one of two tax changes (increase or combination) and additionally shown or not shown actual price changes using a random receipt. Acceptance was higher for the combination than for the tax increase (β = -0.35, p < .001). Showing the receipt, without eliciting individual price estimates as in Study 1, had no significant effect on policy acceptance. This suggests limited transfer from individual-level interventions to general communication strategies.

---

502 Using the Behaviour Change Wheel and a co-production approach to develop an intervention to improve recycling of plastic waste in Indonesian households

Luthfi Dahriyanto[1,2,3], Harriet Baird[1,3], Rebecca Webster[1], Nicola Buckland[1,3]
[1]University of Sheffield, Sheffield, United Kingdom. [2]Universitas Negeri Semarang, Semarang, Indonesia. [3]Grantham Centre for Sustainable Future, Sheffield, United Kingdom

Recycling plastic waste in Indonesia remains low, contributing to environmental problems. The present study applied the Behaviour Change Wheel (BCW), with a co-production approach, to design and evaluate behaviour change interventions to improve the recycling of plastic waste in Indonesian households. A co-production workshop, guided by the BCW, was conducted with four stakeholder groups comprising representatives from the Indonesian government, academics/experts, waste bank operators, and the general public. During the workshop, participants reviewed barriers to recycling that had been identified in previous studies (including an online survey and focus groups) and applied the steps in the BCW to co-produce possible interventions. Participants recognised that interventions should address barriers at both the individual and system levels. Accordingly, the workshop generated a set of interventions targeting each. Household interventions (e.g., informing recycling procedure) aimed to address barriers to knowledge, awareness, and time constraints, delivered through culturally established community meetings. System-level interventions (e.g., providing bins, regular collection) focused on addressing infrastructure and service barriers. The proposed interventions were then evaluated using the Theoretical Framework of Acceptability (TFA). Participants reported high acceptability ratings across all seven TFA constructs (e.g., perceived effectiveness, self-efficacy). Open-text responses, analysed qualitatively and mapped to the TFA constructs, also indicated high acceptability for the proposed interventions. This is the first study to integrate co-production and the BCW to develop and assess the acceptability of interventions to promote recycling. The findings can inform individual and system-level strategies to improve recycling across Indonesia.

SYMPOSIUM 33:
Tools for evaluating the quality and play value of outdoor playspaces: International perspectives on three emerging playspace audit tools

Tues 30 June, 11:45 – 13:00, 32 MS 03

Chair: Janet Loebach
Cornell University, Ithaca, United States

This symposium brings together researchers from occupational therapy, human movement sciences, landscape architecture, urban geography, and human-centered design to examine the use and implications of three emerging outdoor playspace audit tools. Although municipalities and researchers increasingly request such tools, the lack of shared conceptual foundations and language among existing tools makes it difficult to understand how different approaches overlap, diverge, or complement one another. This symposium explores how play value and quality is defined, operationalized, and applied across assessment tools, and the opportunities and limitations these tools present.

Symposia presentations will each outline an audit tool designed to assess the quality and/or play value of outdoor playspaces. Each presenter will illustrate the aims, structure and intended audience of their tool, and demonstrate its use and outcomes. Potential limitations will also be discussed. Presentations will outline:

i. the Playspace Play Value and Usability tool, a multi-method capacity building tool for assessing individual playspaces (developed/field tested in Austria and USA);
ii. the ALM tool for assessing individual playgrounds and play provision at a municipal scale (developed/field tested in Sweden);
iii. a tool for assessing play value of individual public playspaces and across neighborhoods (developed/field tested in the Netherlands).

A facilitated discussion will then invite participants to reflect on key issues, including benefits and risks of using audit tools, including structured scoring systems, training requirements, integration of children's perspectives and diverse play needs, and how these tools can shape planning, redesign, management, and resource allocation of outdoor playspaces.

Speakers: Thomas Morgenthaler, Janet Loebach, Märit Jansson, Karlijn Sporrel, Gerben Helleman

---

470 The playspace play value and usability audit tool: A multi-method framework for evaluating play value and usability

Thomas Morgenthaler[1], Janet Loebach[2]
[1]Swedish University of Agricultural Sciences, Department of Landscape Architecture, Planning and Management, Alnarp, Sweden. [2]Cornell University, College of Human Ecology Dept of Human Centered Design, Ithaca, United States

Background: Playspaces should provide high play value and inclusive, dynamic opportunities for children with and without disabilities, yet existing evaluation approaches often focus narrowly on safety or accessibility. As communities increasingly retrofit or expand playgrounds, there is a need for an evidence-informed method capable of assessing current conditions and guiding meaningful improvements.

Objectives: This presentation introduces a new multi-method playground audit tool designed to evaluate play value and usability of outdoor playspaces through an affordance-focused and inclusion-oriented perspective.

Approach: The tool was developed through two systematic literature reviews and an expert Delphi process focusing on play affordances, inclusion and accessibility. Iterative field testing incorporated behavioural mapping, caregiver interviews and feedback from auditors to refine item clarity, feasibility, and scoring.

Anticipated findings: Final iterations of the tool resulted in a multi-method structure comprising (i) a comprehensive physical environment audit and (ii) survey interview-based insights from users and playspace managers. An updated version of the tool's scoring system along with insights from field testing and reliability analysis will be presented. The presentation will demonstrate how the tool can be applied in real-world contexts to assess existing playspaces, compare sites, and inform decision-making for research and playspace management.

Novelty and implications for research and practice: The tool stands out for its considerations of children's play preferences, evidence-informed criteria, and its multi-method structure which. By generating structured scores for both play value and usability, it offers a promising framework for supporting playground retrofitting and design that prioritises environments high in play value.

---

510 Beyond seesaws and slides: Development and application of a practical play space audit tool

Karlijn Sporrel, Gerben Helleman
The Hague University of Applied Science, The Hague, Netherlands

Outdoor play is important for the health and well-being of children. However, children play outdoors less frequently and there is an intensified pressure on (formal) public play spaces in the Netherlands due to urban densification. Policymakers and researchers require practical tools to explore and improve the play value to ensure high-quality and accessible play spaces. This presentation reports on the development and testing of a play value audit tool designed to address this need.

Interviews with children and a targeted literature review informed the first prototype of the tool. Subsequent field tests and iterative refinements resulted in a tool measuring three components of play value, namely (1) preconditions (measuring factors as safety, accessibility and inclusivity), (2) the types and variation in action possibilities of playground attributes (measuring canonical play affordances such as swinging, sliding and bouncing, playing together and relaxing) and (3) action possibilities of environmental properties (by measuring the presence of different types of surfaces, greenery, loose materials and accessible water bodies).

The tool has been applied in more than 160 play spaces across multiple research projects, demonstrating its utility to map neighbourhood play value, evaluate play value during a playground renewal and identifying environmental barriers to inclusivity. Therefore, the tool can potentially enable municipalities, designers, and researchers to promote more (inclusive) outdoor formal play spaces on a micro or macro level. Future work will examine how the assessed play value relates to children's observed play behaviour and enhance the tool's usability for wider professional audience.

---

527 Developing quality in public play spaces over time: The evidence-based audit tool ALM

Märit Jansson[1], Julia Schneider[2]
[1]Swedish University of Agricultural Sciences (SLU), Alnarp, Sweden. [2]Örebro University, Örebro, Sweden

Public play spaces are important for children's play, well-being, and health, yet many playgrounds have been criticised for low quality and limited play value. There is both a lack of systematic overview of play space provision and a growing demand for evidence-based support over time among planners, designers, and managers. This study investigates the usefulness of the play space audit tool ALM, both for assessing individual playgrounds and similar, and for analysing play space provision at a municipal scale.

The tool aims to balance an evidence-based foundation with applicability in practice, integrating multiple aspects related to planning, design, management, and user perspectives, and recognize that play spaces can develop over time. ALM is based on research literature and refined iteratively over several years.

In 2022, eleven Swedish local governments tested ALM by auditing multiple local public playgrounds. The results revealed a wide variation in playground quality in Sweden. High levels of economic investment in play spaces and compliance with safety standards were not associated with higher overall scores or play space quality, whereas variety and vegetation were.

Local government practitioners found ALM useful and provided feedback that informed further refinement of the tool, mainly through clearer descriptions. Audit tools such as ALM may support both strategic overview and the development of individual play spaces over time, particularly when used collaboratively across professional roles.

SYMPOSIUM 27:
New developments in place theory and research

Tues 30 June, 14:15 – 15:45, 03 MS 01

Chairs: Maria Lewicka[1] and Fatima Bernardo[2]
[1]Nicolaus Copernicus University in Toruń, Toruń, Poland
[2]University of Evora, Evora, Portugal

Place and people–place relations are popular topics in environmental psychology. However, we believe that there is currently a mismatch between a rich empirical output and the poverty of an underlying theory of place. One culprit is the widespread use of place-attachment measures: when a theoretical construct is converted into an easily accessible measure, it tends to stimulate empirical studies at the expense of theoretical development. In this symposium, we intend to return to place theory and to outline new, potentially fruitful directions for developing a theory of place and people–place relations.

Fatima Bernardo will present studies on tourist destinations, viewed from the perspective of social psychological theories of identity. Her findings point to the importance of the continuity motive in place identity. Continuity, understood as a dimension of the built environment, is the focus of studies presented by Szymon Bojarski. These studies explore people's reactions to violations of a city's *genius loci*, and the role played by place-related nostalgia and perceived place continuity. Mikołaj Filipiak will present studies addressing the role of two forms of nostalgia—restorative and reflective—

in the evaluation of traditional and modern buildings and home interiors. The remaining two papers will discuss implications of a theory of essentialist versus anti-essentialist place meaning. Alex Lubiński will explore its affinities with theories in environmental aesthetics, particularly Christopher Alexander's principles of natural order. Maria Lewicka will demonstrate affinities between dimensions of place meaning and the meta-trait circumplex, originally developed to represent personality traits.

Speakers: Fatima Bernardo**,** Szymon Bojarski, Mikołaj Filipiak, Alex Lubiński, Maria Lewicka

---

209 Place identity and tourism: Conceptualizing the dynamics of people and place

Fátima Bernardo[1,2], Loupa-Ramos Isabel[2], Veerle Van Eetvelde[3]
[1]University of Évora, Évora, Portugal. [2]CITUA – Center for Innovation in Territory, Urbanism, and Architecture - University of Lisbon, Lisbon, Portugal. [3]Department of Geography, Ghent University, Ghent, Belgium

Place identity can be conceptualised as a dynamic process through which individuals and communities establish cognitive, emotional, and symbolic bonds with a shared geographic setting. It provides a valuable framework for understanding both how transformations in places influence people's identities and how changes in populations may reshape the perceived identity of places. This study examines the impacts of tourism growth, focusing on how tourism-driven transformations may either reinforce the continuity of place identity or, alternatively, act as disruptive forces that generate discontinuity.

The main objective is to investigate how tourism transformations affect the identity motives proposed by Breakwell, namely continuity, distinctiveness, self-esteem, and self-efficacy, as well as their relationship with place identity and residents' attitudes toward tourism. Questionnaire surveys were conducted across multiple case studies that experienced significant tourism-related change over the last decade.

Findings indicate that tourism influences identity motives in context-specific ways, resulting in distinct attitudes toward tourism across locations. Among the motives analysed, continuity and self-esteem emerged as particularly relevant for explaining variations in residents' perceptions. Tourism-related change may be experienced as maintaining continuity in the perceived identity of a place or, conversely, as undermining it. At the same time, tourism may be perceived as enhancing local reputation and attractiveness—supporting self-esteem—or as deteriorating the place's image and social fabric, contributing to identity disruption.

Understanding the interaction between continuity and self-esteem provides key insights into tourism's effects on place identity and helps identify the driving forces underpinning the reconstruction of residents' identification with place.

---

241 Violating the city's genius loci: Role of nostalgia and perceived physical continuity of place

Szymon Bojarski[1], Justyna Zabielska[2], Maria Lewicka[2]
[1]Nicolaus Copernicus University, Doctoral School of Social Sciences, Toruń, Poland. [2]Nicolaus Copernicus University, Institute of Psychology, Toruń, Poland

Cities often change in the way which is inconsistent with their original character. This is mostly done by replacing historical architecture with modern buildings and infrastructure. However, findings show that people value historical identity of their places of residency. We will present three studies in which we investigated people's reactions to changes that occurred or can occur in their cities and we sought to identify factors that predict people's positive or negative reactions to these changes. Our particular

focus was on the perceived physical continuity of a city, assumed to be a negative predictor of acceptance of the change. In Study 1 (N_{total} = 2198) we asked inhabitants of four cities to list positive and negative changes in their city. In Study 2 (N= 354) we presented participants of one city (Toruń) with the screenshots from google maps, presenting selected places before and after the change. In Study 3 (N =3 26) we tested reactions to the past and possible future changes consisting in replacing historical buildings, previously judged to be congruent with the city character, with modern buildings, judged to be incongruent with the city character. In all three studies, the perceived physical continuity of a city turned out to be a positive, instead of a negative, predictor of acceptance of the change. Solastalgia, nostalgia for the lost place, and resistance to place change were negative predictors of acceptance of change.

---

220 Architectural dimension of nostalgia: Role of nostalgia in evaluation of traditional and modern buildings and home interiors

Mikołaj Filipiak[1], Adam Zduńczyk[2], Maria Lewicka[2]
[1]Doctoral School of Social Sciences, Nicolaus Copernicus University, Toruń, Poland. [2]Institute of Psychology, Nicolaus Copernicus University, Toruń, Poland

In two online studies (N = 67 & N = 476), we explored the relationship between two types of nostalgia—restorative and reflective—and preferences for buildings and interiors in either a modern style or a traditional style typical of the Polish People's Republic (PPR). We predicted that restorative nostalgia (a longing for a lost past and a desire to recreate it in the present) would increase architectural preferences—both for buildings and interiors—for the traditional style to a greater extent than reflective nostalgia, which is defined as reflection on the passage of time. We also predicted a positive relationship between age and preference for traditional buildings and interiors.

In Study 1, older participants showed higher levels of restorative nostalgia and rated photographs of traditional buildings more positively. Restorative nostalgia was a stronger predictor of ratings of traditional buildings than reflective nostalgia.

In Study 2, a complex pattern of relationships emerged. Age was negatively related to ratings of traditional interiors and positively related to ratings of modern interiors. Reflective nostalgia predicted more positive ratings of modern buildings, whereas restorative nostalgia predicted more positive ratings of traditional interiors and buildings. Both types of nostalgia predicted positive evaluations of modern interiors.

The results of these studies present a complex picture of the relationships among nostalgia, architectural style, and evaluations of the presented photographs. The lack of reproducibility of correlations between age and photo ratings suggests a limited influence of experiences from one's youth on the formation of preferences for buildings and interiors.

---

426 Why does nature make us feel better? Fractal geometry, complementary measures and their contribution to our biophilic visual preferences for environments

Alex Lubiński[1], Maria Lewicka[2], Bartłomiej Iwańczak[3]
[1]Doctoral School of Social Sciences, Nicolaus Copernicus University, Toruń, Poland. [2]Institute of Psychology, Nicolaus Copernicus University, Toruń, Poland. [3]Educational Research Institute, Warsaw, Poland

Preferences for natural over built environments are robustly documented in environmental psychology, yet their underlying psychological mechanisms remain contested. While the biophilia hypothesis (Wilson, 1984) provides a dominant evolutionary account, complementary explanations emphasise cognitive mechanisms, particularly processing fluency—the tendency to prefer stimuli that

are easier to perceptually and cognitively process (Reber et al., 2004). Related approaches highlight the fractal characteristics of natural stimuli, which combine perceptual complexity with fluency and positive affect (Joye, 2007). However, most empirical work operationalises "fractalness" narrowly, relying primarily on fractal dimension.

To address this gap, we draw on Christopher Alexander's Theory of the Nature of Order (2002a, 2002b), which conceptualises natural order as a constellation of perceptually salient structural properties that support coherence, fluency, and aesthetic experience. This framework offers a psychologically plausible, yet underexplored, operationalisation of "naturalness" in environmental stimuli.

The presentation introduces this theoretical framework and reports preliminary empirical findings from two studies conducted with adult participants (N=253; N=1,252). Factor analyses revealed a two-factor structure of natural order measures, reflecting visual coherence and cognitive fluency. Both factors showed strong positive associations with affective responses, specifically excitement (r = .602) and relaxation (r = .676). We additionally summarise results from a series of related studies, providing one of the first empirical tests of Alexander's theory and comparing it with the place essentialism and anti-essentialism framework (Lewicka et al., 2019). Overall, the findings suggest that Alexander's theory extends beyond strict essentialist interpretations, although essentialist features remain strong predictors of place preferences.

---

204 On personality of places: Towards a meta-trait model of places

Maria Lewicka[1], Bartłomiej Iwańczak[2]
[1]Nicolaus Copernicus University in Toruń, Toruń, Poland. [2]Institute of Educational Research, Warsaw, Poland

Theories that represent psychological constructs in the form of circumplexes are popular among psychologists. Across many theoretical approaches, circumplex models have been developed to depict interpersonal relations, personality traits, values, and affects. An interesting attempt to reconcile several trends in personality research is the meta-traits circumplex, which incorporates various dimensions of individual differences in the form of a circle defined by two major axes: Alpha-Plus (Stability) versus Alpha-Minus (Disinhibition), and Beta-Plus (Plasticity) versus Beta-Minus (Passivity). In addition, the model includes two diagonal axes: Gamma-Plus (Integration) versus Gamma-Minus (Disharmony), and Delta-Plus (Self-Restraint) versus Delta-Minus (Sensation Seeking). In this paper, we propose another circular theory—a place circumplex—that integrates these concepts with dimensions of place meaning.

A set of 300 pictures depicting urban places was evaluated on dimensions corresponding to two clusters of place meaning: essentialist (place as a stable entity with historical identity) and anti-essentialist (place as open, dynamic, and diverse). Factor analysis revealed three meaning factors: two essentialist factors—historical identity (H) and stability (S)—and one anti-essentialist factor, progressiveness (P). Combinations of high and low H, S, and P values made it possible to locate places within the meta-traits circumplex in a meaningful way. In the presentation, we will show examples of places corresponding to different locations within the circumplex. The proposed place circumplex may serve as a starting point for more systematic studies of human connections with places, including emotional bonds to places and the perceived fit between individual personalities and places.

Chair: Audra Balundė
Kaunas University of Technology, Kaunas, Lithuania

---

166 Establishing assessment indicators for evacuation and sheltering preparedness of vulnerable older adults in urban neighborhoods under seismic hazards

Chuan Ming Tung
Ming Chuan University, Taoyuan City, Taiwan

Located along the seismically active Pacific Ring of Fire, Taiwan faces a high risk of earthquakes. Rapid population aging further increases the vulnerability of older and at-risk populations, intensifying the challenges of evacuation, sheltering, and post-disaster support in urban areas. However, existing disaster management systems often lack targeted strategies to address the specific needs of these groups.

This study examines the evacuation and sheltering needs of vulnerable older adults in urban neighborhoods in Taiwan under earthquake scenarios. Domestic data on elderly needs and the preparedness of evacuation and sheltering facilities were synthesized to develop a quantifiable evaluation framework—the **Evaluation Framework and Scoring System for Evacuation and Sheltering Preparedness of Vulnerable Older Adults in Urban Neighborhoods under Earthquake Scenarios**. Expert judgments were applied using the Analytic Hierarchy Process (AHP) to determine indicator weights, and selected case communities were subsequently assessed through on-site evaluations.

The study identified two main dimensions—**Evacuation and Relocation** and **Sheltering and Accommodation**—with a total of 33 indicators. **Sheltering and Accommodation** showed a higher preparedness priority (0.55601) than **Evacuation and Relocation** (0.44399). The top secondary indicators were **Transportation Support and Emergency Contact Policies for Vulnerable Older Adults** (0.14547), **Community Disaster Prevention Education and Human Resource Readiness** (0.14364), and **Living Space Arrangement at Shelters** (0.10240). At the tertiary level, key indicators included **dedicated village support teams**, **multiple evacuation communication channels**, and **registries of vulnerable older adults with assigned contacts**. Overall, the results highlight the importance of human resource capacity and effective information management in enhancing community resilience.

---

75 Predicting health burden after climate-related disasters: Which vulnerability index or indicators best predicts post-disaster hospital utilization?

Dongying Li, Shiyun Wen
Texas A&M University, College Station, United States

Social vulnerability indices are composite measures of the social, demographic, and contextual factors that indicate which communities are more susceptible to the negative impacts of stressors. While many such indices are widely used in public health to identify at-risk populations post disasters, we lack understanding of what these composite indices actually mean and how accurately they predict health outcomes following disasters.

This study compares seven social vulnerability indices in the U.S. based on selection criteria emphasizing transparency in methodology and data availability, including the CDC/ATSDR Social Vulnerability Index and Cutter et al.'s Social Vulnerability Index. We assessed how each index highlights the urban-rural gradient. We then used machine learning and Bayesian models to evaluate how well each index predicted public health burdens after two types of climate disasters: hydrological hazards and thermal extremes. For each disaster type, we identified associated diseases and extracted related hospital utilization records in the state of Texas using respective ICD-10 codes and summarized population-nominated counts as the outcome variable.

Our analysis showed that the predictive strength of each index varied depending on the disaster type and the nature of the health burden. Additionally, we identified combinations of indicators that were most effective at predicting acute health outcomes for hydrological disasters and thermal extremes. These customized versions provide more targeted insights for disaster preparedness and response.

The findings contribute to advancing people–environment research and enrich the One Health dialogue by integrating social dimensions of risk into the understanding of environmental and human health.

---

696 Balancing risks and benefits: Expert perceptions of risk and social acceptability on reclaimed wastewater use

Lucía Poggio, Gabriel Sánchez-del Corral
Complutense University of Madrid, Madrid, Spain

Increasing water scarcity in the SUDOE region (Spain, France, and Portugal) is driven by the interaction between anthropogenic pressure on freshwater systems and climate change, intensifying droughts, extreme hydrological events, and water quality degradation. From an environmental psychology perspective, the acceptance of adaptive water management solutions depends not only on technical performance but also on how risks and benefits are perceived and socially constructed. Within this context, the Interreg Sudoe TARGET project seeks to promote a territorial strategy integrating non-conventional water resources, particularly reclaimed wastewater (REUT), into local water management. This study examines expert perceptions of risk and social acceptability of REUT to inform the development of assessment tools addressing authorities and the general public. Semi-structured interviews were conducted with 41 experts from Spain, France, and Portugal, and analyzed using qualitative content analysis. Results indicate broad agreement on the strategic value of REUT as a climate change adaptation measure, especially in response to water scarcity and increasing climatic uncertainty. However, perceptions of health and environmental risks remain prominent and are closely linked to anticipated public reactions, trust in institutions, regulatory frameworks, and perceived control over potential hazards. Social acceptability emerges as a multidimensional psychological process shaped by subjective risk–benefit evaluations, environmental beliefs, and contextual factors. These findings highlight the central role of risk perception in shaping attitudes toward water reuse, underscoring the importance of integrating insights from environmental psychology into climate adaptation strategies and sustainable water governance.

---

428 Living with industrial pollution: Community anxiety and behavioral responses

Audra Balundė, Audronė Telešienė
Kaunas University of Technology, Kaunas, Lithuania

Industrial pollution exposes local communities to physical health risks as well as to persistent mental health challenges, including chronic anxiety and distress arising from uncertainty about health impacts and limited immediate control over the situation. Prolonged stress can disrupt daily functioning and wellbeing, affecting sleep, productivity, and everyday routines. Despite accumulating international

evidence, localized, community-based data are essential for national policy responses. To collect such data, in collaboration with local grass root movement we conducted a representative survey in September–October 2025 among residents living near polluting industrial sites in one administrative region of Lithuania (N = 700; age 18–79, M = 50.38, SD = 16.88). The study assessed anxiety at multiple construal levels—general, environmental degradation–related, and pollution-induced—and examined their associations with individual and collective response behaviors. Research instruments were co-developed with affected communities following a participatory action research approach. Approximately one in ten residents reported frequent pollution-induced anxiety. Pollution-induced anxiety showed a non-linear relationship with behavioral responses: taking action (e.g., organizing protests or reporting pollution) increased at low to moderate anxiety levels but declined at higher levels, while not taking action (e.g., accepting the situation or disengaging) increased sharply and then leveled off. Overall, the findings provide novel, community-grounded evidence that pollution-induced anxiety shows a nonlinear relationship with both taking action and not taking action, with moderate anxiety linked to greater action and higher anxiety linked to not taking action. The results exploitation plan will be co-created with communities and shared with relevant stakeholders.

INDIVIDUAL ORAL PRESENTATIONS:
Climate anxiety

Tues 30 June, 14:15 – 15:45, AP 2

Chair: Hebba Haddad
University of East London, London, United Kingdom

---

609 Prevalence of climate anxiety in child and adolescent psychiatric patients: A German quantitative study

Gloria Düllberg, Michel Rinderhagen, Timothy McCall
Medical School OWL, Sustainable Environmental Health Sciences, Bielefeld University, Bielefeld, Germany

Background: Anxiety related to anthropogenic climate change is referred to as climate anxiety. Depending on its severity, climate anxiety can be accompanied by emotional impairment and have a negative impact on mental health. Current research suggests that both pre-existing mental illness and young age are associated with an increased risk of emotional impairment due to climate anxiety.

Aims: The aim of this study is to determine the prevalence of climate anxiety and other climate-related emotions among German child and adolescent patients in psychiatric care. Additionally, the study aims to identify associations between various climate-related coping strategies and climate emotions in this target group.

Method approach: Quantitative online questionnaires will be used to survey child and adolescent psychiatric patients in early 2026. The following information will be collected: climate anxiety, other climate-related emotions, climate-related coping strategies, as well as sociodemographic information. The data analysis will include descriptive and inferential statistics.

Anticipated findings: We expect that climate anxiety and other negative climate-related emotions will affect child and adolescent psychiatric patients to a greater extent than children and adolescents in the general German population. We also expect that different coping strategies can affect the extent of emotional distress and impairment caused by these emotions.

Novelty and expected implications: It is to be expected that child and adolescent psychiatric patients represent a risk group for emotional distress and impairment caused by climate anxiety and other climate-related emotions. Therefore, psychiatric clinical staff should be adequately prepared to address these emotions and consider helpful coping strategies.

---

69 Ecoanxiety in rural students from southern Chile in the face of socio-environmental crises and climate change

Tamara Hoffmann[1,2,3,4], Marta Silva[5], Tammy L. Elwell[6,7]
[1]Universidad de Chile, Santiago, Chile. [2]Pontificia Universidad Católica de Chile, Santiago, Chile. [3]Millennium Institute for Research in Depression and Personality (MIDAP), Santiago, Chile. [4]Millennium Nucleus to Improve the Mental Health of Adolescents and Young People (Imhay), Santiago, Chile. [5]Austral University of Chile, Valdivia, Chile. [6]Marine Science Institute, University of California at Santa Barbara,, Santa Barbara, United States. [7]Centro de Investigación en Dinámica de Ecosistemas Marinos de Altas Latitudes (IDEAL), Valdivia, Chile

Climate change and global ecological crises pose significant challenges, especially for younger generations. While environmental education in schools aims to foster ecological awareness, it often overlooks the emotional dimensions affecting students. Eco-anxiety, a set of emotions arising from perceptions of environmental crises, is particularly relevant among students from rural contexts in Chile who are part of the National System of Environmental Certification for Educational Institutions (SNCAE). This qualitative study was conducted through workshops, projective techniques, and six focus groups with seventh and eighth-grade students. Using thematic analysis, their experiences and emotions related to climate change and its impact on mental health were explored. The results show that many students express concern for the environment, with some experiencing dysfunctional eco-anxiety, manifested through physical and emotional symptoms. Four dimensions of eco-anxiety were identified: negative emotions, hopelessness, denial through humour, and movement toward eco-hope, along with coping strategies and recommendations for classroom support.

---

110 Eco-anxiety and coping strategies in Ecuador and Chile: The mediating role of social media

Pablo Barrera[1,2], María Pía Santelices[1], Tamara Hoffman[3], Pía Letelier[1], Natalia Novillo[2], Catalina Álvarez[2]
[1]Universidad Católica de Chile, Santiago, Chile. [2]Universidad San Francisco de Quito, Quito, Ecuador. [3]Universidad de Chile, Santiago, Chile

Background: Eco-anxiety refers to chronic psychological distress related to environmental degradation and climate change and has been associated with reduced quality of life and increased risk of mental health problems, particularly depression. Climate Change Coping Strategies (CCCS), such as hope for a better future and engagement in climate-related activism, have been proposed as protective factors againts eco-anxiety. Social media use has been linked to increased psychological distress and reduced coping stategies; however, its role in eco-anxiety remains unexplored. Most research on eco-anxiety has been conducted in the North, despite the disproportionate impact of climate change on Global South communities, particularly Indigenous populations.

Aim: This study examines the associations between eco-anxiety, CCS, and depressive symptoms, and tests whether problematic social media use mediates the relationship between coping strategies and eco-anxiety in young adults from Ecuador and Chile, including participants from Indigenous communities.

Methods: A cross-sectional study was conducted with approximately 500 participants. Standardized self-report measures assessed eco-anxiety, CCS, depressive symptoms, and problematic social

media use. A structural equation model (SEM) was specified with eco-anxiety as the dependent variable.

Findings: Preliminary findings indicate that climate change coping strategies are negatively associated with eco-anxiety. Problematic social media use partially mediates this relationship. Additionally, depressive symptoms show a positive association with eco-anxiety.

Novelty and Implications: This study provides evidence from Global South contexts and includes Indigenous populations. Findings highlight the relevance of coping strategies, social media use, and depression in understanding eco-anxiety, informing culturally sensitive prevention and intervention efforts.

---

186 From distress to adaptation: How climate anxiety and nature relatedness shape coping across life stages

Adrián Moll Vinuesa[1], Silvia Collado Salas[2], Rocío Rodríguez Rey[3], José Antonio Corraliza Rodríguez[4]

[1]Centro Universitario Cardenal Cisneros, Alcalá de Henares, Spain. [2]Universidad de Zaragoza, Teruel, Spain. [3]Universidad Pontificia Comillas, Cantoblanco, Spain. [4]Universidad Autónoma de Madrid, Cantoblanco, Spain

Background: Adaptation to climate change (CC) relies on coping strategies. A common consequence of CC is climate change anxiety (CCA), yet its relationship with coping mechanisms across life stages remains underexplored.

Objectives: We examined associations between CCA and three climate-change coping strategies: two adaptive (problem-focused and meaning-focused) and one maladaptive (de-emphasizing), in adolescents and adults. We also tested whether nature relatedness (NR) shapes these associations.

Method: Participants were 528 adults (M_{age} = 43.90, SD = 16.12) and 1,252 adolescents (M_{age} = 14.54, SD = 1.78) from Spain. They completed measures of CCA, coping strategies, and NR. Separate multivariate models predicted the three coping strategies simultaneously, adjusting for age and gender.

Results: CCA and NR showed strong multivariate associations with coping strategies in both samples, with no CCA × NR interaction. CCA strongly predicted greater problem-focused coping in adults (ηp^2 = .30, F = 205.24, p < .001) and adolescents (ηp^2 = .20, F = 316.52, p < .001). In adolescents, higher CCA predicted greater meaning-focused coping (ηp^2 = .05, F = 64.29, p < .001) and lower de-emphasizing coping (ηp^2 = .02, F = 24.43, p < .001). Higher NR predicted more adaptive coping and less de-emphasizing coping across groups.

Implications: CCA primarily mobilizes active coping, especially problem-focused coping, while NR broadly supports adaptive coping. Interventions may need to be age-tailored: adolescents appear to naturally channel CCA into meaning-making, whereas adults may require targeted support to translate CCA into constructive action.

---

682 From helplessness to hope: Navigating climate anxiety and motivating action

Laurel Ecke

North Seattle College, Seattle, United States. Shoreline Community College, Seattle, United States

The majority of young people are worried about climate change. Climate psychologists recommend that we acknowledge and talk about our eco-anxiety, yet most people do not know how to do this

productively and are left feeling isolated, discouraged, and powerless. Integrating the topic of climate change into General Psychology courses has the potential to help students process and reframe their emotions related to this issue. The objective of this research study was to examine the impact of a quarter-long project in General Psychology that explored the relationship between climate change and mental health, introduced the concept of climate justice, and used a collective climate action project as a form of meaning-focused coping. I hypothesized that taking this course would positively shift students' understanding of climate justice, emotions related to climate change, and feelings of self-efficacy.

To test this hypothesis, I administered an anonymous pre-post survey and found that positive emotions related to climate change, particularly hope and empowerment, had increased at the end of the quarter. Students reported that the course's climate action project made them feel "less alone," "more hopeful," and confident that they could "turn climate anxiety into action". There was also increased understanding of climate justice issues, desire to talk with others about climate change, and feelings of self-efficacy. This course even prompted some students to start a climate action club on campus.

These results demonstrate the power of giving college students the opportunity to productively discuss climate change and translate anxiety into action.

INDIVIDUAL ORAL PRESENTATIONS:
Design of healthcare settings

Tues 30 June, 14:15 – 15:45, 39 MS 02

Chair: Naomi Sachs
University of Maryland, College Park, United States
Therapeutic Landscapes Network, Saxmundham, United Kingdom

---

122 Resilient utilization of a community hub with healthcare functions in hilly and mountainous areas: An architectural planning case study

Ayako Kita[1], Rihito Sato[2], Hiroya Tanabe[3]
[1]Kochi University of Technology, Kochi, Japan. [2]Kochi University of Technology, Kochi, Japan.
[3]Ministry of Land, Infrastructure and Transport, Takamatsu, Japan

Background: The western region of Kochi Prefecture, Japan, spans from coastal areas to mountainous terrain with significant elevation differences. Coastal areas face severe risks from large-scale tsunamis following major earthquakes. The Kobushinokawa Health Center, located in a mountainous area, serves as an essential routine healthcare facility and a regional hub for the temporary relocation of coastal government offices during tsunami events, highlighting its critical role in community resilience.

Aims: This study examines the spatial layout and operational strategies of the health center to ensure a seamless transition from daily operations to emergency disaster response.

Method: Questionnaires and interviews were conducted to understand daily usage patterns and potential disaster scenarios. Architectural drawings and on-site surveys were analyzed to evaluate internal spatial conditions, room usage, and relationships with the surrounding environment.

Findings: The study revealed imbalanced room utilization, with over half of the spaces being underused. While these areas are designated for repurposed use during disasters, many currently function as storage, limiting their operational effectiveness. Proposed strategies include: (1) situating telemedicine spaces adjacent to consultation rooms, (2) reconfiguring large rooms for dual-use as conference and emergency storage areas, (3) maintaining functional kitchen facilities for emergency food preparation, and (4) improving logistics access through courtyard-facing openings.

Implications for Practice: These strategies, such as the proximity of telemedicine and consultation spaces, ensure that circulation and shared energy supplies are maintained effectively, supporting both everyday service delivery and resilient disaster response.

---

261 Evaluating the impact of hospital built environment redesign on patient and staff psychological outcomes: A mixed-methods case-study of the Day Surgery Unit, Chelsea and Westminster Hospital, London

Sadhana Jagannath[1,2], Andrew Hall[3], Pelin Demirel[1]
[1]Imperial College London, London, United Kingdom. [2]University of Surrey, Guildford, United Kingdom. [3]CW+, London, United Kingdom

Background: Hospital environmental design significantly influences patient and staff experiences including perceived stress, restoration, and affective wellbeing. Yet systematic evaluations using established psychological frameworks remain limited, and design insights are rarely fed back to inform future redevelopment decisions.

Aim and approach: This study examines how environmental design features introduced through hospital redevelopment influence patient and staff wellbeing outcomes. Guided by Ulrich's Theory of Supportive Design (1991), the evaluation focuses on how design features facilitate a sense of control, positive distraction, and social support, and affect wellbeing outcomes. The study adopts a case-study approach at Chelsea and Westminster Hospital's redeveloped Day Surgery Unit in London, UK. Design enhancements, including biophilic elements, artworks, individual patient resting rooms, and dedicated staff areas – serve as exemplar features that promote supportive psychological experiences.

Method: Data are collected through a convergent mixed-methods study between Jan-Apr 2026. Online surveys assess supportive design variables alongside validated outcome measures of perceived stress (STAI), restorativeness (PRS), and affective wellbeing (SPANE) with staff (n80) and patients (n15). Semi-structured interviews with patients and staff (n10) explore lived experiences of the redesigned environment, complemented by behavioural observations documenting space use and interactions with design features.

Anticipated findings: Quantitative analyses will examine associations between supportive design qualities and wellbeing outcomes, alongside pre-redevelopment comparisons. Integrated qualitative and observational findings will identify specific design features that promote control, distraction, and social support.

Novelty and implications: This study extends theoretically grounded evaluation of healthcare designs into general settings, highlighting non-clinical wellbeing outcomes to guide future redevelopment projects.

---

78 Multimodal VR framework for spatial cognition assessment

Xiao Du, Yue Wu, Di Li
Harbin Institute of Technology, Harbin, China

Background: Hospital environments remain vision-centered, and current accessibility standards overlook the cognitive diversity of visually impaired users, resulting in inequities in spatial processing and wayfinding. Empirical tools capable of jointly assessing behavioral, psychological, and physiological responses under realistic navigation conditions remain insufficient.

Research Objective: The study aims to develop a multimodal VR methodological framework for assessing spatial cognition among visually impaired individuals in hospital environments. The objective is to systematically integrate behavioral tracking, psychological assessment, and physiological monitoring to uncover how different impairment types interact with environmental richness and complexity during wayfinding.

Method: A high-fidelity virtual outpatient facility was constructed in Unity, simulating three major visual impairments: cataracts, diabetic retinopathy, and glaucoma. Participants completed standardized wayfinding tasks under three environmental richness conditions (low, medium, and high), where spatial cues, signage density, and multimodal references were systematically manipulated. Data acquisition included: VR-based behavioral metrics (path choice, hesitation time), psychological indicators (spatial anxiety, cognitive difficulty), and physiological signals (prefrontal activation via fNIRS and visual attention via eye-tracking).

Confirmed Findings: Preliminary analysis confirms decreased navigation efficiency, increased hesitation at decision nodes, and elevated cognitive anxiety among visually impaired participants. Distinct impairment types demonstrate differentiated compensatory strategies, validating the value of multimodal evaluation beyond conventional accessibility indicators.

Novelty and Implications: This study establishes a scalable multimodal VR framework that provides robust empirical evidence for cognitively inclusive healthcare design. The framework expands methodological capacity for built-environment research, strengthens theoretical understanding of non-visual spatial cognition.

---

270 Impact of ‘healing architecture’ principles in treatment rooms on psychotherapists’ perceived quality of care in outpatient child and adolescent psychiatry

Sadhana Jagannath[1,2], Clara Weber[3,2], Theresa Wheele[4], Anthony Klein Swormink[5], Celine Ruegg[5], Frank Wieber[6]

[1]Institute of Global Health Innovation, Imperial College London, London, United Kingdom. [2]Environmental Psychology Department, School of Psychology, University of Surrey, Guildford, United Kingdom. [3]Institute of Facility Management, School of Life Sciences and Facility Management, Zurich University of Applied Sciences, Wädenswil, Switzerland. [4]Department of Humanities, Social and Political Sciences, ETH Zurich, Zurich, Switzerland. [5]School of Applied Psychology, Zurich University of Applied Sciences, Winterthur, Switzerland. [6]Institute of Public Health, School of Health Science, Zurich University of Applied Sciences, Winterthur, Switzerland

Background: The outpatient psychiatric sector in Switzerland faces significant transformation due to rising caseloads and the national 'outpatient before inpatient' directive. Despite growing interest in physical therapeutic environments, evidence on how therapy room design affects therapeutic processes remains limited, particularly in outpatient child and adolescent psychiatry.

Aims: This study investigated how the physical environment of therapy rooms influences the perceived quality of care in outpatient settings, based on therapists' assessments using the person-environment fit framework.

Methods/Approach: A concurrent mixed-methods design was employed across six outpatient child and adolescent psychiatry clinics in German-speaking Switzerland. Qualitative interviews were conducted with senior clinicians (N=16), alongside a quantitative online survey completed by therapists across disciplines (N=47). This study presents novel qualitative insights on physical environment impacts on therapeutic process.

Findings: Thematic analysis identified two higher-level themes. First, associations between good architectural design and therapeutic process, including architectural features shaping therapeutic functionality (organic materials, comfortable furniture) and spatial factors influencing therapy dynamics (layout flexibility). Second, mechanisms and psychological processes promoting person-environment fit, such as comfort, sensory load, privacy, and safety considerations.

Implications: Findings emphasize that therapeutic spaces must meet both functional and psychological requirements to support high-quality therapeutic work. The study offers evidence-based guidance for designing environments that enhance perceived quality of care provided by psychotherapists.

Importance and Originality: This research addresses a critical gap in understanding how physical environments affect therapeutic processes in child and adolescent outpatient psychiatry, providing novel evidence during a period of significant healthcare transformation in Switzerland.

---

210 The Healthcare Garden Assessment Tool for Evaluators (GATE): Development, testing, and future directions

Naomi Sachs
University of Maryland, College Park, United States. Therapeutic Landscapes Network, Saxmundham, United Kingdom

Background and Objectives: Healthcare facilities and designers are increasingly incorporating gardens and other outdoor areas to support the health and well-being of patients, visitors, and staff. These environments should be guided by the best available evidence and systematically assessed to confirm they meet the intended outcomes. However, there has been no validated tool for evaluating gardens in acute care hospital settings. To fill this gap, the Garden Assessment Tool for Evaluators (GATE) was created as a standardized measure for use by researchers, designers, and healthcare professionals.

Methods: The GATE consists of 86 items developed through a review of existing research, design standards, landscape audit tools, and expert input. The instrument was tested across 25 healthcare-related outdoor environments to assess scoring consistency and interrater reliability using Kappa statistics, intraclass correlation coefficient (ICC), and percentage of agreement.

Findings: Findings showed that the GATE has strong content and convergent validity, along with acceptable construct validity. Convergent validity was demonstrated by a strong correlation between two scoring approaches. Interrater reliability was supported by agreement levels ranging from 36% to 100% and generally high Kappa values. Lower-than-anticipated ICC values were likely influenced by missing data, limited variation in certain items, and site-specific challenges associated with the evaluated gardens.

Novelty and Implications for Research and Practice: The GATE is the only standardized measure for acute care hospital gardens. The evidence-based tool enables designers, researchers, and healthcare professionals to evaluate and improve healthcare gardens. It can also be used as a design and research tool.

Chair: Joy Agner
University of Southern California, Los Angeles, United States

---

219 Spatial configuration and institutional resilience in post-pandemic public libraries

Hyoran Park
Pai Chai University, Daejeon, Korea, Republic of

This study examines how architectural spatial configuration contributes to institutional resilience in public architecture under post-pandemic conditions, focusing on the relationship between spatial properties and patterns of user return. Using public libraries in Korea as a testing ground, the research investigates whether configurational design properties influence user re-engagement following the COVID-19 disruption. From 1,051 public libraries established before 2019, facilities were classified into recovery and non-recovery groups based on 2023 visitor data relative to pre-pandemic levels. Twenty representative cases were selected for in-depth spatial analysis using Visibility Graph Analysis (VGA).

The results reveal that recovery libraries consistently demonstrate higher spatial intelligibility, stronger integration, and superior entrance visibility than non-recovery counterparts, suggesting that spatial legibility and accessibility play a critical role in post-pandemic user behavior. The analysis identifies three recurring configurational design strategies—centralized transparency, linear connectivity, and compact efficiency—that transcend building scale and context. Rather than fixed prescriptions, quantitative indicators are proposed, including intelligibility values above 0.85, integration values exceeding 12, and entrance visibility ratios above 45%, as empirically grounded reference points associated with institutional recovery trends. By reframing VGA from an analytical evaluation tool into a design-informed methodological framework, this study advances space syntax research and provides architects with evidence-based configurational insights for designing resilient, user-centered public buildings.

---

297 Analysis of the relationship between spatial segmentation and visual characteristics in architectural spaces

Yuki Munemasa, Naoya Ichikawa
Yamagata University, Yonezawa, Japan

This study clarifies the relationship between the geometric characteristics of a view—such as openness, depth, and complexity—and "spatial segmentation," the subjective human consciousness of spatial unity and boundaries. In architectural planning, dividing space is a fundamental process. While physical partitions like walls are direct methods, designers often use geometric manipulations, such as floor level changes or alcoves, to encourage visual and psychological segmentation. Particularly in recent flexible public facilities, these geometric variations are crucial for accommodating diverse uses. However, because spatial segmentation relies on subjective perception, the external factors influencing it remain unclear, making it difficult for designers to achieve intended effects. Understanding how physical elements influence this process is essential for human-centered design.

Among various factors, this research focuses on the "visibility" of space as a primary source of information for spatial cognition. We employ the "Isovist" concept, proposed by Michael Benedikt, to quantitatively describe the physical environment from a human perspective. While Isovists are often applied in urban planning, this study utilizes 3D Isovist analysis to capture three-dimensional geometric characteristics, including vertical visibility, which is indispensable for understanding complex spatial experiences. The analysis targets viewpoints around atrium spaces where multiple floors are visible. By identifying the factors forming spatial segmentation through the quantitative scale of visual characteristics, this study proposes a new spatial evaluation method. The findings are expected to serve as a design indicator for human-centered architectural planning.

---

336 Tenant gaze behaviour in immersive virtual reality for retrofitting communication processes

Christiaan Benning, Habiba Mukhtar, Arno Freeke, Clarine van Oel
TU Delft, Delft, Netherlands

Effective communication with tenants is crucial for the successful performance of sustainable renewal projects. Recent developments in immersive modelling can take full advantage of the potential of visuals in explaining the retrofit process. By tracing what attracts attention, and what has not attracted attention, the current study aims to use eye-tracking to evaluate the quality of the immersive communication by investigating the allocation of attention to the immersive narrative to improve future immersive narratives. Allocation of attention can be either top-down or bottom-up and differs between experts and lay persons, hence the research question whether the allocation of attention of social tenants compares to that of experts or lay persons.

The study is part of the larger VR-Renovate project and developed a immersive model showing 6 consecutive phases in a retrofit project of a social housing project in the Netherlands (phases: orientation, preparation, demolition, plumbing, rebuilding, finishing). Cues were used in addition to narrative guidance to direct attention. Thirty-nine social tenants (mean age 68.9 years, SD = 14.4) immersed into VR while their gaze behavior was recorded using Tobii-integrated VR headsets. The data was analyzed in SPSS using linear mixed-effects modeling with repeated measurements. Results showed tenants relied in their visual search strategy tenants on an extended capacity of long-term working memory, as do experts.

Consistent with Kulkarni ea (2023) we found that when information is retrieved from long-term working memory, it attracts viewing even when the information is not relevant, as AOI of former retrofit phases kept attracting attention.

---

573 Making invisible communities visible: The role of youth clubs' built environment in young people's wellbeing

Lusi Morhayim, Emily Tse, Keri Ka-Yee Wong
University College London, London, United Kingdom

Youth club closures in the United Kingdom have been increasing, affecting disadvantaged populations. Despite their significance, there is a lack of research on the role youth clubs play in promoting or hindering the health and well-being of young people. We explore how the built environment of youth clubs influences young people's physical, social, and mental health, using an interdisciplinary approach.

Fifty-six young people aged 14–25 participated in walk-through interviews and completed a self-assessment questionnaire on their well-being. Preliminary findings highlight the key role social workers play in drawing young people to youth centres. Regarding the physical environment, we found

that multifunctional layout arrangements accommodate the diverse interests and needs of the youth. Youth centres provide an escape from overcrowded living conditions and provide access to private spaces for studying, tutoring, or reflection. Areas for group activities, sports facilities, and dedicated arts/music rooms promote skill development. Young people value safe, welcoming spaces which they see as a refuge from rigid rules. Versatile uses of limited space, combined with clutter (due to lack of funding) are perceived to be overwhelming and lacking identity.

The quality of the youth centre environments not only support young people's wellbeing, but may also enhance their long-term career prospects, while offering a safe alternative to spending time on the streets. The study emphasises the importance of the quality and quantity of youth club environments for the well-being of at-risk young people, highlighting the need for increased funding allocation and design processes that integrate youth perspectives.

---

768 Social architecture features to reduce isolation in mental health settings and introduction of a novel socio-spatial method

Joy Agner[1], Yousef Babish[1], Haley Churchill[2], Maileen Liu[1]
[1]University of Southern California, Los Angeles, United States. [2]Chaminade University of Honolulu, Honolulu, United States

Background: Environmental design to promote social connection in mental health settings has unrealized potential to improve health outcomes for people with serious mental illness, who are three times more likely than the general population to report loneliness. However, theory, methods, and empirical research are lacking on environmental design strategies to promote social connection.

Aims: This research advances theoretical and empirical knowledge on design features that foster social connection in mental health settings using place-based methods. First, we define core behavioral mechanisms influenced by social architecture and articulate their relationship to social connection. Second, we present social architecture features that emerged from an iterative, integrative mixed-methods study using a novel socio-spatial method that maps engagement and social interaction across place and time.

Method: Socio-spatial observational data, field notes, interviews, focus groups, and qualitative activity-mapping drawings were collected from three mental health Clubhouses in Hawai'i (N = 2,717) and iteratively analyzed to identify emergent social architecture domains.

Findings: Six social architecture domains were identified: overall design and layout; accessibility and inclusion; aesthetics; greenspace and connection to nature; quality of tools, materials, and food; and sensory features, with essential features and characteristics articulated within each domain.

Novelty and implications: Social architecture features articulated here can contribute to growing multidisciplinary research aimed at reducing isolation, inform place-based interventions to promote connection in mental health settings, and be utilized for self-study within mental health sites. Further, the novel socio-spatial method introduced here may be useful in a variety of studies examining environmental influences on behavior.

Chair: Rose Macaulay
University of Melbourne, Melbourne, Australia

---

89 "When the last tree falls, Man will follow": An exploration of urban green space and subjective wellbeing in Ghana

Laurence Cannings
University of Oxford, Oxford, United Kingdom

Urban nature has dramatically reduced in Ghana, driven by complex governance structures, land-ownership debates, and competing land-use priorities. However, despite the need being greatest in the Global South, most research occurs in the Global North. Capturing plural values of nature and factors associated with subjective wellbeing (SWB) is therefore vital for achieving recognitional justice and understanding residents' behavioural responses to urban nature recovery efforts. This project explores how exposure to, interactions with, and acknowledgement of urban green space (UGS) are associated with hedonic (life satisfaction, Cantril ladder) and eudaimonic (autonomy, competence, relatedness) outcomes, using quantitative survey analysis (Accra and Kumasi), qualitative interviews, and participatory photovoice (scheduled February 2026).

Despite strong associations between different SWB measures, statistical results reveal potentially distinct pathways linking UGS and SWB. High 'nature relatedness' and 'active involvement in decision-making' are associated with both hedonic and eudaimonic outcomes, while interacting with 'recreational parks' and 'natural spaces in religious grounds' only associate with hedonic and eudaimonic outcomes respectively. Participatory photovoice exercises and interviews will capture residents' lived experiences, memories, and perceptions of nature in relation to wellbeing, challenging and enriching statistical results.

The study is novel in its application of photovoice and exploration of shorter-term (hedonic) and longer-term (eudaimonic) SWB outcomes in the context of urban nature in Ghana. The findings advocate for greater community involvement in UGS decision-making, and for capturing positive and negative experiences, to support urban planning in acknowledging pluralistic values and diverse pathways for achieving wellbeing, while also preserving the rights of nature.

---

198 Greenspace quality and proximity are stronger predictors of mental health than quantity or access

Rebecca Collins[1], Kerry Brown[2], Booker Ogutu[1], Dianna Smith[1], Felix Eigenbrod[1], Becks Spake[1]
[1]University of Southampton, Southampton, United Kingdom. [2]Kingston University, Kingston Upon Thames, United Kingdom

As evidence grows for the mental health benefits of urban greenspaces, understanding which specific characteristics matter most is critical for guiding effective urban design and policy. This study compares multiple measures of greenspace exposure (proximity, quantity, access, and quality) to identify the strongest predictors of mental health change. Using individual-level data from the British Household Panel Survey (1991–2008), a Before-After-Control-Intervention (BACI) design was applied. The sample was restricted to individuals who moved neighbourhoods (n = 492). Changes in

greenspace exposure were linked to poor mental health risk (GHQ-12 ≥3) using generalised linear mixed models. Among seven models tested, those incorporating local bird species richness (as a proxy for quality) and proximity to public greenspace provided the best fit, outperforming models based on quantity and access. To our knowledge, this is the first BACI study comparing multiple greenspace metrics in an urban context. Findings highlight the importance of greenspace quality and proximity for mental health, suggesting these should be prioritised in urban planning and public health strategies.

---

403 Assessing nature features for healthier urban parks: Testing the psychological impact of quality certification criteria indicators

Marino Bonaiuto[1], Valeria Chiozza[1], Flavia Bonaiuto[2], Lorenzo Esposito[3], Uberta Ganucci Cancellieri[4], Valeria Vitale[2]

[1]Department of Psychology of Development and Socialization Processes, Sapienza University of Rome, Rome, Italy. [2]Department of Human and Social Sciences, Faculty of Social and Communication Sciences, Mercatorum University, Rome, Italy. [3]Department of Earth Sciences, Sapienza University of Rome, Rome, Italy. [4]University for Foreigners "Dante Alighieri" of Reggio Calabria, Reggio Calabria, Italy

Background: Urban parks provide opportunities for psychological restoration, yet little research systematically examined how specific natural elements shape users' perceptions across multiple outcomes.

Aims & Methods: This study investigated the effects of five environmental indicators – blue element, floral coverage at 25% or 50%, chromatic floral biodiversity, and faunal biodiversity – on the evaluations of urban park images compared to a baseline park image. A sample of 200 Italian adults participated in a within-subject online survey, rating images on perceived restorativeness, place perception, liking, desire to visit, uniqueness, aesthetic value, restorative qualities, emotions, and place selection for emotion regulation. We also examined whether place wellbeing affordances (naturalness, maintenance, safety, familiarity) mediated the effects of natural environment indicators, and explored age and gender differences.

Findings: Results showed that images featuring indicators were evaluated more positively than the baseline across most outcomes, with blue elements and biodiversity features producing the strongest effects. Place wellbeing affordances partially mediated these effects, highlighting the role of perceived environmental quality in promoting positive experiences. Socio-demographic analyses revealed that younger adults generally rated images more positively, while older participants showed higher evaluations of uniqueness, aesthetic value, and desire to visit. Women were more sensitive to specific features, particularly blue elements and biodiversity, in their assessments of restorativeness, pleasantness, and relaxation.

Novelty and Implications: Findings provide evidence that specific natural features enhance restorative outcomes in urban parks, and underscore the importance of incorporating blue elements and biodiversity in urban design to guide effective urban planning in supporting user wellbeing.

---

263 Integrating GIS and real-time emotions to examine links between urban nature and wellbeing

Keren Kaplan Mintz[1,2], Dana Katz[3], Dani Ben-Zvi[2]

[1]Tel Hai Academic College, Kiryat Shmona, Israel. [2]University of Haifa, Haifa, Israel. [3]ELTE Eötvös Loránd University, Budapest, Hungary

Background: Prior research has established the benefits of natural areas to well-being, and the psychological costs of urban living. Yet, little is known about how urban and natural features jointly influence emotions in urban settings. Moreover, the roles of subjective perceptions versus objectively measured environmental characteristics in shaping momentary emotional experiences remain underexplored.

Aims: This study had two main objectives. First, to examine the effects of two types of environmental components - urban and natural - on individuals' momentary emotional experiences. Second, to compare how subjective perceptions of the environment relate to emotional experiences with the associations observed for objectively measured, GIS-based environmental indicators.

Method: Thirty participants provided 392 momentary reports via smartphone-based experience sampling. Multiple daily questionnaires captured participants' perceptions of their immediate surroundings, location, and emotional experiences, including positive affect, negative affect, and stress. Two separate multi-level regression analyses were conducted: one for subjective environmental reports, and one for objective GIS-based measures.

Findings: Exposure to natural components was associated with increased positive affect and reduced stress, whereas exposure to urban components predicted lower emotional well-being. Notably, associations from subjective and objective environmental measures showed convergent patterns, indicating that both types of data capture meaningful links between urban environments and emotional experiences.

Novelty: This study highlights the value of assessing both perceived and objectively measured environmental characteristics, demonstrating their complementary insights. Findings underscore the importance of differentiating natural and urban components in urban research and planning, and illustrate the utility of experience sampling methods for capturing real-time environment-emotion interactions.

---

247 Beyond exposure: Pathways between urban greening, nature connection and wellbeing in Australian policy frameworks

Rose Macaulay, Rebecca Toohey, Stephanie Lavau, Kathryn Williams
University of Melbourne, Melbourne, Australia

Urban greening initiatives are increasingly positioned as strategies to improve health and wellbeing in cities. While academic research has long acknowledged the role of psychological connections to nature (place attachment, nature connectedness) in shaping wellbeing, environmental policy reviews suggest that wellbeing frameworks tend to emphasise physical connections (access, exposure, proximity) over psychological dimensions of human-nature relationships. How this applies to urban greening policy specifically remains unclear. This study examines how Australian urban greening and biodiversity strategies conceptualise and evaluate wellbeing and nature connection. We conducted a structured review of 43 policy documents from state and local governments across Australia, analysing how strategies define and operationalise these concepts. We found that while strategies acknowledge multiple dimensions of wellbeing and recognise both physical and psychological connections to nature, evaluation practices focus almost exclusively on biophysical outputs such as canopy cover and park access. Psychological connections to nature were absent from evaluation targets, and most strategies lacked indicators assessing medium- to long-term wellbeing outcomes. This highlights a significant gap between how wellbeing and nature connection are conceptualised and how they are evaluated in practice. We provide recommendations for integrating psychological dimensions of nature connection into urban greening policy, including clearer articulation of causal pathways, consistent conceptualisation, and development of evaluation frameworks that capture both nature connection and wellbeing as measurable outcomes.

FLASH PRESENTATIONS:
Sustainable systems

Tues 30 June, 14:15 – 14:55, 80 MS 02

Chair: Kayleigh Wyles
University of Plymouth, Plymouth, United Kingdom

---

442 Climate justice through Indigenous Knowledge system

Mireya Jocelyn Gomez-Nava, Adriana Portella, Mary Menton
Heriot-Watt University, Edinburgh, United Kingdom

This research examines how Indigenous women in Mexico contribute to climate change adaptation through their roles as water managers and knowledge transmitters.

While Indigenous Knowledge (IK) is increasingly recognised in international frameworks such as the Paris Agreement in 2015, its integration into formal climate planning remains limited. Research to date has been geographically uneven, with Latin American experiences underrepresented, particularly those of Indigenous women, whose perspectives are often framed instrumentally rather than critically examined.

This study addresses this gap by focusing on the lived experiences and situated knowledge of Indigenous women in rural and peri-urban communities in southern Mexico City. It examines how shifting rainfall patterns and broader socio-environmental dynamics alter women's responsibilities in water management and agricultural livelihoods. Adopting a participatory and decolonial methodological framework, the project seeks to co-design rainwater harvesting workshops and community training pathways with women, enhancing resilience while reducing dependency on external actors.

The research aimed to (1) analyse how climate variability affects women's roles in water governance, (2) understand how Indigenous Knowledge has supported their adaptation to climate change impacts within the community, and (3) present workshops developed in the community grounded in their IK. Methods will include qualitative approaches such as photovoice and mental mapping, ensuring that data collection and analysis reflect community priorities.

By situating Indigenous women as central actors in climate adaptation, this research challenges dominant narratives and contributes to more inclusive, gender-responsive, and culturally grounded climate strategies, advancing both academic debates and policy frameworks.

---

73 Green energy, greener habitats: Exploring public perceptions of the balance between utility-scale photovoltaics and biodiversity conservation

Robert Gennaro Sposato[1], Rafaela Klic[2], Nina Hampl[2]
[1]University of Klagenfurt, Klagenfurt am Wörthersee, Austria. [2]University of Graz, Department of Environmental Systems Sciences, Graz, Austria

The transition from fossil based to renewable energy systems requires a broader system perspective that includes utility scale photovoltaics (USPV), yet public perceptions of these installations remain underexplored. Large scale renewable energy infrastructure can adversely affect local biodiversity, creating a green on green dilemma in which clean energy goals intersect with nature conservation and social acceptance is influenced by tensions between local environmental concerns and global

climate objectives. This study examines how residents evaluate USPV in ecologically sensitive environments and which factors support or hinder acceptance. A web based survey was conducted among residents living in or near three Austrian biosphere reserves (n = 512). Participants answered questions on attitudes toward renewable energy and validated psychometric scales capturing environmental concern, perceived impacts of USPV, energy justice values, beliefs about renewable energy technologies, and activist intentions. The survey incorporated a randomised framing experiment and a twelve-task choice based conjoint to assess preferences for USPV characteristics, embedded in an interdisciplinary study design informed by place attachment, energy justice, and stakeholder input from policy institutions, the energy sector, and environmental organisations. Findings show high general support for photovoltaic technologies but notably lower approval for USPV and USPV within biosphere reserves. Land use was the most influential project attribute, followed by biodiversity measures and visibility. Psychological factors, including perceived social norms and perceived impacts, significantly predicted support. The study provides novel empirical insights into public perceptions of USPV in protected landscapes and supports the development of ecologically sensitive and socially accepted solar strategies.

---

116 Telehealth, its role in the greening of healthcare systems, and the responsibility of psychological researchers: A theoretical reflection

Marco Lezcano, Margherita Pasini, Maria Gabriella Landuzzi
University of Verona, Verona, Italy

Background: Telehealth encompasses various healthcare services that focus on reducing the need for in-person meetings between physicians and their patients by providing digital services. The initial deployment of these technologies was intended to bridge the health services gap between rural and urban areas. Concurrently, they were meant to create stable and resilient communication infrastructures that would withstand the more frequent adverse natural phenomena caused by climate change.

Aims: Through in-depth literature research, we aim to provide early evidence on the role of telehealth in greening healthcare by reducing CO2 emissions and promoting sustainable lifestyles. Ultimately, we will provide evidence on the responsibilities that psychological researchers play in the development and promotion of green policies.

Findings: The development of digital services has proven to have consequences in reducing the greenhouse gases (GHGs) produced by patients' travel to healthcare facilities. In 2022, a study on the Stanford Health Care center highlighted how the introduction of telehealth managed in one year to reduce by 36% the GHGs produced by the facilities (roughly 17000 metric tons of CO2), mostly due to transportation. Concurrently, a 2025 study investigated the “expensiveness” of private movements for both urban and rural patients to clinics, estimating CO2 emissions at approximately 7982 g and 17454 g, respectively.

Implications: The acceptance and use of environmentally sustainable innovations, such as telehealth, can only be sustained and promoted through the cooperation of various stakeholders, including citizens, policymakers, and government officials, all guided by rigorous, contextual, and culturally sensitive evaluations informed by psychological research.

---

667 Taking responsibility: Managerial accountability and worker wellbeing in supply chains

Franziska Brack, Jacob Hörisch
Leuphana University, Lüneburg, Germany

Focal companies are increasingly expected to take responsibility for social and environmental conditions for workers in their supply chains. Yet managers with decision influence over sourcing and supplier governance face competing demands (e.g., cost, speed), which may affect whether they acknowledge responsibility and support improvements at suppliers.

This study examines determinants of when managers take responsibility for workers' conditions in their supply chains. We ask: Which organisational and situational factors increase or decrease managerial responsibility-taking? What psychological mechanisms explain responsibility-taking versus responsibility avoidance? Under which accountability conditions are managers more likely to translate sustainability goals into actions? We propose that performance pressure can reduce responsibility-taking through psychological justification processes (e.g., moral disengagement) and that accountability systems (e.g., clear ownership) buffer these effects.

We plan a quantitative survey of managers with decision influence over the supply chain. Measures will capture perceived commercial pressure, accountability conditions, psychological mechanisms of moral disengagement, and responsibility-taking (including responsibility acceptance, willingness to support improvements along the supply chain and actual measures managers take). Analyses will use mediation/moderation tests. We anticipate that higher commercial pressure is associated with lower responsibility-taking, largely via psychological justification processes, and that stronger accountability conditions weaken these relationships.

Aligned with the theme "Sustainability as wellbeing", this study links worker wellbeing to micro-level determinants of responsibility in supply-chain decision-making. It contributes by clarifying when responsibility is taken versus deflected and offers practical implications for designing incentives, accountability structures, and escalation pathways that enable managers to support substantive improvements in supplier working conditions.

FLASH PRESENTATIONS:
Natural and urban environments

Tues 30 June, 15:05 – 15:45, 80 MS 02

Chair: Agnès Patuano
Wageningen University, Wageningen, the Netherlands

---

299 Connecting with the Amazon: Using a barefoot trail to prepare young people for nature-connection experiences

Fernanda Silvestrim[1], Maria Ines Higuchi[2], Isabella Ono[2]
[1]Universidade Federal do Amazonas, Manaus, Brazil. [2]Instituto Nacional de Pesquisas da Amazonia (INPA), Manaus, Brazil

This study investigated the sensory, emotional, and psychological readiness of university students with limited contact with nature as they experienced a barefoot walk on a trail constructed in an urban green park. The study preceded a nature-connection immersion, given the significant distance that most young people in the Amazon region maintain from the Amazon rainforest itself. The sensory trail was built as a winding 21m² circuit composed of 19 segments made from residues of Amazonian woods with different textures, shapes, and colors. Observation techniques and semi-structured interviews were used to examine the psychosocial impacts of this individually conducted experience. The results show that participants (N=110) initially expressed discomfort, fear of injury, insecurity, and a sense of strangeness while walking barefoot. However, upon completing the circuit, most reported unexpected pleasure, feeling relaxed and experiencing a desire to repeat the trail walk, even

expressing interest in spending more time in natural environments. This study suggests that simple sensory interventions using local materials can reduce apprehension and increase the desire for greater nature contact, thereby enhancing nature connectedness. The use of wood residue also highlights an innovative and sustainable approach to nature-based public health interventions, which may offer a valuable pathway for promoting nature-connection activities.

---

72 From perception to appraisal: Hierarchical brain responses to natural and built features in urban environments

Isabelle Sander[1,2], Carolina Zähme[1], Aleksandrs Koselevs[1], Simone Kühn[3,4], Klaus Gramann[1]
[1]Technische Universität Berlin, Berlin, Germany. [2]Max Planck School of Cognition, Leipzig, Germany. [3]Max Planck Institute for Human Development, Berlin, Germany. [4]Clinic for Psychiatry and Psychotherapy, University Medical Center, Hospital Eppendorf, Hamburg, Germany

Exposure to urban rather than natural environments has been linked to elevated stress and diminished well-being, prompting interest in the underlying mechanisms and influences of specific urban elements. This study investigated how semantic and lower-level visual characteristics of urban scenes influence subjective experience and underlying neural processes. A total of 63 adults viewed street-level photographs depicting Berlin environments with varying proportions of vegetation, buildings, vehicles, and sky visibility while electroencephalography (EEG) was recorded. Subjective ratings indicated that urban scenes with more greenery compared to built elements were consistently perceived as more positive. In terms of lower-level image features, images with higher non-straight edge density also led to scenes being perceived as more positive. In contrast, more visible sky area and a higher mean metric depth led to more negative scene appraisal. On a neural level, urban scenes with higher greenery/built ratios enhanced visual evoked P1 amplitudes, while higher straightedge density led to more pronounced N1 amplitudes. Further analysis showed that later P3 and LPP components predicted subjective ratings on higher-level evaluative but not basic affective dimensions. These results partially replicate previous studies, suggesting that urban greenery exerts an effect on subjective well-being and influences early visual processing. Moving forward, neurourbanism research should employ more diversified stimuli and leverage immersive or in situ paradigms to refine our understanding of the relationship between greenery in urban environments and well-being to inform evidence-based urban design strategies.

---

397 What children look for in a habitat: Testing the savanna hypothesis in 3- and 4-year-olds using a multimodal eye tracking paradigm

Elena Isenberg[1], Marlena Mayer[1], Simone Kühn[1,2]
[1]Max Planck Institute for Human Development, Berlin, Germany. [2]Universitätsklinikum Hamburg-Eppendorf, Hamburg, Germany

This research project explores landscape preferences in 3- and 4 - year old children using a multimodal paradigm. The goal is to investigate the claims of the savanna hypothesis, which posits that humans, having evolved on the savanna, have an innate preference for the savanna landscape. When the savanna hypothesis was tested previously, 8-year old children preferred the savanna landscape, but adults did not, leading researchers to conclude that experience shapes landscape preference in adulthood. This study extends previous research by sampling younger children, measuring eye movements, and adapting methods to this age group. Because young children have fewer experiences in different environments than adults, this study is designed to tease apart the different contributions to landscape preferences in children. Two key research questions guide this study: do children prefer the savanna landscape over other landscapes and do different landscape types evoke differential looking behavior? In our study, we record eye movements using a TOBII Pro Spectrum 1200 while children view images from 6 different biomes: savanna, desert, rainforest,

deciduous forest, coniferous forest, and park. After viewing each image, we ask the children to rate the image on a 3-point pictorial Likert scale. Data collection is ongoing, with a final expected N of 50. We anticipate that, as in previous research, children will have different landscape preferences than adults. We also anticipate that there will be longer fixations for images of landscapes that are more open, like deserts or savannas, compared to landscapes that are more closed, such as forests.

---

552 Understanding user preferences for shared follow-me delivery robots: Insights from a conjoint analysis in two Austrian cities

Viktoria Schett, Nina Hampl
Department of Environmental Systems Sciences, University of Graz, Graz, Austria

In the face of rapid urban growth, environmental pressures, and increasingly congested transport networks, autonomous micro-vehicles (AMVs) for goods transport are emerging as a promising response to last-mile transportation challenges. In this context, two Austrian cities (Weiz and Feldkirchen) are piloting shared follow-me delivery robots (SDRs follow)—AMVs integrated into public sharing systems—that autonomously follow pedestrians and transport their goods.

To examine the factors shaping their acceptance and potential use, this study builds on an online questionnaire with an integrated Conjoint Value Analysis (CVA), including 443 participants (Weiz n=334; Feldkirchen n=109). The questionnaire explored mobility and shopping behaviors, as well as the intended use and preferences of SDRs follow. The CVA specifically examined path attributes influencing their willingness to use, including starting points, route lengths, and topography.

Across both cities, total route length emerged as the dominant attribute (>50% relative importance). Short distances (<1 km) markedly increased the likelihood of using an SDR follow. Flat topography consistently increased the likelihood of use, though its relative importance varied across the cities. Cluster analyses revealed three recurring user segments: (1) users preferring short and flat routes, (2) indifferent users with low use probabilities, and (3) “sportive long-distance” users tolerating longer and steeper routes.

The study demonstrates that SDR follow use is strongly influenced by the spatial characteristics of routes, providing insights into user preferences and guiding both future research and the practical deployment of autonomous transport solutions in urban contexts.

POSTER CAFÉ 1

Tues 30 June, 15:45 – 17:00, AP Foyer

33 A study on the optimal distance between humans and plants according to the number of plants and the size of the space

Hanui Yu[1], Takeshi Akita[2], Kotaroh Hirate[1]
[1]The University of Tokyo, Tokyo, Japan. [2]Tokyo Denki University, Tokyo, Japan

Biophilic design using plants promotes workers' psychological and physiological well-being, leading to widespread use in offices. However, studies on the optimal distance between humans and plants remain limited. This study aims to examine the optimal human–plant distance in relation to the number of plants and the size of the rest space.

The experiment consisted of 18 conditions combining three levels of distance, three levels of plant quantity, and two spatial sizes, along with two additional conditions without plants, a total of 20 experimental settings. Participants observed each VR environment through a head-mounted display (HMD) and conducted impression evaluations using an 11-item, seven-point semantic differential scale. In addition, eye fatigue was assessed before and after the experiment using a critical flicker fusion frequency (CFF) measurement device to confirm physiological stability.

The CFF results remained within the normal range (above 35), indicating the VR experiment did not induce eye strain. The results indicate that the presence of plants significantly enhances the overall evaluation of rest spaces, with the optimal distance between people and plants being approximately 3 meters regardless of space size, highlighting the significant influence of plant-related factors. However, the optimal number of plants varies according to the size of the space. Additionally, smaller spaces received higher evaluations regarding feelings of pressure. This tendency appears to be influenced by psychological comfort and proximity perception in smaller environments.

These findings suggest that considering the optimal distance and plant quantity in biophilic design enhances psychological relaxation and spatial efficiency in rest environments.

---

63 Designing for recovery in psychiatric care: Development of a Patient Perceived Environment Scale (PPES) and a Recovery-Oriented Environment Inventory (ROEI)

Claire Daugeard[1,2], Clara Weber[3], Christoph Hölscher[2]
[1]CNP, Neuchâtel, Switzerland. [2]ETH, Zurich, Switzerland. [3]ZHAW, Zurich, Switzerland

In contemporary psychological accounts of recovery, mental health is considered a biopsychosocial process, in which the built environment, such as psychiatric care facilities, is not just a backdrop but a determinant of experience and outcomes trajectories. Empirical work indicates that architectural features, such as daylight and visual connection to nature, acoustic control, spatial configuration, privacy gradients, and affordances for engagement or withdrawal, can shape patients' perceived safety, stress reactivity, and the quality of staff–patient interaction, processes that align with contemporary recovery constructs (connectedness, hope, identity, meaning, empowerment; CHIME). Yet assessments

of psychiatric settings remains conceptually and psychometrically limited. Methodologically, current measures show three recurrent limitations. First, construct conflation: items blend interpersonal care and organizational factors with spatial properties, obscuring the specific contribution of design. Second, psychometric insufficiency: content validity is often assumed rather than demonstrated;

structural validity, reliability (including inter-rater reliability for observational tools), measurement invariance, and sensitivity to change are inconsistently reported. Third, context specificity and obsolescence: tools developed for other populations or eras exhibit ceiling/floor effects and limited ecological validity in contemporary psychiatric units. This project addresses these gaps by developing two complementary, recovery-oriented instruments explicitly focused on the physical environment: a patient rating scale that captures how inpatients perceive recovery-supportive environmental attributes, and a practitioner-rated inventory that audits observable design features grounded in evidence-based design principles. Together, they are designed to provide a psychometrically robust bridge between architectural and design features and how spaces are experienced in the context of mental health recovery.

---

99 Applying Moral Foundations to understand public acceptability of urban spatial transformations

Iker Etxarte-Sunsundegi, Oriol Marquet, Monika Maciejewska
Universitat Autònoma de Barcelona, Barcelona, Spain

Urban spatial transformation policies, such as pedestrianisation schemes or bike lanes, have gained significant prominence in recent years as essential tools for promoting sustainable mobility and urban well-being. However, these interventions often generate opposition and polarisation between segments of the population and public authorities. Such contestation can undermine not only their implementation and continuity, but also the overall ambition of these interventions.

Understanding the factors that shape public acceptability is therefore crucial for advancing durable urban transformations. In this research, we will focus on the communicative dimension, examining how the way an intervention is justified or communicated affects its acceptability.

We draw on the Moral Foundations Theory (MFT) to test whether text-based framings and moral manipulations can have a measurable effect on the acceptance/rejection of different urban interventions. To do so, this study employs a vignette experiment conducted with a sample of 800 residents of the Barcelona Metropolitan Area, in which each vignette is anchored in one of the frames proposed by the MFT: care/ harm, fairness/ cheating, loyalty/ betrayal, authority/ subversion, sanctity/ degradation and liberty/ oppression.

The research, still in the data collection phase, aims to contribute to an underexplored area of literature by examining the role of moral framings in shaping the acceptability of urban transformations. The study seeks to better understand how acceptability can be enhanced, with a particular focus on targeted communicative strategies. Such strategies could help authorities increase support for these interventions, particularly among groups that are currently more critical or resistant.

---

101 Detecting typologies of coastal recreational visitors in England and predicting their maximum wellbeing: A machine learning analysis

Carya Maharja[1], Kayleigh J. Wyles[1], Ian Baxter[2], Melanie C. Austen[3], Nicolas Farina[4]
[1]School of Psychology, University of Plymouth, Plymouth, United Kingdom. [2]School of Social Sciences, Heriot-Watt University, Edinburgh, United Kingdom. [3]School of Biological and Marine Sciences, University of Plymouth, Plymouth, United Kingdom. [4]Peninsula Medical School, Faculty of Health, University of Plymouth, Plymouth, United Kingdom

England's coastlines embody a peculiar contradiction: whilst attracting hundreds of millions of recreational visits annually, those often excluded from coastal recreation derive higher wellbeing benefits when they do engage. This paradox exposes the inadequacy of linear proximity-access-benefit assumptions prevalent in public health interventions. We challenge this reductionism by

treating coastal recreation as a complex system in which individual, social, and environmental factors interact recursively to generate heterogeneous wellbeing outcomes.

This presentation focuses on secondary data analysis of five years of People and Nature Survey (2020 – 2024), nationally representative of England (pooled cross-sectional n ≈ 98,000 observations). We employ supervised machine learning, specifically random forests, to classify England's adult population into distinct typological profiles that cross visitation frequency (highly regular/regular/irregular visits) with subjective wellbeing outcomes (high/medium/low wellbeing). Subsequently, we apply reinforcement learning, adapting techniques from autonomous systems engineering, to simulate if/how each typology could adjust their recreational visits to maximise their subjective wellbeing. This methodological innovation positions recreational activities as behavioural patterns that can be computationally simulated to identify the maximum level of wellbeing each typology can possibly obtain from coastal recreation.

Whilst analysis is ongoing, our preliminary findings indicate that wellbeing benefits may be contingent upon typological membership, suggesting that one-size-fits-all interventions may inadvertently perpetuate existing inequalities. The research thus demonstrates how computational approaches can illuminate the hidden architecture of human-sea relations, supporting the design of differentiated, equity-oriented policies that transform coastal environments from sites of inadvertent exclusion into democratised spaces of deliberate, equitable wellbeing.

---

130 Understanding perceived effectiveness versus actual effectiveness for diverse climate actions.

Yasmin Sachdev, Lorraine Whitmarsh
University of Bath, Bath, United Kingdom

Achieving net zero requires widespread behavioural transformation, yet public engagement is often misdirected. Perceived effectiveness (PE)—believing that an action meaningfully contributes to mitigation—predicts engagement, yet seldom aligns with actual emissions reductions. Although such misalignments are well documented, little is known about why they arise or how they shape engagement across private- and public-sphere actions. This mixed-methods research investigates the scope, causes, and behavioural consequences of misaligned PE. Study 1 analysed UK survey data (*N*=1,053), comparing PE ratings with estimated emissions reductions for 12 climate actions. Participants overestimated low-impact actions like turning off lights and recycling, and underestimated high-impact actions like avoiding meat consumption. Generalised additive models showed that PE predicted engagement across actions, emphasising the consequences of inaccurate beliefs. Study 2 used diverse focus groups (*N*=15) to explore how PE is formed and applied in everyday decision-making. Thematic analysis suggested that misalignments reflect heuristic processing and motivated reasoning under limited knowledge. While PE influenced engagement, its utility was conditional, weighed against effort, capability, and conflicting priorities. For public-sphere behaviours, activism was considered less effective due to low visibility and feedback, whereas influence-based actions were appraised favourably as effective action pathways and sources of support. Across contexts, PE was shaped by a sense of systemic futility and perceived structural accountability gap, whereby high-impact institutions and actors fail to act. These findings advance understanding of how misaligned PE arises and persists, highlighting the need for interventions addressing cognitive biases, relational influence, and structural contexts shaping misperceptions of effective climate action.

---

159 From housing needs to visual outputs: Satisfaction evaluation of AI-generated residential images

So Young Lee[1], Ji Yoon Kang[2], Seo Yeon Kang[1], JiSu Ryu[1]
[1]Chung-Ang Unversity, Seoul, Korea, Republic of. [2]Chung-Ang University, Seoul, Korea, Republic of

The adoption of intelligent technologies is transforming design processes. Unlike conventional quantitative surveys or clustering methods, Large Language Models (LLMs) enable multidimensional qualitative analysis of freely described user housing needs. This study aims to evaluate (1) how well AI-collaborative design outputs reflect user requirements and (2) user satisfaction with AI-generated residential space images. Approximately 50 young adults participated in: (a) interviews on residential needs, (b) generation of residential images based on extracted requirements, and (c) evaluation of images produced by three different programs. A semantic differential adjective scale was used to assess requirement-fit, satisfaction, and perceived congruence. Data were analyzed using SPSS 27. Results indicate high satisfaction with both the keywords derived from LLM-based requirement extraction and the generated images. Congruence differed by adjective type; alignment was stronger for descriptors related to form and design characteristics. This study demonstrates that AI can support rapid requirement extraction and immediate evaluation through generated spatial images. It offers a practical pathway to faster and more accessible participatory design, enabling iterative improvement through user feedback and enhancing evidence-based residential design decision-making.

---

256 Restorative interventions in workplace environments: A systematic review of theories, methods, and environmental exposures

Camilla Marossi, Marco Lezcano, Margherita Brondino
University of Verona, Verona, Italy

Work environments play a crucial role in shaping employees' health and well-being, as workers spend most of their time indoors. In recent years, increasing attention has been devoted to restorative workplace environments, particularly those integrating natural elements and biophilic design; however, existing evidence remains fragmented across theoretical frameworks, methodological approaches, and measurement strategies. This systematic review maps how restorativeness is conceptualized and investigated in workplace settings, focusing on theoretical grounding, types of restorative exposures, study designs, outcome measures, and methodological gaps. Following PRISMA guidelines, a systematic literature search was conducted in PsycINFO, PubMed, Scopus, Web of Science using a PICOS-based strategy. Thirty-three empirical studies conducted in occupational contexts were included. Data were extracted on study characteristics, theoretical frameworks, intervention types, outcomes, and methodological quality. Results show a strong reliance on Attention Restoration Theory and Stress Recovery Theory, with most studies examining short-term affective, cognitive, and performance-related outcomes. Real indoor nature and outdoor exposures were the most frequently investigated interventions. Despite a generally moderate-to-high methodological quality, validated measures of perceived restorativeness were rarely employed, suggesting that restorative qualities are often assumed rather than empirically verified. Moreover, most samples consisted of white-collar workers, highlighting the need for research in more diverse work environments, such as industrial settings. Overall, the findings underscore the need for greater theoretical coherence and consistent use of validated measurement tools. Framing the physical work environment as an active organizational resource within the Environmental Demands-Resources framework may support more rigorous research and evidence-based workplace design and organizational practices.

---

314 Environmental ambassadors or stewards? Examining identity change through wildlife travel experiences

Rhoslyn Davies[1], Christy Hehir[2], Xavier Font[1], Chris Jones[3]
[1]University of Surrey, Guildford, United Kingdom. [2]University of Surrey, Guildford, United Kingdom. [3]University of Portsmouth, Portsmouth, United Kingdom

Transformational travel has been proposed as a way for the travel industry to make a lasting and meaningful difference for people and planet by shaping traveller's attitudes, values and

behaviours. Growing interest in the topic has focused on understanding the process and triggers of transformation. However, limited attention has been given to defining the mechanisms underpinning transformation or to examining the assumption that travel leads to sustained behavioural change. Recent research introduced identity change as a new conceptual lens for transformational travel, demonstrating how shifts in self-identity led to new pro-environmental behaviours.

Extending this perspective, the current study examines identity re-organisation following wildlife-based travel. Using pre- and post-travel surveys, the study analyses changes in the centrality and salience of two role-based environmental identities: ambassador and steward.

Incorporating a post-travel quasi-experimental intervention, the study also examines whether simple reflective prompts enhance identity shifts, increasing the potential for transformation including long-term pro-environmental behaviour change. Wildlife trip participants, recruited through a partnership with a UK-based travel company, form the target sample for the study. Fieldwork is in progress (n=92 completed, target n=102).

Using identity process theory, the study aims to extend theoretical understanding of both the nature and mechanisms of transformation through travel. Specifically, we anticipate that some travellers will experience shifts in the environmental components of their identities and that post-travel reflection will further support the transformational effect of identity reorganisation and integration. As such the study will also offer practical insights relating to the effective design of transformational travel experiences.

---

171 Exploring classroom climate together: Child-led learning and indoor environmental quality

Gabriela Zapata-Lancaster
Cardiff University, Cardiff, United Kingdom

The indoor environmental quality (IEQ) in schools affects children's health, comfort, learning, and energy use, yet pupils are rarely engaged in understanding or managing these environments. Linking building performance, sustainability, and education offers opportunities to foster early environmental awareness and pro-environmental practices. This study explores how combining monitoring with participatory, technology-supported workshops can enhance children's understanding of classroom climate, building design, and everyday actions that support comfortable and sustainable indoor environments in classrooms. An interdisciplinary mixed-methods approach was implemented in three primary schools. Participatory workshops engaged pupils (aged 7–11) in citizen-science-inspired activities, using scientific instruments to take real-time measurements and relate them to sensory experience. Older pupils also interacted with a digital twin model of a classroom, comparing the observations in their own classrooms with the data from the digital classrooms. Children were prompted to reflect about the differences and similarities in IEQ measurements and explain them in relation to architectural and design feature observations of compared classrooms. The activities showed that integrating measurements, sensory experience, and the digital representation enabled pupils' to articulate concepts of IEQ and supported meaningful discussion of ventilation, occupancy, comfort and classroom management. Children found some parameters (e.g. temperature and lighting) easier to interpret than others. The study demonstrates the value of coupling environmental monitoring with participatory and digital learning to connect sustainability, building design, and everyday practices. This study highlights implications for people–environment research, school design, and educational strategies that empower children as active participants in healthier, more sustainable built environments.

---

317 Beyond residence-based exposure: Activity-Space-based exposure to Third Places and chronic stress in an urban population

Allyson Missling, Camille Perchoux, Olivier Klein
LISER, Esch-sur-Alzette, Luxembourg

Chronic stress is a major public health concern globally. In urban societies, stress-related health risks are shaped not only by individual characteristics but also by cumulative exposure to everyday environments encountered through daily mobility. Most existing research uses static, residence-based measures, neglecting how mobility shapes access to supportive settings. This study examines whether exposure to *Third Places* - informal social and leisure spaces beyond home and work - is associated with chronic stress when exposure is measured across individuals' daily activity spaces, and whether a theoretically informed typology capturing distinct mechanisms of stress reduction improves assessment of environmental exposure.

Cross-sectional data from 1,143 adults in Luxembourg were drawn from the FragMent study. Weekly activity locations, visit frequency, duration, and transport modes were collected using a map-based questionnaire. Third Places were classified according to function, financial accessibility, and spatial context - dimensions linked to mechanisms of restoration. Exposure was operationalized using an unweighted activity space model and a behaviorally weighted activity space model. Chronic stress was assessed using the Perceived Stress Scale (PSS-10). Associations were examined using covariate-adjusted linear regression models.

Preliminary analyses reveal substantial interindividual variability in exposure to different Third Place types. Behaviorally weighted exposure measures are expected to show stronger and more consistent associations with perceived stress than unweighted activity space metrics.

By integrating the activity space concept with a mechanism-oriented typology of Third Places, this study advances methods for examining people-environment relationships and highlights the importance of everyday urban settings for psychological well-being.

---

341 Participation for One Health: Designing and evaluating participatory science outreach and science education interventions in an evidence-based manner

Jana Katharina Köhler, Julia Holzer
Ludwig Boltzmann Gesellschaft, Vienna, Austria

Environmental, animal, and human health are deeply intertwined and need to be considered together—sometimes referred to as the One Health approach. For example, poor environmental health (e.g., increasing temperatures) can draw animals into previously foreign habitats (e.g., the Tiger Mosquito to Europe), where they can transmit new diseases to humans (e.g., Zika virus)—thus potentially causing pandemics. Experts agree that for pandemic preparedness, we need to monitor pathogens with pandemic potential, but we also need to bring science and society closer together for public acceptance of pandemic measures. To achieve the latter, we need effective science outreach and science education interventions around One Health.

At the *Ludwig Boltzmann Institute for Science Outreach and Pandemic Preparedness*, we develop a psychological framework for guiding the design and evaluation of participatory science outreach and science education interventions around One Health issues (e.g., community science projects). In the framework, we consider psychological constructs relevant to the success of such interventions in terms of influencing attitudes towards science and science-society relationships positively. Upon developing the framework, we draw from educational and motivational psychology as well as theories of public understanding of science and collaborate closely with an interdisciplinary team of community science practitioners. In our contribution, we introduce the constructs that constitute the framework

and present assumed pathways through which the constructs lead to desired outcomes—thus presenting an initial, evidence-based theory of change.

---

328 Using icon arrays to improve flood risk map comprehension and support community preparedness

Eve Norris[1,2], Jordan Harold[1,2], Irene Lorenzoni[2,3,4], Kenny Coventry[1]
[1]School of Psychology, University of East Anglia, Norwich, United Kingdom. [2]Tyndall Centre for Climate Change Research, University of East Anglia, Norwich, United Kingdom. [3]School of Environmental Sciences, University of East Anglia, Norwich, United Kingdom. [4]Society and Sustainability (3S) Research Group, University of East Anglia, Norwich, United Kingdom

Flooding can be a devastating natural hazard, and climate change is expected to increase both its frequency and severity. However, only 45% of people in UK flood-prone areas are aware of their risk. Effective communication is therefore essential to improve understanding of and responses to risk. The Environment Agency uses qualitative categories (e.g., “high chance”) to communicate flood risk, which are prone to inconsistent interpretation, potentially leading to misunderstanding, underestimation of risk and inadequate preparedness. Icon arrays, widely used in medical risk communication, can improve understanding, especially for individuals with low numeracy, by reducing cognitive demands. However, their use to communicate flood risk has not yet been investigated.

Two online experiments investigate whether icon arrays improve comprehension of flood risks, influence risk perceptions, and support flood preparedness. In Study 1, participants view maps showing annual flood risk using qualitative categories or icon arrays (100 or 1000 icons), with timescale manipulated to show present risk or future climate risk. Study 2 extends this approach to cumulative risk over multiple years. Participants will complete measures of comprehension, risk perception and decision-making. Numeracy, graph-reading ability, and risk-taking tendencies will be measured as moderators.

Compared to qualitative categories, we anticipate icon arrays will improve comprehension, increase perceived risk, and support preparedness, especially among individuals with lower numeracy. Presenting cumulative risk, rather than annual risk, is expected to further enhance perceived risk. Findings will inform the design of more effective and inclusive flood risk maps, supporting understanding, protective action, and enhanced community resilience and wellbeing.

---

160 Leveraging prosocial research for pro-environmental behavior

Adrien Grondin
Ghent University, Ghent, Belgium

Recently, a call has been made to start leveraging the depth of knowledge already developed in the domain of prosocial behavior to better understand pro-environmental behavior. In this project, we aim to first approach the question of whether being more pro-environmental is simply about being more prosocial.

We use an experimental approach to investigate whether both concerns are as motivating for people when they are prompted to invest cognitive effort in a given task. The role of cognitive effort is pertinent when we think about climate change because fulfilling the required climate objectives is going to include changing our own behavior. This modification of our behavior requires cognitive effort for multiple reasons: the breaking of current habits, the need to learn new information, in essence the need to switch from a default mode of functioning to a more controlled mode of functioning.

The current paradigm entails a within-subject design comparing performance (i.e., accuracy) depending on the incentives for which participants are performing the task (pro-environmental vs. pro-social), as well as tracking the evolution of performance across three blocks.

The results show that between prosocial and pro-environmental, only the pro-environmental incentive motivates individuals to perform better compared to the baseline condition. However prosocial and pro-environmental incentives do not differ significantly from each other. Interestingly, the decrease in performance across the blocks is compensated depending on the type of incentive. These findings start to shed light on the overlaps and differences between prosocial and pro-environmental behavior.

---

346 Multi-functional Living Plug-in Unit (MLPU) planning for compact residential environments

Eunyoung Kim
Korea Institute of Civil Engineering & Building Technology, Goyang-Si, Korea, Republic of

This study proposes a planning strategy for a **Multi-functional Living Plug-in Unit (MLPU)** as an architectural solution for compact residential environments, focusing on the implementation of daily-cycle-based spatial flexibility. While previous flexible housing studies have primarily addressed movable partitions or transformable furniture at an isolated scale, this research adopts a system-oriented approach by integrating core living functions into a high-density plug-in unit capable of transforming spatial functions and topology over time.

Three MLPU floor plan schemes (Scheme #1, #2, and #3) were developed and comparatively analyzed to examine how different kinetic mechanisms—sliding, lifting, and rotation—support functional transitions aligned with residents' daily activity cycles. Particular attention was given to the geometric and topological consequences of rotational strategies, with a focus on identifying the structural causes of dead space generation.

The analysis reveals that the sliding-based scheme (#1) offers high operational intuitiveness and strong adaptability to diverse daily activities. The 90-degree rotation scheme (#2) demonstrates the most practical performance, achieving high spatial density, clear functional differentiation, and minimal dead space within orthogonal residential layouts. In contrast, the 45-degree combined rotation scheme (#3), while providing experimental spatial experiences, results in significant geometric inefficiencies due to incompatibility with conventional orthogonal floor plans.

These findings suggest that spatial efficiency in compact housing should be evaluated beyond static floor area, incorporating temporal functional transformation and spatial topology. The study positions MLPU as a viable architectural framework for redefining compact living environments through time-based, behavior-responsive spatial planning.

---

354 Places that move us: Emotions underlying place meaning formation

Maria de Wit, Maarten Jacobs, Roy van Beek
Wageningen University and Research, Wageningen, Netherlands

Place meaning is a frequently-used concept to approach how people relate, perceive and ascribe value to their environments. Especially in the context of heritage sites, theory and research suggest that emotions are central to this people-place relationship. Accordingly, investigating the role of emotions in constructing and differentiating the ascribed meanings to (heritage) places is of considerable importance. Hence, this study aims to make a novel contribution to place-making research by investigating how emotions are associated with the meanings attributed to a heritage site. Using a quantitative survey design, data was collected from 948 visitors of the North Caves in

Maastricht, the Netherlands. The North Caves is a section of a cross-nation marl mine, once central to mining, smuggling and agricultural activities, that is now mainly used for tourism. Visitors of the North Caves reported their emotional responses in and place meanings associated with the heritage site. Standardised place meaning and emotion measures were employed to analyse the associations between the concepts. Results indicate that certain discrete emotions, such as Nostalgia, Awe and Entrancement, are associated with more personal place meanings (e.g. Attachment) as well as societal place meanings (e.g. Culture), whereas the emotions Interest or Sadness are not associated with any place meanings. Eventually, findings highlight perceived emotions as a key phenomenon through which people interpret and relate to their environments. With direct implications for environmental design and planning, this study provides insights into how attending to particular emotional states can create or foster meaningful places.

---

358 Green space as a job resource: Explaining the benefits of green space via the Job Demands–Resources Model

Nicole van den Bogerd, Jolanda Maas
Vrije Universiteit, Amsterdam, Netherlands

Green space in workplace settings may contribute to mental wellbeing, improve productivity, and reduce the number of sick leave days. However, the mechanisms behind these associations are not yet fully understood. In this study, we explore whether the associations between green space and employee mental wellbeing, productivity, and sick leave can be explained through the Job Demand–Resource (JD-R) Model (Demerouti et al., 2001; 2019). We hypothesize that green space functions as a protective resource that contributes to work engagement and reduces burnout symptoms, which in turn enhance mental wellbeing and productivity and reduce sick leave.

A large survey study is being conducted among employees working in business parks: a setting where approximately 30% of employees work and where there is room for greening. Measurements include work engagement, burnout, wellbeing, productivity, and sick leave, as well as a range of demographic and work-related factors. Perceived access to and use of green space is combined with objective measures. Data collection is ongoing. Data will be analyzed using Structural Equation Modelling to test the proposed JD–R Model pathways.

By integrating green space into the JD-R Model, we aim to advance theoretical understanding how green space in business parks influence employee outcomes, providing implications for park management and design.

---

378 Dynamic norms and heat pump adoption: Exploring social drivers of low carbon heating

Kai Greenlees[1], Lorraine Whitmarsh[2], Tim Lenton[1]
[1]University of Exeter, Exeter, United Kingdom. [2]University of Bath, Bath, United Kingdom

The UK Government's current decarbonisation strategy relies on an exponential increase in household heat pump adoption, but targets are far from being met. The diffusion of pro-environmental behaviour is influenced by social norms; however, heat pumps are not the norm in the UK. Dynamic norms, perceived increasing popularity, have been identified as a promising intervention to counteract minority norms often prevalent in sustainability transitions.

This survey experiment (n = 500) explored the effect of dynamic norms on English homeowners' likelihood to contact a heat pump installer, install a heat pump and support related policies above no-norm and static minority norm messages. Dynamic norms were found to significantly increase the likelihood of contacting an installer ($p = 0.026$) and adopting a heat pump ($p = 0.024$) compared to a

static social norm. No difference was observed for the no-norm control, and no condition affected policy support.

Structural equation modelling assessed the mediation effects of Theory of Planned Behaviour variables, identifying social norms as the strongest predictor of the likelihood of contacting a heat pump installer and installing a heat pump compared to perceived behavioural control and attitude.

Lastly, a factor analysis is planned to identify archetypes present in the sample, followed by a moderated mediation analysis to assess if archetypes respond differently to dynamic norms. This is the first study known to the research team to test the effect of dynamic norms on heat pump intentions. Initial results indicate that dynamic norm-based interventions may be uniquely placed to support sustainability transitions.

---

383 Effect of exposure to natural images on the psychological restoration of attention

Victoria Velázquez, Eloy García, Kenji Frohn
Universidad Fernando Pessoa Canarias, Santa María de Guía, Las Palmas de Gran Canaria, Spain

The demands of the environment can overwhelm attentional and emotional systems, which has a negative impact on physical health and subjective well-being. Natural environments have been shown to support psychological restoration processes by aiding the recovery of these attentional and emotional resources. Current research has primarily focused on emotional restoration with subjective measures and, to a lesser extent, on attentional restoration using objective measures. The aim of this study was to examine the restorative effect of nature images, especially on objective attentional performance. To this end, 56 participants were recruited and administered a standardized protocol, using a visual analogue of the Paced Auditory Serial Addition Test. Participants were randomly assigned to either a non-restorative or a restorative condition, in which they were exposed to an image of nature with restorative characteristics. Following the exposure period, the attentionally demanding task was administered once again and the participants expressed their restorative perception. The non-restorative and restorative conditions and the pre- and post-exposure time points were compared using mixed ANOVAs for number of correct responses and reaction time. The results revealed no significant differences at the objective level between conditions or time points in accuracy or reaction time. However, at the subjective level, a positive correlation was found between participants' perceived restoration and the restorative capacity of the natural environment image. This study provides evidence highlighting the importance of using a consistent methodology with a cognitively demanding task prior to distinguishing the differential effects of natural environment images on objective versus subjective outcomes.

---

406 The sandbox technique: An exploration of children's experiences of place in temporary reception centers for asylum seekers in Spain

Camila Conte
University of Barcelona, Barcelona, Spain

Scholarship on place experiences and place attachment has increasingly challenged sedentarist assumptions. Rather than treating mobility and place as opposites, contemporary work understands them as mutually constitutive, expanding place-attachment research toward multiple, shifting, and ambivalent attachments. These insights are especially relevant for asylum-seeking children, whose everyday lives are shaped by temporary environments and layered senses of home.

Although children's place-attachment reflects a distinct developmental way of exploring and bonding with place, children's experiences are far from universal and vary across cultura and social contexts.

Moreover, much existing research relies on adults' memories of childhood, leaving significant gaps in understanding how children themselves experience place. Addressing this requires approaches that recognise the multiplicity of childhoods and position children as active knowledge-holders.

This study examines the sandbox technique as a methodological tool for exploring children's place attachment and representations of place among children living in hotels used as temporary reception centres in Spain. Through embodied and multimodal forms of expression, children depict both the physical and symbolic dimensions that shape their senses of place and home. Data is generated through observation, photography of the constructed scenes, and follow-up conversations in which children articulate the meanings embedded in their worlds.

The overarching aim is to advance people–environment research by examining how children's everyday engagements with the built environment relate to their wellbeing and spatial agency. By centering children's perspectives within participatory and critically informed frameworks, this work aims to support more just and safe environments for asylum-seeking children.

---

424 Learning behaviours of pupils during terminal-based lessons in standard-design classrooms at secondary school in Japan

Yukari Tsukada[1], Yuuki Harada[2]
[1]Doshisha Women's College of Liberal Arts, Kyoto, Japan. [2]Osaka Gakuin University Senior High School, Suita, Japan

Japanese classrooms are designed as spaces for delivering uniform instruction using identical content and materials to groups of pupils of the same age, with desks conforming to pre-1999 specifications being still used. There is a need for learning environments that accommodate changes in the size of teaching materials and learning tools, as well as shifts in learning styles driven by ICT integration. This study examines the actual learning behaviours of pupils during terminal-based lessons in standard-design classrooms. An observation was conducted in standard-design secondary school classrooms, focusing on the learning behaviours of five pupils with differing behavioural characteristics and the state of teaching materials, learning tools, terminals, etc., on their desks during both terminal-based lessons and conventional lessons. The results showed: 1) The average number of teaching materials and stationery items used was 7.8, with terminal-based lessons involving even more items. These were often stacked, occupying a larger area on the desks. 2) Although terminals were only used for less than 20% of the total class time in this study, some pupils kept them on their desks at all times. 3) While some pupils designated specific places for items on their desks and stored unnecessary tools away while studying, others left distributed handouts and tools untidied. This led to learning tools being piled up on desks, increasing the space occupied. Scenes where learning tools fell off or spilled over the edge were also observed. This highlights the need to carefully select teaching aids used and to reconsider desk size and functionality.

---

460 Development and validation of an evaluation framework for age-friendly home modifications: Evidence from real-world applications

Ye Hui Cho[1], Min-hye Goo[1], Jiyoung Oh[2], Hyun Joo Kwon[1]
[1]Department of Interior and Environmental Design, Pusan National University, Busan, Korea, Republic of. [2]Research Institute of Human Ecology, Pusan National University, Busan, Korea, Republic of

Despite the rapid growth of Korea's older population and expanded government support, age-friendly home modifications remain insufficient due to limited practitioner expertise and the lack of applicable evaluation frameworks. The purpose of this study is to develop an evaluation framework for age-friendly home modifications and to apply it to actual home modification cases. By empirically validating

the proposed framework through real-world applications, this study seeks to identify directions for improving and refining the evaluation system. The assessment of older adults' physical functioning included both quantitative and qualitative evaluations of residents' ability to perform activities of daily living and essential movements, as well as measurements of their functional reach dimensions. The housing environment was evaluated in terms of safety, accessibility, comfort, and convenience, with both residents and experts conducting quantitative and qualitative assessments. From June to December 2025, two independently living older adults (aged 83 and 85) were evaluated using the age-friendly home modification assessment framework, and corresponding home modifications were implemented. Based on the findings of this study, several improvements to the evaluation framework are suggested. Physical functioning assessments should quantitatively evaluate essential movement performance within activities of daily living, while functional reach measurements should be simplified to key dimensions. Furthermore, housing environment assessments require more detailed measurement items and refined evaluation methods. Future research should further examine the validity and reliability of each component of the proposed evaluation framework and assess its practical usability and effectiveness when applied by professionals in age-friendly home modification practice.

---

464 Identifying lifestyle clusters of Korean baby boomers: Implications for segmentation-driven smart home services and aging in place

Yein Choi[1], Jiyoung Oh[2], Hyun Joo Kwon[1]
[1]Department of Interior and Environmental Design, Pusan National University, Busan, Korea, Republic of. [2]Research Institute of Human Ecology, Pusan National University, Busan, Korea, Republic of

As the adoption of smart home technologies to support independent living among older adults becomes increasingly evident, it is necessary to move beyond a macro-level perspective that treats baby boomers as a homogeneous older population and instead adopt lifestyle-based, in-depth segmentation and cluster analysis. The purpose of this study is to classify Korean baby boomers according to housing lifestyles and to compare their expectations and awareness of smart home technologies, as well as their intentions toward Aging in Place (AIP). An online survey was conducted in October 2025 with 600 Korean baby boomers (born 1955–1974), recruited from the panel of a professional online survey provider. The variables included socio-demographic and housing characteristics, AIO (Activities, Interests, and Opinions) lifestyle measures, smart home expectations and awareness, and intentions toward AIP. Following an exploratory factor analysis, cluster analysis identified three distinct groups: Passive Isolates (29%), Active Wellness Seekers (43%), and Housing Comfort Seekers (28%). The Active Wellness Seekers demonstrated the strongest smart home acceptance and AIP intention, characterized by superior economic status and good health status. However, the Passive Isolates was defensive toward technology adoption and exhibited high dependency in daily life. The Housing Comfort Seekers showed moderate technology preference but recorded the lowest AIP intention, and poor economic and health status. This study provides empirical evidence supporting the development of segmentation-driven smart home services and housing plans aligned with specific lifestyle profiles to effectively support baby boomers in later life.

---

518 Mind the gap: Translating environmental psychology key concepts into trans-disciplinary urban decision making

Anna Wieczorek[1], Joanna Stefańska[1], Marianna Waśniewska[2]
[1]Think Tank Miasto Foundation, Warsaw, Poland. [2]JAZ Architekci, Warsaw, Poland

Environmental psychology offers insights into how people perceive and experience public spaces. These insights gain new significance when translated into formats that are legible and actionable for urban practitioners and stakeholders. To support this process, we developed a need-based analytical

tool, Interdisciplinary Lens Analysis (IAS), that translates empirically grounded psychological and spatial knowledge into applicable outcomes for dialogue, urban design and policy.

Our method builds on established concepts such as place attachment, safety, fulfilment, orientation, privacy, social contact. These concepts act as lenses through which we analyse collected data. They enable the synthesis of diverse field data—observations, interviews, behavioural mapping, and inventory—into coherent results. Lenses synthesise qualitative and quantitative findings into development scenarios that are relevant for designers, comprehensible for residents, and useful in strategic decision-making.

Applied in the Warsaw square “Skwer Jura,” the lens analysis revealed tensions between its everyday use and symbolic-historical elements located there. Lenses of fulfilment, privacy, and social contact exposed the underlying causes of spatial conflicts and supported the creation of design-informed scenarios that guided both planning and stakeholder

dialogue. The results are understandable not only to professionals—designers and decision-makers—but also to residents, enabling inclusive, evidence-based planning. The tool supports participatory processes by supplementing subjective perceptions with grounded insights into everyday spatial experience.

We propose this approach as a bridge between academic research and urban practice, making environmental psychology usable across sectors. It offers a replicable, interdisciplinary framework for embedding user needs into development scenarios—advancing urban wellbeing, sustainability, and democracy.

---

615 A multidimensional scale on energy citizenship: Results of a preliminary assessment study

Chiara Massullo[1], Giuseppe Carrus[1], Benjamin Kirchler[2], Andrea Kollmann[2]
[1]Roma Tre University, Rome, Italy. [2]Johannes Kepler University, Linz, Austria

Citizen participation is increasingly recognized as essential for achieving a just and sustainable energy transition, yet the concept of energy citizenship remains theoretically fragmented and empirically underdeveloped. Despite several conceptualizations of the concept, there is still no consensus on its definition or on how to operationalize energy citizenship. In this study, we propose the Energy Citizenship Scale (ECS), a self-report scale based on a multidimensional operational definition of energy citizenship and explore the factor structure of its subscales. A survey was administered to a stratified sample from the UK (N=700). The ECS includes key dimensions of energy citizenship: emotions, attitudes, beliefs in climate change, perceived behavioral control, ecological behaviors, ecological behavioral intentions, identity, social norms, civic engagement, trust in institutions, perceived energy democracy and perceived justice in achieving the energy transition. Findings support the multidimensional structure of the ECS. Most subscales show good internal consistency, with acceptable internal coherence scores and coherent inter-construct correlations. The theoretical and practical implications of the findings for the promotion of a just and efficient energy transition and for the pursuit of the UN Agenda 20230 SDGs are discussed.

---

675 Beyond public bathrooms: Exploring menstruation-friendly greenspace design through participatory modelling

Marilisa Herchet
Dresden University of Technology, Dresden, Germany

Public green spaces, especially in urban environments, contribute significantly to mental health. At the same time, periods of increased psychological stress can occur repeatedly, particularly during and right before menstruation. From a public health perspective, it would therefore make sense to adapt these green spaces specifically to needs linked to menstrual mental health. However, menstruation is often considered a private or even stigmatized topic that receives little attention in research and design of public spaces. To close this gap, this exploratory study used a convenience sample of 20 participants who answered the key question “What would a menstruation-friendly park look like to you?” using a LEGO® model. In addition to each model, an online questionnaire was completed and a voluntary exit interview was conducted. The participants (n = 20) were 85% female and 15% male and in different age groups: 18-29 (6); 30-39 (7); 40-49 (5); 50-59 (2). Results show a richness of elements built into the models, inductively summarized into the categories hygiene, activities, food options, nature & landscape, symptom management and safety. Many models showed an adaptation to different self- and community needs through zoning (e.g., public vs. restricted access, quiet vs. social, resting vs. movement). The method was generally helpful and well accepted by participants – with a probable self-selection bias. For both researchers and practitioners, method and topic could provide helpful and unheard perspectives for a more just and health-promoting design of public green spaces.

---

680 Urban mobility transition in the era of radical populism

Jimin Choi, Ian Walker, Becki Hafner
Swansea University, Swansea, United Kingdom

Reducing society’s car dependence is crucial for creating liveable urban environments. Yet public resistance to urban mobility transition from cars to greener modes remains strong, as populists portray them as an attack on ordinary people and spread various misinformation. Why are some individuals receptive to such populist rhetoric? The answer may lie in the cognitive traits associated with conservative ideology, such as the need for simple answers and avoidance of ambiguity. According to my hypothesis, these traits make individuals readily accept populist rhetoric, triggering avoidance of facts, overreliance on heuristic reasoning while evaluating policies and, eventually, opposition to mobility transition.

Research questions: (1) What cognitive traits interact with populist rhetoric to affect political information processing that hinders wider acceptance of mobility transition?; and (2) How can we make pro-environmental communication more persuasive to broader sections of the public?

Method: Experimental manipulation of policy framing and contents will be used to track the effects of populist rhetoric on attitudes and behaviour. Actual information behaviour while browsing on online software, such as click latencies and viewing times, will be recorded to ensure high validity.

Anticipated findings: I expect to find that key cognitive markers of conservative ideology, such as the need for cognitive closure will strongly interact with exposure to populist messages, causing avoidance of facts and opposition to mobility transition.

Implications: These will be the first studies of their kind to experimentally test the effects of populist rhetoric on political information behaviour. They will also produce recommendations for effective policy communication.

---

701 Perceived safety of urban spaces: Testing CPTED principles in a Polish sample

Alicja Broncel, Szymon Bojarski
Doctoral School of Social Sciences, Nicolaus Copernicus University in Toruń, Toruń, Poland

Research on place safety-enhancing features has led to guidelines such as CPTED (Crime Prevention Through Environmental Design). To examine whether Poles' intuitions about what makes places safe align with CPTED principles, we conducted a study on a representative Polish sample (N = 300). Focusing exclusively on physical characteristics of space, we examined first-generation CPTED. Participants evaluated photographs of places that, depending on the condition, included features expected to increase or decrease safety and selected features they considered crucial for place safety. Finally, they read a vignette describing an assault occurring in a neighborhood built either in accordance with CPTED, contrary to CPTED, or with unspecified features (control), and assessed responsibility for the incident. Consistent with CPTED, the presence of security cameras and the absence of graffiti increased perceived safety and reduced avoidance intentions. Contrary to CPTED guidelines, lush greenery was associated with higher perceived safety and lower avoidance. Participants identified image management and surveillance as most conducive to safety, and features indicating a lack of support for legitimate activity as least conducive. Target hardening (e.g., fencing) did not affect safety ratings. Greater victim blame was assigned when the assault occurred in an estate built contrary (vs. consistent) with CPTED. We conclude that Poles' intuitions about place safety largely align with CPTED principles and interpret the positive perception of greenery through the lens of biophilia. These findings have implications for urban design, victim blaming, and crime prevention policies by highlighting which environmental cues are intuitively associated with safety.

---

748 "Doing" energy policy: Constructing household responsibilities in UK political interviews

Simran Sonawalla
The University of Edinburgh, Edinburgh, United Kingdom

Communicating policy decisions to the public through news media is central to shaping public understanding and action in the United Kingdom, where 98% of the population access broadcast news. However, the expansion of choice of news media has created an increasingly fragmented and ideologically polarised media landscape which complicates how citizens interact with political information and act on policy initiatives. Within this context, political news interviews are a key site where politicians frame policy legitimacy and articulate citizen responsibilities. 2025 was pivotal for UK energy policy as it marks less than five years left to achieve the Clean Power 2030 plan. The urgency of implementing clean energy has resulted in policy schemes like the Warm Homes Discount to encourage households to retrofit their homes and reduce energy bills. This research examines how household responsibilities and identities are constructed and negotiated in political news interviews about energy policy. Using Conversation Analysis and Discursive Psychology, it explores a corpus of televised political interviews with Labour politicians to uncover the interactional practices through which the current government frame household participation and citizen responsibilities. Previous research has found that governments amplify progressive strategies like increasing financial incentives to invest in energy-efficient technologies but ignore wider concerns around cost of living crisis. Politicians likely continue shifting focus from political shortcomings to narratives of progress or citizen-level responsibility. Understanding these interactional processes provides insights into how energy transitions are legitimised and how political communication may enable or constrain household uptake of energy policy initiatives.

---

759 Development of an AI agent-based web platform for personalized age-friendly home modification

Jiyoung Oh[1], Hyun Joo Kwon[2]
[1]Research Institute of Human Ecology, Pusan National University, Pusan, Korea, Republic of.
[2]Department of Interior and Environmental Design, Pusan National University, Pusan, Korea, Republic of

Given the heterogeneity in health status and housing characteristics among older adults, individualized assessments are essential to deliver customized age-friendly home modifications that facilitate aging in place. Nevertheless, the lack of efficient tools for personalized home modification has limited interior designers' ability to implement customized age-friendly housing solutions in practice effectively. This study aims to develop a web-based platform that delivers AI agent-powered automated home modification guidelines for interior designers. The platform integrates comprehensive evaluation tools to assess older adults' physical functions, essential movements, and apartment-centric residential behaviors and environments. At the core of the platform, AI algorithms based on "If-Then" logic are employed to process and interpret evaluation data. By synthesizing these evaluative outcomes, the AI agent generates personalized home modification proposals, including prioritized renovation items and estimated costs. Furthermore, the platform incorporates administrative features to manage older adult user profiles and facilitate consultation services for guardians. To ensure ethical data practices, personal information is protected through data anonymization, while user log data are archived to support continuous longitudinal research. By providing objective, data-driven evaluations, the platform is expected to enhance the professional expertise of interior designers and contractors in age-friendly home modification. Moreover, the platform enables older adult consumers to make informed decisions, thereby contributing to the development of safe, comfortable residential environments that support successful aging in place.

---

767 Linking climate change perception, risk perception, and magnitude: A call for child-focused research

Raquel Perez-Lopez, Lucía Poggio, Juan Ignacio Aragones
Complutense University of Madrid, Madrid, Spain

Climate change (CC) risk perception has been widely studied and linked to risk magnitude, which evaluates climate hazards through subjective probability and perceived severity shaped by cognitive and emotional processes (Slovic & Fischhoff, 1977). Van der Linden (2015) combined cognition, emotion, and social norms into a model linking concern to pro-environmental action. Van Valkengoed et al. (2021) viewed CC perceptions as beliefs about reality, causes, and consequences, warranting further exploration of their interrelations. In addition, the majority of studies privilege adult perspectives, yet younger generations will be the ones most affected by its consequences. The present study explores the mediation of risk perception of CC into the relation between perception CC and magnitude of CC in the young generation. A sample of 91 Spanish children (46.7% girls; mean age = 10.78, SD = .72) completed a self-administered questionnaire including measures of: risk perception of CC, perception of CC, and magnitude of risk of CC (adapted for children). Outcomes show 81.3% of children believe that climate change is happening now. A mediation analysis showed a significant indirect effect of perception of CC on personal perception of magnitude of risk of CC through personal perception of risk of CC, b = .1486, 95% CI [0.0082, 0.3253], indicating significant mediation. Findings indicate that perception of climate change indirectly influences perceived risk magnitude through personal risk perception. Most participants acknowledged climate change as current, supporting cognitive–affective models and emphasizing the importance of perception in shaping climate concern and action.

---

225 Aesthetics in the city, and its relation to wellbeing

Kirren Chana[1,2], Margot Dehove[1], Jan Mikuni[1], Eva Specker[1,3], Anna Lena Knoll[1], Tristan Barrière[1], MacKenzie D. Trupp[1,4], Matthew Pelowski[1], Elisabeth Oberzaucher[1], Helmut Leder[1]

[1]University of Vienna, Vienna, Austria. [2]University of Verona, Verona, Italy. [3]University of Tübingen, Tübingen, Germany. [4]Radboud University Medical Center, Donders Institute for Brain, Cognition and Behaviour, Nijmegen, Netherlands

Urban environments and aesthetic experiences can significantly impact human wellbeing, yet a comprehensive overview of the literature on these topics and how they interact is lacking. Filling this gap is critical as urban populations grow, and building sustainable cities depends on respecting both aesthetics and human wellbeing: when people value and feel good in their environment, they are more likely to preserve it for future generations. To address this gap between aesthetics, wellbeing and urban environments, a scoping review was performed. Following the PRISMA-ScR guidelines, three databases were searched, and studies published between 2000 and 2022 were screened based on three concepts: Urban (man-made) components of public spaces (e.g. art, buildings, streets, traffic noise), Aesthetics, and Wellbeing. A total of 255 articles on the aesthetics of urban components were found, 122 of which also addressed wellbeing. Beyond highlighting research trends within analysed articles, this review provides an open-access OSF dataset where all extracted information is reported, mapping urban components and documenting how aesthetics and wellbeing have been characterised and measured. This review and dataset support people-environment researchers and building practices alike by: identifying gaps in the literature, providing guidelines for future studies (both primary and secondary literature), and offering a basis for assessing the aesthetic and wellbeing potential of urban components in design.

Wednesday 1 July 2026

Schedule at a glance

Time	Room	Session
09:00-09:50	03 MS 01	Keynote: Jenny Roe
09:50-10:00		*Movement break*
10:00-11:15	03 MS 01	Nature and wellbeing 1
	AP 1	More-than-human worlds
	AP 2	Heat
	39 MS 02	Housing satisfaction
	72 MS 03	Exploring place in E&B research: Toward well-being
	32 MS 03	Environmental preferences
11:15-11:45	*AP 3/4*	*Tea and coffee*
11:45-13:00	03 MS 01	The biodiversity–people nexus: Insights for human well-being and nature recovery
	AP 1	Food
	AP 2	Energy: Attitudes and acceptance
	39 MS 02	Design education
	72 MS 03	Place
	32 MS 03	Healthy ageing
13:00-14:15	*AP 3/4*	*Lunch*
14:15-15:45	03 MS 01	Research from the IAPS Restorative Environments Network
	AP 1	Environmental value research: Closing research gaps and breaking new ground
	AP 2	Energy: Perceptions and action
	39 MS 02	Qualitative research in environmental psychology: An exhibition of the present, and a discussion of the future
	72 MS 03	Business as unusual: Sustainability and well-being implications of new work
	32 MS 03	Sustainable and pro-environmental behaviour 1
15:45-16:15	*AP 3/4*	*Tea and coffee*
16:15-17:45	03 MS 01	Nature-based interventions
	AP 1	Second-order beliefs in sustainability transitions
	AP 2	Creative participatory methods for people–environment research
	39 MS 02	Neuroinclusion by design: Creating organizational environments that benefit all
	72 MS 03	Design for sustainability and wellbeing
	32 MS 03	Sustainable and pro-environmental behaviour 2

Chair: Claudia Menzel
RPTU University Kaiserslautern-Landau, Landau, Germany

---

753 Dimensions of green infrastructure, wellbeing and health: Leverage points at the nexus of human and environmental sustainability

Cecilia Stenfors
Department of Psychology, Stockholm University, Stockholm, Sweden

Urban environments play a central role in shaping interactions between people, society, and ecosystems, with important consequences for health, wellbeing, and sustainability. Green and blue infrastructure provide multiple ecosystem services and everyday settings for human–nature interaction, yet evidence from large-scale, high-resolution studies linking residential environments to health and behaviour have been limited.

This presentation synthesizes findings from a series of population-based studies conducted in Sweden (N≈120,000), combining individual-level assessments of residential green infrastructure and other environmental exposures (e.g., traffic noise, air pollution, neighbourhood socioeconomics). These data were linked to national registers on prescription medication use, as well as survey measures of mental health, wellbeing, and health-related behaviours. Sub-cohorts further examined self-selected interactions with nature, including frequency and type of nature visits.

Across studies, greater availability of residential greenspace—particularly within immediate surroundings (50–100 m)—was especially consistently associated with better psychological health and wellbeing, and lower use of psychopharmacological medication. Greenspace also showed buffering effects against adverse environmental stressors such as traffic noise. Engagement with nearby nature, especially forests and residential gardens, was linked to enhanced emotional, social, and behavioural health outcomes, including during the COVID-19 pandemic.

Green infrastructure supports human, social, and environmental resilience through multiple pathways, including emotional, cognitive, social, other behavioural processes, and additional ecosystem services. Integrating knowledge regarding salubrious greenspace dimensions into the policy and practice of designing our living environments offers evidence-based strategies to promote public health, social and environmental sustainability, and resilience in the face of climate change and biodiversity loss.

---

688 Boosting the benefits: A systematic review of the psychological factors determining the impact of urban nature-based solutions health and well-being

Niamh Power[1], Doris Chang[2], Jason Chan[1], Kai Gensitz[3], Mohammad Jalali[4], Claudio Nigg[3], Tadhg MacIntyre[5], Annalisa Setti[1]
[1]University College Cork, Cork, Ireland. [2]Massachusetts General Hospital Institute of Technology Assessment, Boston, United States. [3]University of Bern, Bern, Switzerland. [4]Harvard University, Boston, United States. [5]Maynooth University, Maynooth, Ireland

Nature based solutions (NBS) have the potential to facilitate more sustainable living in cities and positively impact health and well-being. Benefits of urban NBS are subject to people's 'adaptive capacity' to engage with these initiatives. Psychological factors, particularly those involving human-environment interactions, may play an important role in this process, yet their influence has yet to be thoroughly examined. The present systematic review seeks to uncover the mediating psychological factors underlying the impact of NBS on physical health and mental well-being in cities.

The following sources were used to identify studies: Web of Science; Scopus; Pub Med; APA PsycINFO; Academic Search Complete; GreenFILE, CINAHL, SocINDEX, Medline and Google Scholar. Quantitative, qualitative, and mixed methods studies were considered. Two reviewers screened records, assessed risk of bias, and extracted data.

Fifty six studies (n = 56) met criteria. The frameworks used to synthesise psychological factors underlying health impacts were heterogenous. Across studies, social connectedness and perceived restorativeness emerge as prominent factors of influence. Novel factors investigated include awareness of nature experiences and perceived naturalness. There are a lack of studies investigating factors related to human appraisals of climate change and the biodiversity crisis, e.g., eco-anxiety.

This review synthesises established and novel psychological factors determining the health impact of urban NbS thus carrying the potential to inform approaches to public consultation, planning, and communication to optimise benefits. Results uncover a gap in the research regarding the influence of human appraisals of climate change and the biodiversity crisis on the impact of urban NBS.

---

386 Unpacking and understanding the nature-wellbeing relationship: Findings from a qualitative review

Jenny van Bekkum[1], Craig McDougall[2], Charlotte Wendelboe-Nelson[1], Samantha Mason[1], Andrew Williams[1], Ruth Jepson[1], Stephen Malden[1]
[1]University of Edinburgh, Edinburgh, United Kingdom. [2]University of Exeter, Exeter, United Kingdom

Natural environments play an important role in supporting human health and wellbeing. While research often prioritises access to natural spaces and their physical characteristics, there is a growing recognition that the nature-wellbeing relationship is also influenced by complex personal, social, and cultural contexts, suggesting that linear or exposure-based models may not fully capture how nature supports wellbeing.

This review presents findings from a qualitative metasynthesis of 49 studies exploring adults' lived experiences of engaging with natural environments. An iterative, interpretive and critical approach was used to examine how wellbeing emerges through direct encounters with nature, resulting in the development of a theoretically-informed framework. The findings indicate that wellbeing benefits arise through embodied, multisensory, and emotionally meaningful experiences rather than exposure alone. These processes are highly contextual and depend on how people make meaning from their interactions and attune to nature, highlighting the role of emotion and lived experience in shaping therapeutic encounters.

This research contributes a more nuanced understanding of the nature-wellbeing relationship through drawing attention to subjective experience and relational processes. The findings have implications for people-environment research, policy and practice, particularly in supporting person-centred and community-centred approaches, recognising relational values, and informing the design of nature-based programmes and environments that attend to how people and communities experience nature rather than simply access it.

---

534 Nature, as I define it: Relationships between nature exposure, nature connectedness, reported health, and environmental concern

Claudia Menzel
RPTU University Kaiserslautern-Landau, Landau, Germany

Nature contact usually strengthen nature connectedness and benefit health. In most research, the type of nature contact is defined by researchers or not at all. However, nature can be and is defined in various ways. In two mixed-methods online studies from Germany and New Zealand, we focused on participants' own definition of nature. Therefore, we first asked participants for their individual definition of nature and associations therewith. When assessing nature contact and enjoyment of nature visits, we asked participants to relate it to their own definition of nature. Additionally, we assessed residential green and blue using satellite data as another measure of nature contact. Thereby, we can differentiate between different facets of nature contact. To measure nature connectedness, we asked participants to indicate how they include 'their nature' into their self. An exploratory item asked whether participants have the same definition of nature in mind when thinking about their effects on nature and when thinking about nature's effects on them. General health was assessed with a single item and wellbeing with WHO-5. Furthermore, we asked for environmental concern for biospheric, altruistic, and egoistic reasons. The results that will be presented give indications on how different facets of nature contact relate to nature connectedness, reported health and wellbeing, and environmental concern, while considering participants' own definitions of nature. If relationships between variables differ for subjective and objective nature contact, it has implications both for the interpretation of related research findings as for communicating and encouraging health effects through nature contact.

INDIVIDUAL ORAL PRESENTATIONS:
More-than-human worlds

Weds 1 July, 10:00 – 11:15, AP 1

Chair: Thomas Roberts
University of Surrey, Guildford, United Kingdom

---

60 Experiential interventions as a pathway to relational closeness with the more-than-human world and reduced utilitarian attitudes

Melissa Dolese
University of Alaska Southeast, Juneau, United States

Fostering relational closeness to the more-than-human world may promote pro-environmental attitudes. This study tested whether brief participatory events—designed as peripheral-route interventions seeking to reduce Psychological Distance (PD) and increase Connectedness to Nature (CTN)—would activate this mechanism. Relational closeness is understood as an integrated construct of cognitive (PD) and affective components, with CTN serving as the key affective and prosocial mechanism.

Fifty-four participants engaged in one of three interventions—Narrative Reflection, Group Story-Sharing, or Mindful Nature Immersion—or completed baseline surveys. Crucially, groups did not significantly differ in baseline Environmental Identity ($F(3,39) = .06$, $p = .98$, ns.), justifying subsequent comparisons. Bootstrapped ANOVA and t-tests were used to compare post-event utilitarian attitudes toward resource use to baseline attitudes.

The interventions produced strong effects: CTN increased substantially (d=0.79) and utilitarian attitudes significantly decreased (ηp2=.55, p<.001). Linear regression confirmed that enhanced CTN was a significant mediator, accounting for 32% of the variance in the attitudinal shift (R2=.324, p<.001).

These findings demonstrate that peripheral-route, embodied interventions effectively shift environmental use attitudes by cultivating the affective component of relational closeness. The results strongly support the theoretical model that this relational mechanism is a highly effective pathway for fostering ethical and prosocial environmental engagement, complementing knowledge-based strategies.

---

641 Through the eyes of a spider: Using immersive VR to foster conservation intentions

Swen J. Kühne[1], Mirjam Jochim[1], Barbara Schuler[2], Jonas Christen[2], Miriam Loertscher[2], Cathérine Hartmann[1]
[1]Zurich University of Applied Sciences, Zurich, Switzerland. [2]Zurich University of the Arts, Zurich, Switzerland

Dozens of species face extinction daily, yet people struggle to value animals whose sensory worlds remain unimaginable. Bridging this gap by helping humans grasp how other species perceive their environments may be essential for motivating conservation behavior. In this study, we designed an immersive, multisensory virtual reality (VR) experience for a museum setting in which visitors embodied a buzzing spider and engaged in a hunting task. The experience was supported by multisensory stimuli, including airflow and vibrations, to simulate spider-specific sensory abilities.

An iterative design process was employed, using a mixed-method evaluation comprising qualitative semi-structured interviews (N = 10) and a quantitative pre–post assessment (N = 53) to both optimize the experience and evaluate its effects. Measures included changes in participants' intentions to protect spiders based on the Theory of Planned Behavior, attitudes toward spiders, emotional responses, and perceived embodiment.

Results indicated significant pre–post increases in perceived behavioral control ($t = 3.70$, $p < .001$) and intention to protect spiders ($t = 4.80$, $p < .001$). Most participants reported a positive experience, with several describing increased compassion or more favorable attitudes and interest towards spiders. While embodiment was only partially successful, with limitations particularly related to movement, participants still reported meaningful engagement.

Overall, this study highlights the potential of immersive VR experiences to disrupt anthropocentric perspectives, communicate non-human sensory worlds, and shift people's concepts of other species. Such approaches may foster protective intentions even toward traditionally disliked animals, such as spiders.

---

769 Campus rewilding, biodiversity knowledge, and multispecies justice across three Finnish universities

Himansu Sekhar Mishra[1,2], Laura Uimonen[1], Juho Rajaniemi[1]
[1]Faculty of Built Environment, Architecture, Tampere University, Tampere, Finland. [2]Natural Resources Institute Finland (Luke), Helsinki, Finland

University campuses are increasingly used as sites for biodiversity interventions and rewilding, yet little is known about how campus users perceive biodiversity and how species knowledge and everyday nature experiences relate to ethical support for multispecies well-being. Informed by Value-

Belief-Norm theory and social-identity-approaches, this study examines whether campus context, biodiversity knowledge, species observation, and outdoor activity are associated with perceived campus biodiversity and support for multispecies justice.

Within the MUST project on Enabling Multispecies Transitions, a cross-sectional on-campus survey was conducted in October 2024 with 302 users across three Finnish university campuses, including students, staff, and others. Measures captured campus rewilding knowledge, recognition of plant and animal species, perceived quantity of vegetation and animal presence, outdoor activities, species observed on campus, and measures reflecting ethical orientations toward multispecies rights and human–non-human priorities. Analyses included descriptive and group comparisons and hierarchical multiple regression models predicting perceived biodiversity and MSJ.

Across two regression models, campus context consistently shaped both perceived biodiversity and support for multi-species justice. Perceived biodiversity was higher on some campuses and was positively associated with animal-related knowledge, while plant knowledge, species observed and rewilding project awareness showed weaker or non-significant associations. Support for multispecies justice was associated with campus context, plant knowledge, and species observations, with perceived biodiversity partially mediating knowledge–ethics relationships. These early findings suggest that biodiversity perception functions as a key appraisal mechanism linking ecological knowledge and lived campus experience to ethical support for multispecies well-being, consistent with norm-activation and place-based social identity perspectives.

---

119 Love dogs, love nature: Rethinking environmental responsibility through everyday dog-walking practices

Thomas Roberts
University of Surrey, Guildford, United Kingdom

Dog walking is one of the most widespread forms of everyday engagement with nature in the United Kingdom, yet its social and ecological dynamics remain under-examined. With over 13 million dogs living in British households, dog walking plays a significant role in shaping how people encounter, use, and value rural and peri-urban landscapes. Drawing on 40 hours of multisite ethnographic observation and a deliberative stakeholder workshop conducted in the Surrey Hills National Landscape, this paper examines dog walking as a multispecies practice embedded in relations of care, responsibility, and environmental management.

The findings show that dog walking supports wellbeing, sociability, and sensory immersion, fostering everyday connections between humans, animals, and landscapes. At the same time, it produces patterned environmental pressures, including uncollected dog waste, wildlife disturbance, livestock interactions, and social tensions with other countryside users. Crucially, these impacts were rarely the result of deliberate rule-breaking. Instead, they emerged through configurations of distraction, social immersion, infrastructural design, and the distributed agency of dogs themselves. Distinct walking modes—functional, recreational, and professional—were associated with different rhythms of attention, ethical orientations, and capacities for environmental care.

The paper argues that dominant behavioural approaches to dog-walking governance overlook the relational and practice-based dynamics through which responsibility is enacted. Instead, it advances a practice-sensitive framework that foregrounds affective attachments, multispecies negotiation, and material affordances. Collaborative interventions—such as contextual signage, improved bin placement, volunteer wardens, and designated dog zones—are proposed as more effective pathways for supporting ecologically attuned multispecies coexistence in shared landscapes.

Weds 1 July, 10:00 – 11:15, AP 2

Chair: Philipp Sprengholz
University of Bamberg, Bamberg, Germany

---

165 Mental health impacts of complex heat hazards and the modifying role of green space: Evidence from a time-series analysis

Yue Zhang, Dongying Li
Texas A&M University, College Station, United States

Rising temperatures and heat events can adversely affect mental health. Research has also revealed that the co-occurrence of heat with other hazards such as drought and wildfire can lead to impacts exceeding those of single disasters. Given the urgent need for adaptive strategies to extreme weather and public health burden reduction, the role of greenspace has received increasing attention. However, evidence on the association between complex heat hazard exposure, such as recurring heat and compound heat with other weather extremes, and mental health is limited, and the specific mechanisms through which greenspace may impact mental health amid and after hazards are not well understood. Therefore, this study aimed to assess the impact of complex heat disasters on mental health and the potential modifying role of greenspace. By using time-series analysis, we evaluated the exposure-lag-response relationships between heat-related hazards and hospital visits for mental disorders in Texas between 2015 and 2022. We also performed stratified analyses to examine the effect modification by greenspace. The results suggested that complex heat disasters were associated with greater risks of mental diseases compared to single heat hazards. The findings also indicated that higher levels of greenery could mitigate the mental health risks associated with heat-related hazards, with more pronounced protective effects for complex heat disasters. This study would provide evidence to guide public health and disaster preparedness strategies to support individual and community well-being and inform urban policies by highlighting green space as modifiable factors in addressing the adverse mental health impacts of climate disasters.

---

212 Heat stress, greenness, and academic performance across U.S. schools, 2009–2019

Rouzbeh Rahai, Nancy Wells, Gary Evans
Cornell University, Ithaca, United States

Background: Extreme heat exposure is increasing across U.S. schools and has been linked to impaired cognition and academic performance. Most epidemiological studies rely on air temperature alone, overlooking the physiological burden of heat exposure driven by humidity, wind, and solar radiation. School-site greenspace may support learning directly and may buffer heat impacts, but evidence at the national scale remains limited.

Objectives: This study examines whether (1) heat stress during school-relevant testing windows is associated with academic achievement, (2) school greenspace is associated with achievement, and (3) greenspace moderates the association between heat stress and achievement.

Method: We link standardized school achievement and demographic data from the Stanford Education Data Archive (SEDA) with hourly heat-stress exposures during testing windows from 2009–2019. Heat stress is measured using Heat Index (HI), Wet-Bulb Globe Temperature (WBGT), and

Universal Thermal Climate Index (UTCI). Greenspace is measured using land-cover composition within school tax-parcel boundaries and satellite-derived vegetation health (NDVI). Using pooled school-level data (N = 73,431) and district-level year panels (N = 9,932), we apply multi-level regression models with fixed effects and standardized covariates to estimate short- and longer-term direct and moderating associations between heat stress exposure, greenspace, and academic performance.

Anticipated findings: Our constructed heat-stress metrics have been validated against station observations. Results will identify which heat-stress metrics are most strongly associated with national performance and whether school-site greenness moderates heat-related learning impacts.

Novelty and application: This study's findings will guide climate-resilient school design and evidence-based greening investments to mitigate heat-related impacts on learning.

---

541 Measuring what matters: Indoor thermal monitoring explains heat-cognition effects missed by high-resolution weather models

Robert W. Bruckmann[1,2], Philipp Sprengholz[1,2,3]
[1]Institute for Psychology, Health Psychology, University of Bamberg, Bamberg, Germany. [2]Institute for Planetary Health Behavior, University of Erfurt, Erfurt, Germany. [3]Health Communication Working Group, Bernhard Nocht Institute for Tropical Medicine, Hamburg, Germany

As urban heat is projected to intensify worldwide, concerns are growing about implications for cognitive health. While controlled studies have long established temperature-cognition links, evidence lacks transferable insights for real-world environments such as individuals' homes, which are critical for climate adaptation.

Our study aimed to examine how naturally occurring temperature and humidity variations in older adults' homes affect executive functioning longitudinally, and to evaluate whether high-resolution weather model data could substitute for micro-climate indoor measurements in predicting cognitive outcomes.

To this end, we installed sensors for air temperature and relative humidity in residences of 98 adults over 65 years. Participants completed weekly cognitive performance tests over nine consecutive weeks during summer 2025 in Germany. Additionally, high-resolution weather model data were sourced for each participant's exact location. Linear and dynamic mixed models examined performance outcomes, controlling for scale-invariant learning effects and between/within-person temperature variations from both indoor sensor and model-based climate data.

Across 13,862 performance trials, heat indexes derived from indoor sensors significantly predicted increased Stroop response times (β=12.58 ms per °C, t=2.11), while accuracy and n-back performance remained unaffected. Critically, heat index data from weather models failed to predict any of the cognitive performance dynamics that indoor measurements successfully captured.

These findings challenge weather-model-based approaches for studying heat-cognition effects in ecologically valid settings and demonstrate that affordable indoor monitoring can successfully capture thermal impacts in built environments that would otherwise be missed.

---

275 Reducing heat risks for the elderly by rescheduling healthcare appointments

Philipp Sprengholz, Robert Bruckmann
University of Bamberg, Bamberg, Germany

Objective: Intensifying heatwaves pose severe health risks for elderly individuals, particularly during healthcare appointments scheduled in hot periods. We aimed to investigate if shifting consultation times or rescheduling elderly patients may mitigate heat-related risks and if healthcare providers and patients are open to do so.

Method: We analyzed 17,619,866 consultation hours from 90,977 german healthcare providers during summer 2024, linking them with weather data to investigate heat-related risks. Simulations tested the effects of advancing, postponing, and mixed scheduling strategies. Additionally, surveys with 459 healthcare providers and 259 elderly patients assessed rescheduling practices, attitudes, and acceptance.

Results: Analyses revealed that 15 % of consultations occurred under caution-level and 1 % under extreme caution-level heat conditions, with risk peaking in afternoon hours. Simulations showed that advancing morning and postponing afternoon consultations significantly reduced unsafe heat exposure. While 59 % of practices could theoretically accommodate all elderly patients before 11 am, few were doing so. Provider-initiated rescheduling was rare but more likely among those recognizing heat risks. Patient surveys revealed strong acceptance of rescheduling, particularly to morning hours.

Conclusions: Rescheduling healthcare appointments offers a feasible strategy to reduce heat risks for elderly patients. Increasing provider awareness may foster proactive rescheduling practices, enhancing patient protection during heatwaves.

INDIVIDUAL ORAL PRESENTATIONS:
Housing satisfaction

Weds 1 July, 10:00 – 11:15, 39 MS 02

Chair: W. Victoria Lee
University of Edinburgh, Edinburgh, United Kingdom

---

177 Reframing vacant house assessment through habitability: A framework based on a systematic review of multidimensional criteria and indicators

Eun-Jeong Kim[1], Mi-Kyung Kim[2]
[1]Dodam Design and Research, Seoul, Korea, Republic of. [2]Chungbuk National University, Cheongju, Korea, Republic of

The increase in vacant houses poses significant challenges to urban sustainability and community wellbeing, accompanied by physical deterioration, safety risks, social decline, and economic loss. However, existing approaches to vacant house assessment have focused on cause-based analysis, land-use and urban planning perspectives, or economic efficiency. Consequently, they have failed to adequately reflect a human-centred perspective that views vacant houses as potential living spaces and considers residents' lived experiences and wellbeing.

This study seeks to redefine vacant houses not merely as objects of physical and economic management, but as wellbeing-oriented living environments. To this end, it aims to develop a comprehensive, multidimensional assessment framework for vacant houses incorporating the core elements of habitability: safety, health, sociality, and comfort.

This study conducted a systematic literature review using content and thematic analysis to extract and code evaluation criteria, indicators, and typologies.

The analysis identified seven evaluation categories—physical characteristics, safety, population composition, aesthetics, economic factors, reuse potential, and vacancy condition—comprising 15 subcategories and 57 measurable indicators. Furthermore, diverse typologies of vacant houses were identified based on occupancy status, vacancy duration, physical condition, functional use, and regional characteristics. These elements were integrated to a habitability-oriented assessment framework.

The proposed framework can be used not merely to manage vacant houses, but to reposition them as residential environments that enhance residents' wellbeing. By supporting habitability-based policy interventions and wellbeing-oriented regeneration strategies, it provides a practical foundation for sustainable urban policy and contributes to scholarly discussions on the relationship between the built environment and human wellbeing.

---

556 Differences in residential satisfaction factors affecting daily happiness: A comparison between apartment and detached house residents in S. Korea

Byungsook Choi[1], Eun Young Kim[2], Shaozheng Bian[3]
[1]Jeonbuk National University, Jeonju, Korea, Republic of. [2]University of Tennessee at Chattanooga, Chattanooga, United States. [3]Jeonbuk National University Graduate School, Jeonju, Korea, Republic of

This study examines factors of residential satisfaction in housing and neighborhoods that influence daily happiness among residents of high-rise apartments and low-rise detached houses in Korea. Data were collected through an online survey of 2,160 participants in April 2021. Daily happiness was assessed using 14 items based on the "Flourish" concept. Reliability was confirmed with Cronbach's α values: .936 for housing satisfaction, .929 for neighborhood satisfaction, and .964 for happiness.

T-test results showed apartment residents generally had significantly higher scores in satisfaction and happiness. Stepwise regression revealed that for apartment residents, happiness was driven by maintenance sustainability(β=.182), economic value (β=.208), and convenience (β =.206). For detached house residents, key factors included maintenance (β =.163), safety (β =.140), economic value (β =.162), and crime prevention (β =.142).

In neighborhoods, social relationships were crucial for both groups (Apartment β =.183; Detached β =.216). Findings suggest that while economic value and sustainability are universal predictors, the need for convenience is paramount in apartments, whereas safety and security are critical for those in detached houses due to individual management burdens. These results highlight the importance of well-managed, sustainable environments and neighborly relationships in enhancing residential well-being.

---

622 Perceptions of Japanese dwelling environments by non-Japanese residents: A textual analysis from the Meiji Period to early Heisei Period

Eriko Kawano
Independent Researcher, New York, United States

Perceptions of the dwelling environment differ among individuals and evolve throughout life, shaped by living experiences, environments, media, and cross-cultural encounters. This study aims to clarify how non-Japanese residents who migrated to Japan from the Meiji Period (late 19th century) to early Heisei Period (early 21st century) perceived Japanese dwelling environments and how these perceptions influenced their spatial practices. Twenty-four books authored by fifteen cultural figures and intellectuals from five countries, including France, the United Kingdom, the United States, China, and Germany, were analyzed. The materials include essays, diaries, travelogues, and illustrated

albums describing Japanese dwelling environments, broadly defined to include residential spaces, their surroundings, inns, teahouses, and related spaces. Descriptions related to architectural elements, spatial practices, and evaluative statements were extracted and categorized through qualitative analysis. Key physical and behavioral characteristics identified include floor-seated living practices, simplicity of spaces, connection with nature, perceptions of room size and ceiling height, partitions and their functionality, comfort-related experiences, traditional architectural elements, urban environments, and inns as accommodations. Over time, changes were particularly observed in floor-seated practices, where behaviors such as sitting and sleeping on the floor or removing footwear reflected embodied responses to the dwelling environment.

The findings shed light on how perceptions and behaviors are associated with experiences of unfamiliar dwelling environments, while also identifying distinctive physical and behavioral characteristics of Japanese dwelling environments as perceived by non-Japanese residents, suggesting the relevance of cognitively informed approaches in architectural design and planning.

---

751 Public online forum posts as micro post-occupancy evaluation: What home-cleaning gripes reveal about cleanability friction in housing design

W. Victoria Lee
University of Edinburgh, Edinburgh, United Kingdom

Cleaning takes time. The amount of time spent doing it is an indicator of quality of life, especially for women. In the UK, around half of adults report that keeping the home clean is stressful. Whilst there is much focus on cleaning products and tools; there is comparatively little discourse on how the design of domestic space lends itself (or not) to being cleaned.

This study uses public online forum discussions to examine ‘cleaning friction’ – design features that make ordinary cleaning difficult. The study asks: What domestic design features are repeatedly experienced as difficult to clean, and why? A secondary aim is to trace the practical and environmental consequences people describe when coping with poor cleanability (e.g. more water/cleaners used), and to consider how the same design feature may place greater burdens on people living with limited time and mobility.

Data comprise public posts and comments sampled systematically from selected Reddit subforums over a post-pandemic period (Aug 2021–Dec 2025) using predefined search terms. A qualitative thematic analysis will develop a typology linking design features and detailing, mechanisms that generate cleaning friction; and user workarounds.

This presentation will discuss anticipated patterns including the outsized influence of seemingly minor details (e.g. gaps and awkward reaches), trade-offs between visual trends and maintainability, and the extent to which common domestic design assumes able-bodied time, reach and energy. The resulting typology offers design-relevant evidence to support housing-related wellbeing and to reduce the resource intensity and labour demands associated with keeping homes acceptably clean.

PANEL 38:
Exploring place in E&B research: Toward well-being

Weds 1 July, 10:00 – 11:15, 72 MS 03

Chair: Julia W. Robinson
University of Minnesota, Minneapolis, United States

To design places that support well-being, we should know not just how people feel and act in different places, but also how to understand the role of place itself. David Canter's tripartite model of place, being the integration of physical form, meaning and actions, has been widely drawn on ever since its first publication in 1977. The panel asks what research methods for the physical environment can link how we perceive, and live in places, to how they are designed and made.

Envisioning place as essential to human well-being raises questions for researchers and designers, such as:

- How do places communicate meaning?
- How do places support activities?
- What are the physical features of places?
- How do meaning, activities and physical features frame places that foster well-being?

After Canter's brief introduction of the theoretical underpinnings of place study, three panelists present exemplary methods for description and analysis of environments for human well-being: Julia Robinson describes methods that investigate making places; Linda Groat demonstrates a method for studying meaning of places; Tim Griffin presents Brian Schermer's work on experience of place, and research on digital representation for envisioning urban changes.

To open the discussion, David Canter highlights the contributions of the panelists by emphasizing the dynamic interplay between actions, meanings and physical form as developed in the newly published *Rethinking the Psychology of Place* (Canter, 2026).

Speakers: Julia W. Robinson**,** Linda N. Groat**,** Timothy Griffin**,** David Canter

---

435 Making places for wellness: Methods for assessing place

Julia W. Robinson
School of Architecture, University of Minnesota, Minneapolis, MN 55455, United States

In 1984, courts ordered Minnesota (USA) to deinstitutionalize, moving thousands of developmentally disabled (DD) adults from state institutions to community housing. This raised the question "how can we know if housing is a home or an institution?"

Using the institution-home (I-H) dialectic, Study 1 compared photographs of 4 residences for people with DD to 6 residences for non-disabled people. Analysis of paired scenarios of interior and exterior places yielded architectural checklist items. Assessment with a Likert scale, found scenarios pairs to be opposites and photographs to form an I-H continuum.

Study 2 used photographs, checklist items and "complete description" of living rooms (an architectural inventory measure) to describe 30 residences. Cluster analysis revealed homes to be similar, while institutions differ. Differences were studied using space syntax, matrix analysis of territorial gradients,

and analysis of inventory items, resulting in an I-H continuum of housing and a living room measure.

---

434 The role of meaning in place experience: The multiple sorting task

Linda N. Groat
Taubman College of Architecture & Urban Planning, University of Michigan, Ann Arbor, MI 48109, United States

The theory of place and multiple sorting task that I am presenting were introduced to me during my PhD study with David Canter. Decades ago, in the mid-1970's I discovered David Canter's book The Psychology of Place in the RIBA bookstore in London. As soon as I read Canter's book, I knew I needed to study with him. Canter's model of Place continues to serve as a foundational concept for my work.

When Canter showed me a study that he had done that employed image sorting to understand people's real estate preferences, it struck a chord with me. The task perfectly fit my dissertation research on people's preferences for modern, post modern or other architecture. I saw that repeated sorting could reveal deeper relationships between people's preferences and places. Thus, simple image sorting became the multiple sorting task I present today. The beauty of the sorting task is that respondents/interviewees can react to photos of built or natural forms and assign categories of similarity.

---

436 Mapping student place experience for design insight

Brian Schermer[1], Timothy Griffin[2]
[1]University of Wisconsin-Milwaukee, Milwaukee, United States. [2]University of Minnesota (Minnesota Design Center), Minneapolis, United States

Participatory mapping is used to understand how students experience campus spaces and how those experiences emerge from the relationship between physical settings, activities, and meaning. Through mapping, students identify places that matter in their daily lives, revealing patterns of use, attachment, and value that are often missed in conventional planning and design processes. These data are interpreted through a campus capital framework encompassing social, intellectual, restorative, and symbolic capital. Social and intellectual capital highlight where students connect, collaborate, and engage in learning beyond the classroom; restorative capital identifies places that support recovery, mental health, and balance; and symbolic capital captures how places contribute to institutional identity and a sense of belonging. Together, these forms of capital provide a structured lens for understanding how campus environments support student well-being. A campus center case study demonstrates how mapped insights informed spatial organization, program mix, and design decisions aligned with lived student experience.

---

91 Rethinking the psychology of place - a dynamic approach to building for well-being

David Canter
University of Liverpool, Liverpool, United Kingdom

The tripartite model of place, being the integration of physic form, meaning and actions, has been widely drawn on ever since its first publication in 1977. This panel elaborates the methodological and theoretical implications of that model for well-being. A newly published *Rethinking the Psychology of Place* (Canter, 2026) highlights the integration of the contributions to this panel by emphasizing the dynamic interplay between actions, meanings and physical form. This draws attention to environmental roles and rules. It is proposed that these have their origins in the home. Consequently,

it is places in the home that provide the basis for considering the physical basis of well-being. These have cultural and historical significance which can facilitate actions, symbolise meanings or filter transactions with the outside environment. The design implications of the dynamic interactions between these processes emphasise features of the design process as well as carrying implications for design products.

INDIVIDUAL ORAL PRESENTATIONS:

Environmental preferences

Weds 1 July, 10:00 – 11:15, 32 MS 03

Chair: Soungmin Yu
Yonsei University, Seoul, Republic of Korea

---

439 From proportion to morphology: A visual-metrics approach for quantifying landscape elements and visual quality

Lichih Ho
Tunghai University, Taichung, Taiwan

Current approaches to quantifying visual landscape quality largely rely on the proportion of elements (e.g., Green View Index), offering limited insight into how the morphology and spatial arrangement of these elements influence human well-being. This study presents LaDeco-VLM (Landscape Decoder–Visual Landscape Metrics), a novel analytical framework that integrates semantic segmentation algorithms with landscape metrics to capture the structural complexity of visual environments. Unlike traditional applications restricted to top-down orthographic imagery, LaDeco-VLM adapts these metrics to an eye-level perspective, performing a comprehensive morphological analysis across seven distinct landscape element categories—calculating multiple indicators, such as the Landscape Shape Index (LSI), Core Area Mean (CORE_MN), and Largest Patch Index (LPI), for each. To illustrate the framework's analytical depth, we highlight three representative findings from our broader analysis: specifically, how varied vegetation boundaries (LSI) enhance spatial legibility and correlate with higher landscape preference, whereas excessive vegetation core concentrations (CORE_MN) and dominant architectural massing (LPI) tend to diminish preference by obscuring navigational cues and creating visual monotony. By establishing a quantitative link between observed landscape morphology and psychological response, LaDeco-VLM provides a robust tool for health-oriented design, enabling planners to identify and replicate spatial patterns that maximize environmental well-being.

---

441 Linking objective landscape structure and perceived preference: An exploratory, cognition-informed AI analysis

Yu-Hsin Tung[1], Lichih Ho[2]
[1]Fu Jen Catholic University, New Taipei City, Taiwan. [2]Tunghai University, Taiching City, Taiwan

Physical landscape structure plays a central role in shaping human health and well-being, yet how objective environmental properties translate into subjective preference remains insufficiently understood. Theories of ecological perception and hierarchical visual processing emphasize that environmental experience emerges from integrated structural relationships rather than from the linear summation of isolated visual features. From this perspective, perceptual preference can be understood as the outcome of multivariate and non-linear cognitive processes. Building on this

premise, we apply a multimodal, AI-based analytical framework to examine links between landscape structure and perceived preference. Landscape properties are quantified using spatial and visual metrics derived from FRAGSTATS, capturing composition, configuration, and spatial heterogeneity across a large image dataset. Preference ratings are used to represent subjective experience related to psychological well-being. Interpretable machine-learning models, coupled with SHAP-based feature attribution, are employed to assess how multiple structural metrics jointly shape perceptual responses. Preliminary findings indicate that specific structural properties are associated with preference-related evaluations, particularly those related to perceived order and visual richness, although these relationships vary across contexts. Together, these results suggest an exploratory framework for linking physical landscape structure with subjective experience, with implications for health-oriented landscape assessment and evidence-informed environmental design.

---

522 Examination of control methods for climber screens in office spaces through occupant evaluations and on-site measurements of glare, view, and daylighting

Miu Osanai[1], Koichiro Saito[2], Naoko Kishimoto[2], Rikuto Kashiwaguma[1], Nozomu Yoshizawa[1]
[1]Tokyo University of Science, Tokyo, Japan. [2]YKK AP Inc., Tokyo, Japan

Window views and daylighting significantly influence occupant comfort and performance in office environments. However, controlling shading devices is challenging because glare reduction must be balanced with daylight utilisation and view preservation. This study investigated practical indicators for controlling climber-type screens by relating occupant glare evaluations to the measured lighting conditions in an actual office building.

A field study was conducted in an occupied office space. Four workstations were selected as evaluation seats, where seated occupants assessed window glare and discomfort using a four-point scale. A total of 49 valid questionnaire responses were obtained. Simultaneously, the lighting conditions were measured at each seat, including the vertical illuminance at eye level, desk illuminance, window illuminance, and luminance distribution.

The results indicated that glare perception generally increased when the vertical illuminance at the eye level reached approximately 1600 lx. In contrast, at a seat affected by glare from reflection on a neighbouring building's rooftop, glare was reported even at lower vertical illuminance levels of approximately 500 lx. Approximately half the occupants perceived glare at this seat, whereas approximately 90% reported glare at a seat with a large window. For the remaining seats, glare was reported by approximately 10% of the occupants.

These findings indicate that vertical-illuminance-based screen control can be effective under typical conditions but is limited by localised high-luminance sources, highlighting the need for careful screen operation strategies in practical office environments.

---

151 Reconstructing spatial layers through behavioural data: How functionally mixed spaces organise everyday activity patterns

Hannah Ju, Soungmin Yu
Yonsei University, Seoul, Korea, Republic of

Background: Research on activity-supportive environments has largely focused on the amount of physical movement, often overlooking how spatial environments organise everyday activity patterns. From a people–environment perspective, space shapes how everyday activities are organised and interrupted rather than merely accommodating them.

Aims: This study examines how functionally mixed office spaces organise everyday activity patterns, focusing on the fragmentation of movement rather than its quantity. It explores how overlapping spatial conditions, such as spatial configuration, visual exposure, and external accessibility, are associated with differences in the temporal organisation of activity.

Approach: A mixed-method approach combined architectural plan analysis, wearable-derived behavioural data, and survey responses. Floor plans of two university office buildings were analysed to reconstruct spatial layers related to configuration, visual exposure, and access. These layers were overlaid with behavioural patterns emphasising activity continuity and fragmentation during working hours.

Anticipated Findings: The findings are expected to show that spatial environments are associated not with reduced activity levels, but with how movement is organised over time. Functionally mixed spaces are anticipated to be linked to more fragmented and frequently interrupted movement patterns, whereas spaces with lower visual exposure and greater spatial depth tend to support more continuous activity rhythms.

Novelty and Implications: By shifting attention from activity quantity to activity organisation, this study contributes a layered approach to people–environment research by linking spatial conditions with everyday activity rhythms. The findings suggest that office design should prioritise managing spatial conditions that support continuity of daily routines rather than simply encouraging movement.

SYMPOSIUM 24:
The biodiversity–people nexus: Insights for human well-being and nature recovery

Weds 1 July, 11:45 – 13:00, 03 MS 01

Chair: Jo Garrett
European Centre for Environment and Human Health, University of Exeter
Penryn, United Kingdom

Nature exposure is associated with positive outcomes for people and planet. However, the specific contribution of biodiversity remains under-explored. This gap is increasingly important with major policy changes in UK agriculture and housing, alongside ambitious biodiversity targets.

The aim of this symposium is to explore the two-way relationships between biodiversity and people, including benefits, nuances, and trade-offs.

M. Marselle will present findings on associations between biodiverse soundscapes and human well-being, addressing the contribution of sensory experiences of biodiversity.

A.L. Sachs will introduce “NATUREWISE: A wellbeing and nature connectedness evaluation of the *National Education Nature Park Programme”*, a biodiversity enhancement initiative for schools across England, outlining an evaluation of how structured nature interactions support pupil well-being.

E. Squire will report a study entitled “Can psychological factors differentiate profiles of biodiversity citizen scientists? A large-scale survey of iNaturalist users”. This explores how psychological profiles relate to sustained biodiversity recording, an important source of data for conservation.

J.K. Garrett will discuss "Support for pro-nature policies from the *Renewing Biodiversity Longitudinal Survey"*, examining the attitudinal and behavioural predictors of this support, including exposure to nature recovery.

We include perspectives from research and practice, spanning a range of approaches, including longitudinal surveys and intervention evaluation. Together, these provide a holistic understanding of how people experience biodiversity, and how interactions can support both human well-being and nature recovery.

Speakers: Melissa Marselle**,** Ashby Sachs**,** Emma Squire**,** Jo Garrett

---

190 Mental wellbeing benefits of biodiverse natural soundscapes: Implications for landscape recovery

Melissa Marselle[1], Konrad Uebel[1], Claire Buchan[2], Anthony Higney[3], Nicholas Hanley[3], Simon Butler[2], Eleanor Ratcliffe[1]
[1]University of Surrey, Guildford, United Kingdom. [2]University of East Anglia, Norwich, United Kingdom. [3]University of Glasgow, Glasgow, United Kingdom

Natural soundscapes are an important dimension of nature contact and can enhance mental health and wellbeing. Yet, the acoustic properties that drive these benefits, the mediating mechanisms, and the moderating role of anthropogenic noise remain poorly understood, limiting their integration into natural capital valuations.

This study examined how acoustic complexity, amplitude, and intensity of soundscapes containing birdsong influence wellbeing outcomes, and whether these effects are mediated by perceived biodiversity, awe, stress and perceived restorative quality, and moderated by traffic noise.

In an online experiment, a representative UK sample (N = 1,529) listened to nine simulated birdsong soundscapes varying in low, medium, and high levels of acoustic indices representing complexity, amplitude and complexity, with either no, low or high traffic overlays. After listening to each soundscape, participants reported their subjective wellbeing, awe, perceived stress, restorative outcomes, and perceived biodiversity.

Acoustic index level did not directly affect wellbeing. Instead, effects were fully mediated: soundscapes with moderate complexity and higher amplitude had an indirect effect on wellbeing via enhanced perceived bird diversity, which in turn increased restorativeness, reduced stress, and evoked awe. High traffic noise significantly diminished these benefits.

This study provides the first evidence of a serial mediation pathway linking natural soundscape indices to wellbeing via biodiversity perception and psychological mediators. It also demonstrates the detrimental impact of anthropogenic noise on the restorative benefits of natural soundscapes. Findings underscore the social value of landscape recovery, and highlight the need to manage habitats to enhance birdsong biodiversity for both people and nature.

---

352 NATUREWISE: A wellbeing and nature connectedness evaluation of the National Education Nature Park programme

Ashby Sachs[1,2], Chloe Sutcliffe[1], Sam Hartley[1], Ross Cameron[2], Tijana Blanusa[1,3], Nic Buckley[1], Miles Richardson[4], Alistair Griffiths[1]
[1]Royal Horticultural Society, Woking, United Kingdom. [2]Sheffield University School of Architecture and Landscape, Sheffield, United Kingdom. [3]University of Reading School of Agriculture, Policy and

Development, Reading, United Kingdom. [4]University of Derby School of Science, Derby, United Kingdom

A robust literature details the positive health benefits of nature exposure. The growing interest in nature and wellbeing linkages may partially be attributed to our increasing societal disconnection from nature. Young people's experience of climate change and its mental health impact is also increasingly highlighted. Furthermore, young people are increasingly indoors and online. Our aim is to evaluate the impact of the National Education Nature Park programme on pupil wellbeing, connection with and concern for nature, time spent in nature outside of school among approximately 2,000 children aged 8–15. Nature Park is a biodiversity enhancement and monitoring programme for school children across England funded by the Department for Education. We developed a unique survey instrument for three timepoints to evaluate the programme that is not uniformly executed at 50 schools nationwide in spring 2026. We will review the matrix developed to weight programme participation, our recruitment strategy, and analytic plans. We hypothesise that after one term of participation (approximately six weeks), participating pupils will demonstrate increased personal wellbeing, connection to and concern for nature, as well as increased time in nature outside of school. We seek to better understand if Nature Park meets the growing societal needs for solutions to the twin predicaments of the youth mental health epidemic and the biodiversity loss crisis by facilitating a stronger connection to nature and improved mental and social wellbeing. This understanding will help expand this program in schools nationwide, while serving as an example to be tested in other countries globally.

---

661 Can psychological factors differentiate profiles of biodiversity citizen scientists? A large-scale survey of iNaturalistUK users

Emma Squire, Lewis Elliott, Rebecca Lovell, Kevin Gaston
University of Exeter, Penryn, United Kingdom

Biodiversity data collected by tens of thousands of volunteers has informed UK reports on the state of nature, supporting national targets to halt biodiversity decline. The UK Government recognises the vital role of volunteer recorders in monitoring biodiversity, and aims to encourage participation to improve the extent and quality of biodiversity data. However, there is a need to understand better who participates, why and how, to help identify what behaviour change approaches could further encourage or facilitate new or greater involvement in recording activities.

This study assessed the effectiveness of constructs from the Value Belief Norm and Theory of Planned Behaviour (TPB) frameworks in distinguishing psychological profiles of iNaturalistUK users based on their long-term engagement.

Latent profile analysis identified user profiles, and regression analysis examined their relationship to observed recording behaviour in terms of engagement (measured by length of involvement and recording frequency), and species diversity of recordings made, while controlling for demographics and other confounders. Data were drawn from a large-scale online survey of iNaturalistUK registered users (n = 2,515), linked to actual recording behaviour.

Profiles aligned with TPB significantly predicted engagement including species diversity of recordings made, whereas value-based profiles did not. TPB related profiles explained substantially more variance in engagement and recording behaviour than demographic factors. These findings suggest that psychological factors play a key role in shaping participation and recording behaviour, offering a promising basis for targeted communication strategies to increase the frequency and diversity of biodiversity recording, thereby improving data quality and supporting conservation priorities.

---

195 Support for pro-nature policies from the Renewing Biodiversity Longitudinal Survey

Jo Garrett[1], Rebecca Lovell[1], Lewis R. Elliott[1], Benjamin Phillips[2], Amy Greenwood[3], Fraenze Kibowski[3], Kevin J. Gaston[2]
[1]European Centre for Environment and Human Health, University of Exeter, Penryn, United Kingdom. [2]Environment and Sustainability Institute, University of Exeter, Penryn, United Kingdom. [3]Natural England, York, United Kingdom

Nature-related policies in England are currently undergoing a period of considerable change, including agriculture and planning regulations alongside ambitious targets to improve the state of nature. Citizen support for pro-nature policies is essential for their development, legislative adoption, and effective implementation at both national and local level.

Here, we explore factors related to support for nine pro-nature policy topics, including socio-demographic, attitudinal and behavioural factors. Policy topics range from the more specific, such as reduced mowing, to more general, such as increasing the area of land managed for nature.

Participants were a cross-sectional sample of 16,203 respondents to the Renewing Biodiversity Longitudinal Survey (1st November 2023 – 31st October 2024). We purposefully oversampled in rural areas (60%) and the remaining 40% was nationally representative (with sampling weights applied). We also explored support for two selected policy areas, stricter regulation of house building and converting some farmland to areas managed for nature, in greater depth through qualitative interviews (n = 40).

On average, there was support for all policies. However, there was variation among them. Overall, the most popular policy was “Increasing the area of land that is protected and managed for nature”. The least popular option was “Culling some animal species to benefit other wild plants and animals”. Associations between predictors and outcome varied with policy topic. Perceived personal benefits was consistently related.

Understanding of predictors of support is expected to inform communication strategies, anticipate implementation challenges, and provide a baseline for future longitudinal research.

INDIVIDUAL ORAL PRESENTATIONS:
Food

Weds 1 July, 11:45 – 13:00, AP 1

Chair: Alexa Spence
University of Bamberg, Bamberg, Germany

---

64 Urban environments, health, and food security: Understanding vulnerabilities among households living with noncommunicable diseases in South African cities

Adrino Mazenda
University of Pretoria, Pretoria, South Africa

Background: The rising burden of noncommunicable diseases (NCDs) presents a critical challenge for household wellbeing, especially within urban environments where socioeconomic inequalities shape access to food and healthcare. In Gauteng’s metropolitan municipalities, physical and social environments intersect to influence the food security status of households managing chronic illness.

Aims: The study examines how socioeconomic and environmental conditions affect food security outcomes among NCD-affected households in the City of Johannesburg, City of Tshwane, and City of Ekurhuleni.

Method/Approach: Drawing on secondary data from the South African General Household Survey (2024), the study employs Propensity Score Matching (PSM) to establish balanced comparisons between households with and without NCDs. A Tobit regression model is employed to assess the impact of socioeconomic characteristics, including income, education, and household size, on food security outcomes within households affected by NCDs.

Findings: Results reveal significant municipal variation. In Johannesburg, NCD-affected households exhibit a marginally protective effect against food insecurity, potentially reflecting stronger access to health services and urban support systems. In Tshwane, households with NCDs experience increased vulnerability to food insecurity, while results from Ekurhuleni are mixed. Consistently across matched samples, household size, income, and education of the household head predict food security outcomes.

Implications and Importance/Originality: The study demonstrates that health and food security outcomes among households affected by NCDs are shaped by the broader urban environment. It clearly shows how locality-specific socioeconomic and infrastructural conditions mediate wellbeing, reinforcing the need for integrated urban health, food system, and social protection interventions.

---

686 Changing diets: a participatory systems thinking approach to identify leverage points for sustainable food behaviors

Simon Ladino Cano, Matthias Heinrich, Claudia R. Binder
EPFL, Lausanne, Switzerland

Dietary change, particularly reduced consumption of animal-based products, is among the most effective demand-side solutions for climate mitigation, with substantial co-benefits for health. Yet food behaviors are embedded in everyday routines and shaped by interacting behavioral, social, and contextual factors, making them resistant to change. Although research calls for identifying leverage points to shift food behaviors, empirical studies identifying them remain scarce. This presentation aims to identify leverage points for sustainable and healthy food behavior change using a participatory systems thinking approach. We conducted a mixed-methods study in the binational Arc Lémanique region (Switzerland–France). Longitudinal household survey data were analyzed to identify food-related household profiles and construct data-driven personas, and to inform the development of a causal loop diagram (CLD) depicting feedback mechanisms shaping food behaviors. Personas were used as boundary objects in a stakeholder workshop to elicit and prioritize intervention ideas. The CLD was then refined through expert interviews and used to map how interventions affect the food system. We identified seven leverage points grounded in stakeholders' implementation experience. Awareness-raising around healthy diets emerged as a key entry point to sustainable food behaviors, but the CLD discussions showed that barriers such as prices, availability, habits, and time constraints stabilize unsustainable and unhealthy diets. Behavioral interventions targeting norms and attitudes alone were found to produce short-lived effects, whereas combining behavioral and structural measures (e.g., price incentives) strengthened reinforcing feedbacks supporting sustained dietary change. By linking behavioral science and systems thinking, we provide a replicable approach for identifying context-specific interventions.

---

637 Plant-forward accepted, true costs rejected: Testing sustainable food interventions in university cafeterias

Swen J. Kühne[1], Claudia Müller[2], Gianna Lazzarini[2], Francesco Bortolluzi[2], Anita Reber[1], Cathérine Hartmann[1]
[1]Zurich University of Applied Sciences, Zurich, Switzerland. [2]Zurich University of Applied Sciences, Wädenswil, Switzerland

University cafeterias contribute substantially to institutional carbon emissions, making them an important leverage point for achieving net-zero targets. Universities could use a variety of behavioral interventions to influence emissions—but which ones should be implemented? This study applied a multi-stage, evidence-informed approach to identify, test, and evaluate promising interventions in two cafeterias at the Zurich University of Applied Sciences as part of a living lab project.

First, using the Delphi method, 12 experts assessed 16 intervention techniques regarding their expected environmental impact, feasibility, and economic implications. The six most promising interventions were then evaluated by cafeteria customers (N=293) in terms of their acceptability. Based on these assessments, two interventions were selected and implemented sequentially and cumulatively over 14 weeks in two cafeterias.

The first intervention, the *plant-forward plate*, optimized menus with an emphasis on plant-based components with lower environmental impact. The second intervention, *true costs*, applied a price surcharge to high-carbon meals to make their environmental costs more salient. Customer satisfaction was assessed using smiley polls (N=2170), open feedback boxes, and two surveys (N=92).

Results showed consistently high customer satisfaction during the *plant-forward plate* intervention. In contrast, the *true costs* intervention led to reduced sales and increased dissatisfaction in one cafeteria and was therefore discontinued after two weeks rather than the planned seven. Satisfaction declined only in one cafeteria, underscoring the strong context dependence of intervention acceptance and effectiveness. These findings highlight the importance of participatory selection processes and contextual sensitivity when implementing food-related behavior change interventions.

---

707 Measuring environmental impact misperceptions using objective food purchasing data

Alexa Spence, Daniel Fletcher, Gavin Long, John Harvey, Lukinova Evgeniya, Charles Ogunbode, Goulding James
University of Nottingham, Nottingham, United Kingdom

Food is central to daily life but also a major driver of climate change: the UK food system accounts for just under a third of national greenhouse gas emissions. Although most people express positive attitudes towards environmentally friendly food, most do not consume environmentally sustainable diets. Previous research suggests that misperceptions of environmental impacts contribute to this gap, but limited environmental impact data across food products and a lack of objective behavioural measures have made it hard to assess.

This study examines perceived and actual environmental impacts of food purchasing in a representative UK sample (N= 1,006), using newly available environmental impact data. These data are combined with a novel data donation approach in which participants share supermarket purchase card data, overcoming the absence of real-world purchasing behaviour in prior research. We develop the Environmental Food Purchase Index (EFPI) to quantify the environmental impact of individuals' food purchases and assess its validity with related indicators and qualitative interviews with a subsample of participants (N= 21).

Results show consumers are moderately accurate at assessing environmental impacts between food categories but struggle to distinguish impacts within categories. A large amount of variance in EFPI scores was explained by relative purchasing of different meat types (e.g., beef vs. chicken), however within-category consumption patterns did not affect *perceived* impact. Findings suggest consumers conceptualise food-related environmental impacts at a high categorical level, overlooking important within-category distinctions. This has implications for the design of labelling and communications to support informed food choices.

INDIVIDUAL ORAL PRESENTATIONS:
Energy: Attitudes and acceptance

Weds 1 July, 11:45 – 13:00, AP 2

Chair: Chris Jones
University of Portsmouth, Portsmouth, United Kingdom

---

35 Spatial optimization? No, thanks! A humanistic perspective on the challenges of land-based energy expansion in Denmark

Yair Asael Alpuche Alvarez
University of Copenhagen, Copenhagen, Denmark

Efforts to promote sustainable territorial transitions have led to institutional and technological strategies aimed at reducing carbon emissions and generating clean energy. However, social reactions to how these transitions are implemented increasingly slow their progress. Across the world, calls for justice reveal that renewable energy infrastructures often disregard local values, distribute benefits inequitably, and disrupt human–landscape relationships. In Denmark, the national policy to quadruple land-based renewable energy generation exposes structural incoherences within decision-making systems. This study explores the spatial, political, and sociocultural factors underlying these reactions, questioning how planning frameworks align with lived experience.

Using a mixed-method triangulation combined with a serious game as a research-through-design process, the study diagnoses the coherence between national transition objectives and local socioecological contexts. Through abductive reasoning, a theoretical framework emerges linking experience, cognition, and agency to explain the perceptual and emotional bases of social resistance.

Findings indicate a mismatch between the epistemic and value systems guiding institutional planning and those informing local rationalities. Social resistance appears not as opposition but as a legitimate expression of alternative worldviews and attachments to place. This research reframes green transition dilemmas through a restorative approach to socioecological values, warning that compensation schemes may inadvertently monetize relational and intrinsic values of nature. Moreover, justice should not be treated as a distant goal but as an experiential condition enabling sustainable, culturally coherent, and emotionally resonant transformations of the landscape.

---

702 Public acceptability of hydrogen in non-household applications and its determinants: A meta-analysis

Adelaida Patrasc-Lungu, Goda Perlaviciute, Gonzalo Francisco Palomo Vélez
The Environmental Psychology Group, Faculty of Behavioural and Social Sciences University of Groningen, Groningen, Netherlands

Hydrogen can be a specialized solution for less emission-intensive energy systems (e.g., for harmonizing fluctuations in renewable energy grids and, in certain lifecycle configurations, reducing the emission intensity of hard-to-abate industry sectors). Although such uses are recognized as priority ones by governments and international organizations, a quantitative synthesis of how the general public perceives them is currently missing.

Thus, we conduct a meta-analysis targeting public acceptability of non-household applications of hydrogen (e.g., industrial uses, large-scale infrastructure).

Following pre-registration and a systematic search (Scopus, Web of Science), we extracted effect sizes for public acceptability of non-household applications, as well as its relationship with determinants.

We conducted a meta-analysis of proportions with a random-effects model to estimate overall percentage support for non-household applications of hydrogen (i.e., percentage of participants in agreement/support of considered applications). We separately estimated percentage support for non-household applications for hydrogen (from 10 studies; 13,314 participants in total) and for green hydrogen (from 11 studies; 9,651 participants in total). We further differentiated results by proximity (local development or not), supply chain stages, and application type.

Then, we quantitatively synthesized which of the determinants considered in past studies most strongly related to acceptability outcomes (e.g., demographics, knowledge, safety and environmental perceptions, trust in different actors).

We discuss heterogeneity of findings, implications for policy decisions, and recommendations for future research. Our results unveil how the general public evaluates hydrogen applications that they do not directly use, but which nonetheless hold health, environmental and fairness implications for our societies.

---

347 Understanding visitor acceptance of off-grid EV charging at a UK zoo

Taalia Nadeem, Chris Jones
University of Portsmouth, Portsmouth, United Kingdom

As the UK moves towards widespread transport electrification, electric vehicle (EV) infrastructure raises important social and behavioural challenges alongside technical ones. Off-grid EV chargers powered by renewable energy introduce variability in availability, pricing, and shared use, making acceptance, perceived value and social norms particularly salient.

This study examines visitor acceptance of a proposed off-grid EV charging system at Marwell Zoo to identify psychological and contextual factors that shape intentions to use and willingness to pay for charging.

A cross-sectional online visitor survey was developed using the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) and distributed via the Marwell Zoo mailing list. The survey assessed charging-related habits; perceptions and expectations of EV charging; charger sharing and use etiquette; willingness to pay for charging; and preferences for messaging and behavioural nudges to encourage considerate charger use.

The planned analysis includes descriptive statistics to summarise responses, cross-tabulations to examine associations between key variables, and k-means clustering to identify broad visitor segments.

While data collection is ongoing, preliminary findings suggest generally positive expectations toward off-grid EV charging. Willingness-to-use appears higher among respondents with prior EV experience, while willingness-to-pay is more conditional and sensitive to pricing rationale and sustainability framing. Attitudes toward charging etiquette vary, and cluster analysis indicates distinct visitor segments that differ in charging intentions, price sensitivity and perceived social norms.

Applying UTAUT2 to a real-world destination-charging setting offers insights for pricing, 'fair use' communication, and user-driven off-grid EV infrastructure, supporting equitable and sustainable mobility decarbonisation.

---

259 Understanding public attitudes toward Small Modular Reactors in the UK: The role of proximity and perceived scientific consensus

Chris Jones, Ana Gheorghiu, Jim Smith
University of Portsmouth, Portsmouth, United Kingdom

Public acceptance of emerging energy technologies is critical for their successful implementation, yet public attitudes toward Small Modular Nuclear Reactors (SMRs) remain underexplored. This study examines two key factors likely to shape these attitudes: (a) whether SMRs are perceived as being 'locally sited' versus 'deployed in general', and (b) the influence of perceived scientific consensus on their value for UK power generation.

SMRs' compact design and siting flexibility mean they could be located near communities with no prior experience of nuclear energy, raising questions about proximity effects. Prior research suggests publics are often resistant to local infrastructure projects, even when supportive in principle. Accordingly—and based on analogous research—we hypothesise (H1) that participants will express overall favourability for SMRs, but with a significant preference for deployment in principle as compared with local deployment.

Drawing on the Gateway Belief Model, which posits that perceived scientific consensus shapes public opinion, we further hypothesise (H2) that higher perceived consensus will correspond with more favourable attitudes. Finally, we predict (H3) that perceived consensus will moderate proximity effects, reducing the gap between general and local acceptance under conditions of perceived scientific consensus.

Data were collected via an online survey (N = 979) using quota sampling to achieve demographic representativeness across gender, age, education, and ethnicity. Our findings stand to advance our understanding of attitudes toward SMRs. These insights have practical implications for communication strategies and policy design, highlighting the importance of consensus framing in shaping public opinions of new nuclear energy technologies.

Chair: Li-Wen Sung
National Cheng Kung University, Tainan, Taiwan

---

62 Material matters: Artistic interventions for sustainable design education

Derek Toomes, Amanda Gale
University of North Carolina at Greensboro, Greensboro, United States

Despite growing awareness of environmental issues, Americans continue to generate nearly three times the global average of daily waste (McDonald, 2023), with recyclable materials such as paper, plastics, and metals frequently entering landfills (EPA, 2022). Within design education, where material consumption is often high, there is a pressing need to foster sustainable behaviors that support environmental and human wellbeing and shape everyday practices.

This interdisciplinary project explored sustainability practices among design students, focusing on recycling habits and material choices. Using a mixed-method approach, the study integrated program-level waste audits, behavioral observation, and artistic intervention to promote sustainable change. Waste audits enable organizations to assess and reduce environmental impact by analyzing waste streams, and are particularly effective in revealing the material-intensive nature of design disciplines. Findings from these audits informed the creation of a large-scale art installation of nonperishable waste materials, installed in the Design Building lobby. The installation functioned as a reflective space, encouraging emotional engagement with environmental impact while fostering a sense of ownership and accountability.

Behavioral mapping and a follow-up audit assessed the installation's influence on student practices. Results highlighted the role of faculty modeling and the need for targeted sustainability education. The installation demonstrated how visual communication and artistic expression can bridge the gap between awareness and action, offering a low-barrier, emotionally resonant approach for engaging students in sustainable thinking.

This presentation will detail the project's methodology and outcomes, illustrating how creative, participatory approaches can cultivate sustainable lifestyles and support wellbeing within educational settings.

---

647 A mobile learning application as a distributed cognition tool for situated accessibility assessment in interior design education

Jung-hye Shin[1], Dowon Lee[1], Brooke Godfrey[2], Hyun-seok Chang[2]
[1]Cornell University, Ithaca, NY, United States. [2]University of Wisconsin-Madison, Madison, WI, United States

Design education for inclusive environments requires students to engage with accessibility as a context-dependent and experiential phenomenon, translating abstract guidelines into situated judgments within real residential settings. This study examined the effects of a mobile learning application incorporating a augmented reality (AR) component—an Augmented Reality Home Assessment Tool (ARHAT)—on learning motivation and performance in an undergraduate interior design course, compared with conventional tape-measure–based assessment practices.

A five-week instructional module integrated lectures, reflective essays, workshops, and in-situ assessments of domestic spaces, structured around Keller's Attention, Relevance, Confidence, and Satisfaction (ARCS) motivational framework.

Fifty-three students participated in a randomized crossover design, completing bathroom and kitchen accessibility assessments using both ARHAT and a paper-based Housing Enabler (HE) tool. Learning motivation was measured using the Reduced Instructional Materials Motivation Survey (RIMMS), while performance outcomes included perceived ease of use, task completion time, and measurement accuracy.

Within-subject treatment-effect analyses indicated that the mobile application significantly increased motivation across all four ARCS dimensions—Attention, Relevance, Confidence, and Satisfaction—without increasing task completion time. Measurement accuracy did not differ significantly between assessment methods. Qualitative exit interviews supported these findings, with students describing how embedded guidance, visual cues, and immediate feedback supported attentional focus, contextual understanding, and procedural confidence during real-world tasks.

The results suggest that mobile learning applications with mAR features can function as distributed cognitive tools, scaffolding accessibility assessment in authentic environments. For inclusive design education, such tools may enhance engagement and motivation while maintaining performance, supporting meaningful person–environment learning experiences.

---

478 Expanding understanding of humans and the environment under the constraints of rural area: Generative artificial intelligence as a mediating tool in architectural learning

Ting-ting Cheng, Li-wen Sung
Department of Architecture, National Cheng Kung University, Tainan, Taiwan

Architectural learning is not merely about classroom knowledge; it emphasizes the perception and response to real-world environments. However, inter-institutional collaborative architectural design learning faces challenges such as limited time for collaborative discussions. When learning takes place in rural areas, limitations in transportation and site resources further reduce the effectiveness of on-site learning and design development.

This study examines how Generative Artificial Intelligence (GenAI) can be utilized as a design aid to expand students' understanding of the environment, users, and design issues under constrained conditions, enabling them to propose practical design proposals and enhance their environmental sensitivity and stakeholder communication skills.

The study employs a participatory, design-oriented research methodology, integrating this research into a six-month course involving 25 senior students from three architecture colleges and four faculty members. The research site is in the Lishan area, deep in the mountains of Taiwan. Students conducted on-site observations and proposed site-specific designs in mixed groups.

Research findings:

1. The beautiful environment of rural areas can help alleviate students' anxiety in an information-saturated world and also assist learners in focusing their learning, thereby creating a more conducive learning atmosphere.
2. The use of GenAI in teaching models promotes environmental education and knowledge transformation in resource-scarce areas, potentially leading to new environmental education learning methods.

This study proposes a scalable distance learning model for architecture education. By using GenAI as a knowledge transformation tool, it enhances access to more equitable learning resources in rural areas and establishes new teaching methods for environmental education.

---

490 Research on the teaching of collective housing design based on generative AI and VR

Li-Wen Sung, Ting-Ting Cheng
Department of Architecture, National Cheng Kung University, Tainan, Taiwan

In the wave of digital transformation in the architecture profession, generative artificial intelligence (AI) can provide more accurate analysis of design requirements and case studies. Combining it with virtual reality(VR) technology to enhance site awareness can effectively improve students' learning outcomes in designing residential complexes.

This study uses participatory research and comparative analysis, introducing AI and VR equipment into a fourth-year university design studio and comparing the learning outcomes of the same course over the past three years. The research results include two aspects:

1. AI enables students to more quickly develop complete architectural program in areas such as site conditions, user group characteristics analysis, building physical environment simulation, building code review, and relevant case searches.

2. Using AI to simulate space generation, and after multiple reviews to form spatial design proposals, then introducing VR to experience the spatial atmosphere strengthens students' deep understanding of spatial cognition, enabling them to adjust and develop more ideal design solutions independently.

The research results show that the appropriate introduction of AI and VR enables students to address real-world architectural design problems effectively, shortens the time required for preliminary research and proposal development, and allows them to experience their design solutions in a virtual environment, thereby stimulating their design potential. Furthermore, because there is more time for discussion, students demonstrate more competitive professional analytical skills and perspectives when facing complex social issues (such as housing justice), which fosters a more "humanistic" quality in architectural education and provides a valuable teaching model.

INDIVIDUAL ORAL PRESENTATIONS:
Place

Weds 1 July, 11:45 – 13:00, 72 MS 03

Chair: Elise Peters
Windesheim University of Applied Sciences, Almere, Netherlands
Leiden University of Applied Sciences, Leiden, Netherlands

---

562 Making (sense of) porous places: An analysis of in-place political participation, mobility, and urban coexistence

Zeno Mutton, Paula Castro
ISCTE-IUL, Lisbon, Portugal

Background: Urban coexistence and mobility of different actors, identities, uses, norms, and spheres – e.g., public, private, and political – are crucial to understand how people make sense of urban places and their ambivalences, in the context of Self-Other relations. Literature highlights how local state institutions can enhance urban coexistence by making *porous* urban borders – that facilitate mobility and coexistence between different places - or hinder it, by accentuating rigid borders. Nonetheless, more needs to be known about how porosity is constructed through in-place political participation within Self-Other relations.

Aim: This work discusses the role of porosity in understanding mobility and urban coexistence, presenting an ethnography conducted in Bologna with activist university students in-mobility who engage in the negotiation with local state institutions about place-related uses and norms.

Methods: Participant observations and 14 walking interviews were conducted between March 2022 and February 2023 with 5 students' political organizations when they were conducting in-place political activities. A Reflexive Thematic Analysis has been conducted on fieldnotes, pictures, video, and walking interviews, identifying how porosity is constructed during these activities.

Findings: The analysis shows that porosity is mobilized to 1) Contest the institutional governance by introducing alternative uses and norms of places; 2) Search for allies with different groups, as vulnerable dwellers, and long-term residents; 3) Make sense of ambivalences and contradictions of relating with Others in urban places.

Novelty/Implications: Concluding, porosity represents a relevant perspective for a social environmental psychology of the city to analyse the different dynamics of mobility and urban coexistence.

---

138 Architectural color relationship structures in cold-region historic districts: A network-based study of place identity

Chunshuo Qu[1,2], Jianfei Dong[1,2], Yiming Hu[1,2], Tarasova Aleksandra[1,2]
[1]Harbin Institute of Technology, Harbin, China. [2]Key Laboratory of Cold Regions Urban Rural Human Settlement Environment Science and Technology Ministry of Industry and Information Technology, Harbin, China

Architectural colors in historic districts of cold-region cities form relatively stable visual orders under the combined influences of harsh climatic conditions, historical continuity, and urban renewal interventions, and these color configurations may exert subtle yet significant effects on residents' place identity. However, existing studies have largely focused on descriptive analyses of color attributes or stylistic characteristics, while systematic quantitative investigations of color relational structures remain limited.In this study, the color system of historic districts is conceptualized as an environmental relational system. Based on the extraction of dominant colors from street-view images, a weighted relationship network is constructed by integrating color co-occurrence patterns and perceptual similarity. The color structures and their stability across different historic districts are then comparatively analyzed to explore trend-level associations between color relational structures and residents' place identity.This research proposes a quantitative approach with clear environmental psychological relevance for the assessment and design of historic districts in cold-region cities, and provides a scientifically grounded and operational analytical framework for studies on urban color planning and place identity, offering both theoretical and practical contributions.

---

598 Attachment to the same area but different places: The influence of neighborhood regeneration

Arei Matsumoto[1], Tomoko Hata[2], Masahiro Tanaka[3], Natsuko Nagasawa[1], Yurika Yokoyama[4]
[1]Ochanomizu University, Tokyo, Japan. [2]Bunkyo Gakuin University, Saitama, Japan. [3]Tokyo Metropolitan University, Tokyo, Japan. [4]The University of Tokyo, Tokyo, Japan

This study was conducted in a regenerated urban neighborhood to examine the nature and processes of place attachment. The research site, Musashi-Kosugi in Japan, was selected for its coexistence of old and newly developed streetscapes. Over the past 17 years, expensive high-rise apartments (known as Tawaman) and commercial buildings have replaced factories in Musashi-Kosugi, attracting new residents whose socioeconomic backgrounds differ from those of the original residents.

An online questionnaire was distributed to residents of the area, and responses from individuals identifying as living in Musashi-Kosugi were analyzed (n=100). This included both long-term (n=49) and new residents (n=51). Participants were asked about their attachment to Musashi-Kosugi, their everyday lives, the places they visited, the places where they felt Musashi-Kosugi-ness, and the places they felt attached to.

The findings showed that residents' overall place attachment was higher after the neighborhood regeneration. However, long-term residents whose attachment increased (n=23) after the neighborhood regeneration tended to evaluate the changed streetscapes positively, whereas long-term residents whose attachment decreased (n=26) tended to evaluate the influx of different social classes and family types negatively. This indicates that regeneration exerts a certain influence on residents' place attachment. Furthermore, comparing residents who live within the regenerated area (i.e. Tawaman residents) with other residents revealed differences in the spatial extent of where they perceived as "Musashi-Kosugi" and in the areas they frequently visited in their daily lives, suggesting that the spatial scope and the objects toward which attachment is directed differ.

---

516 Broadening learning contexts to transform students' sense of place in school: A mixed-methods study with primary school students

Elise Peters[1,2], Lisa van der Sande[1], Rochelle Hurenkamp[3], Chiel van der Veen[1]
[1]Windesheim University of Applied Sciences, Almere, Netherlands. [2]Leiden University of Applied Sciences, Leiden, Netherlands. [3]Windesheim University of Applied Sciences, Zwolle, Netherlands

Background: Sustainability as wellbeing calls for learning environments that nurture not only academic development, but also students' sense of belonging and place connection in school. Schools are key people–environment systems in which social, cultural, and physical conditions interact to shape children's wellbeing and development. Yet for many students, particularly from marginalized backgrounds, school is experienced as a place of outsideness (Relph, 1976), where learning activities feel misaligned with their identities and everyday lives. Expanding developmental opportunities therefore revolves around creating experiences in which students see themselves as learners and experience school as a place where they belong. One promising approach is to broaden the school learning context by exposing students to diverse places that offer different forms of learning, alternative content, and interactions with a wider range of educators, which may transform the students' sense of place in school.

Aims/Objectives: A community-based after-school intervention was aimed to change students' sense of place in school. The study investigates whether students experience a different sense of place during activities of the intervention compared to regular school moments.

Method: Using a mixed-methods design, students' place experiences were examined through a photovoice study of physical learning settings, and questionnaire studies assessing experiences of learning activities and social connectedness among 60 students (n = 30 girls) aged 6-12 years.

Findings: Preliminary findings will be presented at the IAPS conference.

Novelty and Implications: By foregrounding marginalized students' lived experiences, this study offers novel insight into how broadened learning contexts shape students' sense of place.

INDIVIDUAL ORAL PRESENTATIONS:
Healthy ageing

Weds 1 July, 11:45 – 13:00, 32 MS 03

Chair: Lusi Morhayim
University College London, London, United Kingdom

---

505 Spatial welfare for enhancing wellbeing in elderly care environments: Conceptual framework and case insights

Nahyang Byun
Chungbuk National University, Cheongju City, Korea, Republic of

As societies rapidly age, enhancing wellbeing in elderly care environments has become a central concern in people–environment research. While welfare policies increasingly prioritise care provision, spatial configurations in elderly care settings are often treated as passive backdrops, limiting their capacity to support everyday wellbeing. This persistent disconnect between welfare systems and spatial planning highlights the need for an integrative conceptual framework.

This study proposes *spatial welfare* as a framework that repositions space as active welfare infrastructure in elderly care environments. It asks how spatial arrangements can enhance wellbeing by supporting care responsiveness, autonomy, and social connectedness through everyday people–environment interactions.

The study adopts a conceptual and case-based review approach, synthesising interdisciplinary literature, policy documents, and selected international cases. Case insights are drawn from community-based elderly care environments in Japan and Northern Europe, where welfare principles are more clearly translated into spatial strategies. In contrast, the Korean context is introduced as a contextual case highlighting persistent spatial gaps within service-oriented care systems.

The analysis identifies key dimensions of spatial welfare, including accessibility and proximity, responsiveness of care-related spaces, mitigation of spatial gaps in daily assistance, and environmental support for autonomy, social interaction, and engagement with nature. Environments structured around these principles show greater potential to enhance everyday wellbeing and care efficiency.

By reframing elderly care environments through the lens of spatial welfare, this study offers a novel conceptual contribution that bridges welfare policy, spatial planning, and wellbeing, and provides a foundation for future research and practice.

---

698 WEAVING MEMORIES: Spatial design methods for the care of people with Alzheimer's

Humberto Monge Brenes, Andrea Sancho Salas, Helga Von Breymann
Universidad de Costa Rica, San José, Costa Rica

Limited knowledge regarding the impact of spatial design on people living with dementia in Costa Rica, together with the significant global increase in Alzheimer's disease associated with population ageing, motivates the development of this research. The study aims to advance the theoretical understanding while providing practical and transferable design guidelines for care environments. Drawing on principles from neuroarchitecture and environmental psychology, this research examines how the built environment influences cognitive, emotional and behavioral well-being in people with Alzheimer´s disease. The methodology follows four sequential phases. A systematic literature review identified key spatial variables, such as color, lighting, integration with nature, spatial orientation, among others that influence functionality, safety and autonomy. To support this, seven case studies were analyzed using a systematization matrix to extract effective design strategies and their applicability. Then, through analytical induction, the theoretical and empirical findings were synthesized into eight core design categories (including chromatics, spatial orientation, and safety), generating specific design solutions for ten prototypical care spaces. Finally, to proposed design guidelines were tested through surveying and digital modeling of nine spaces at the Cartago Day Center for the Elderly, enabling contextual application and comparative analysis. The results provide a structured theoretical-practical framework of, design methods and parameters, intended as decision-making and consultation tool for adaption of dementia care facilities. This study demonstrates how targeted architectural interventions can support spatial legibility, reduce confusion and sensory overstimulation, and therapeutically contribute environments for people living with Alzheimer´s disease.

---

755 An intervention study in group living for elderly people with dementia: Encouraging interaction through furniture layout

Shunsuke Itoh, Kumi Hayashi
Tokyo Denki University, Tokyo, Japan

The design of environments is a crucial aspect of QOL and well-being for elderly people. We conducted an intervention study in a group-living facility for elderly people with dementia, in which the furniture layout was rearranged to encourage residents to spend more time in the common living/dining room. Participant observations were conducted before and after the intervention. Data were collected through behavior mapping of residents at regular intervals over 47 days before the intervention and 12 days for evaluation. The group-living unit consisted of nine residents, most of whom were capable of moving independently.

During the pre-intervention observation period, residents spent approximately 20% of their time in their individual bedrooms and 60% in the common room, mostly during mealtimes. Sofas in the common room were used only by specific individuals, while other residents tended to sit in fixed seats at the dining table.

The intervention included relocating sofas to more accessible locations, placing an additional couch in a location with an outside view, and rearranging the dining tables to improve views. Spaces for circulation were widened. Post-intervention results showed an increase in time spent in the common room to 73%. Sofas and couches were used by a wider range of residents. Overall, the intervention was effective in encouraging residents to remain in the common room. However, some individuals spent more time in their bedrooms, suggesting that the intervention may have had mixed effects. These findings are interpreted as an interplay among environmental features, social interactions, and

individual characteristics.

---

334 Walk and Connect: Exploring built environments' influence on physical activity and social engagement for older and lower-income residents in London

Lusi Morhayim[1], Muki Haklay[1], Barbara Balocating Dunn[2], Rachel Frost[3], Jennifer Mindell[1], Nick Tyler[1]
[1]University College London, London, United Kingdom. [2]Independent, Loughborough, United Kingdom. [3]Liverpool John Moores University, Liverpool, United Kingdom

Active ageing and loneliness are significant and related issues that affect disadvantaged populations. The project aims to understand the urban built environment characteristics that enable or inhibit physical activity and social engagement for older adults living in low socio-economic areas.

The case study locations, Somers' Town and Euston in London, UK, are heavily affected by the ongoing construction of the national High Speed 2 (HS2) rail project. Approximately 80% of Somers' Town's population falls within the 10% loneliest areas in England.

Mapping interviews were used to collect data on everyday activities, destinations and the ways in which the built environment influences physical activity and social engagement. Participants, including long-term residents, community activists, and people with disabilities, recruited through two local non-profit organisations. Five preliminary themes emerged: 1) Poor maintenance of walking infrastructure, obstructions, reduced accessibility, and frequent detours (some caused by HS2 construction) create barriers to walking; 2) The construction is associated with environmental noise, air pollution and unpleasant walking environments; 3) Anti-social behaviour and overcrowding contribute to a diminished sense of safety; 4) Negative perceptions of urban change were reflected in feelings of loneliness, loss of control, and fear about future developments; 5) Despite challenges, the participants demonstrate resilience, support for one another, seeking opportunities to be physically and socially active.

Creating age-friendly environments can support 'ageing in place' and delay healthcare needs. This study will inform urban planning and design and public health policy to reduce risk factors affecting older populations, particularly in deprived urban areas.

SYMPOSIUM 21:
Research from the IAPS Restorative Environments Network

Weds 1 July, 14:15 – 15:45, 03 MS 01

Chairs: Yasushi Suko[1] and Anna Bornioli[2]
[1]Tampere University, Tampere, Finland
[2]Barcelona Institute for Global Health, Barcelona, Spain

This symposium brings together five complementary contributions that advance methodological, theoretical, and applied understandings of restorative environments across outdoor, indoor, and transitional settings, and of the effects of semantic labeling of natural sound, enabling synthesis across diverse approaches. Hooyberg introduces a novel gaze-detection algorithm that maps how visual attention dynamically adapts to varying doses of green, blue, and urban components in coastal scenes, offering mechanistic insight into early attentional processes underlying restoration. Meagher shifts the focus to relational restoration, presenting mixed-method evidence on the environmental characteristics that support closer friendship, integrating thematic content analysis with latent class

modelling to identify a typology of socially restorative places. Miola extends the examination of restorative design to healthcare interiors by presenting two new questionnaires assessing biophilic and restorative qualities of waiting rooms, alongside experimental findings comparing biophilic patterns and lighting conditions using both online and immersive CAVE-based approaches. Russo examines daylight exposure in semi-external architectural spaces through survey, field, and physiological data, revealing how transitional zones can enhance restorative experiences. Finally, Suko introduces the findings of an online study that investigated whether the manipulation of source labels imposed externally on the same pre-recorded natural sound would alter the self-reported restorative outcomes of listening to the sound indoors.

Speakers: Alexander Hooyberg**,** Benjamin Meagher**,** Laura Miola**,** Filomena Russo**,** and Yasushi Suko

---

362 The restorative gaze: Tracking attention to green, blue, and built features at the coast

Alexander Hooyberg[1,2,3,4], Mathew White[4], Nathalie Michels[5], Jens Allaert[1], Gert Everaert[2], Stefaan De Henauw[3], Henk Roose[6], Marie-Anne Vanderhasselt[1]
[1]Ghent Experimental Psychiatry Lab, Department of Head and Skin, Ghent University, Ghent, Belgium. [2]Flanders Marine Institute, Ostend, Belgium. [3]Department of Public Health and Primary Care, Ghent University, Ghent, Belgium. [4]Environmental Psychology Vienna, Department of Cognition, Emotion, and Methods in Psychology, University of Vienna, Vienna, Austria. [5]Department of Developmental, Personality and Social Psychology, Ghent University, Ghent, Belgium. [6]Department of Sociology, Ghent University, Ghent, Belgium

Exposure to nature facilitates relaxation and recovery of cognitive functions, yet the mechanisms underlying these restorative effects remain contested. To acquire unique insights into early attention allocation and information processing, we gathered eye-tracking data while young adults (N=102, 18-30y) viewed 52 coastal pictures varying in the dose of green, blue, and urban features and rated them on perceived restorativeness. Using a novel gaze-detection algorithm, we characterised each fixation, saccade, and blink by metrics of time (e.g., duration), space (e.g., hit on 'building'), and velocity (e.g., saccade speed). Preliminary findings reveal distinct scanning patterns directed towards green, blue, and built features, with attention prioritised towards scanning built features across levels of scene naturalness. While natural scenes were scanned relatively slowly (fewer and longer fixations) and built scenes rapidly (more and shorter fixations), fixations on built features in predominantly natural scenes were disproportionally longer. Increased gaze duration on greenery, water, and the sky and decreased gaze duration on built features was associated with higher restorativeness ratings. These findings suggest that more natural environments are more restorative because there is less of a rush to scan built features (e.g., for threats), leaving more time for gazing at nature. While the analyses require further refinement and extension, and dual interpretations regarding cognitive effort remain possible (e.g., longer fixations can reflect either focusing or mind wandering), our results demonstrate that tracking the precise allocation of visual attention in space and time generates unique biological insights into the restorative mechanisms outlined by existing psychological frameworks.

---

154 Investigating relational restoration: The places that promote closer friendship

Benjamin Meagher
Hope College, Holland, United States

A sense of belonging represents a fundamental psychological need (Baumeister & Leary, 1995), and friendship represents one of the primary ways in which people satisfy that need. Nevertheless, despite decades of research investigating the influence of restorative environments on cognitive and emotional recovery, there has been comparatively little empirical study of how settings may be socially

restorative (i.e., offering relational restoration; Hartig, 2021). In this talk, I will present data from a sample of US undergraduates (n = 103) and local community members (n = 95) who were asked to: (a) list three friends, (b) evaluate those friendships in terms of their perceived closeness and functions using established social psychological scales, and (c) describe a place they could spend time with each of those individuals that they feel would benefit that respective relationship. In total, 573 friendships were reported by participants. My analysis first employs an inductive, iterative content analysis to descriptively highlight key themes in participants' writings, including nostalgia, perceived emotions, affordances for joint activity, and regularity of use. I then utilize multilevel latent class analysis to quantitatively identify a basic typology for classifying relationally restorative places. This work represents an important, initial step in empirically studying how places can facilitate the restoration of social resources within dyads.

---

163 Assessing biophilic design in healthcare waiting rooms: New questionnaires and experimental evidence

Laura Miola, Francesca Pazzaglia
University of Padova, Padova, Italy

Natural and biophilic elements are known to enhance human well-being, yet they are not systematically integrated into building design, particularly in healthcare settings. Moreover, professional tools for evaluating these features remain limited and difficult to access. This project, which includes three studies, aims to develop two new scales for assessing biophilic characteristics and their benefits, and to better understand which biophilic patterns play the greatest role in healthcare settings. The first study (N = 560) developed and validated two new scales assessing (a) the restorative and biophilic qualities of indoor environments and (b) cognitive, physical, and emotional well-being in restorative spaces. The second online study (N = 500) compared perceptions of waiting rooms featuring different biophilic patterns: 1) visual connection with nature, 2) natural materials, 3) and prospect with 4) a control condition. The third study, conducted in a CAVE lab (N = 50), examined the effects of warm, cold, and natural light on restorativeness, emotional well-being (subjective and physiological), and satisfaction with the healthcare facility. Findings from Study 1 support a three-factor structure of biophilic patterns (Nature in the Space, Natural Analogues, Nature of the Space) and demonstrate good validity for the new scales. Preliminary results from Studies 2 and 3 indicate that visual connection with nature is the most influential pattern for well-being, and natural light elicits higher excitement and lower stress than artificial warm or cold light. Overall, these studies advance the knowledge for biophilic design in healthcare environments and offer new tools to support professional practice.

---

678 Restorative experiences in transition architectural spaces

Filomena Russo
University of Cambridge, Cambridge, United Kingdom

Background: The restorative potential of built environments is essential for replenishing human physical, psychological, and social resources depleted by life's demands. Urban populations often experience inadequate daylight access and high stress levels. Restorative environments research predominantly focuses on the benefits of nature; the potential of urban settings is often overlooked. Daylight exposure influences mood, cognition, alertness, sleep, circadian rhythms, and health, whereas evidence for the stress-reducing effects of daylight requires further investigation. Transition spaces in urban environments – including courtyards, arcades, and porches are climate moderators, offering contact with the exterior and daylight exposure whilst providing a sense of safety, relaxation, and environmental diversity.

Research hypothesis: This research hypothesises that restoration within transition spaces is influenced by the spatial degree of enclosure and natural light exposure.

Methods: Two studies were conducted starting with an online survey (N=200), followed by a fieldwork study (N=30). Self-report questionnaires were used in the survey and the fieldwork. Fieldwork data collection included physiological and environmental variables measurements.

Anticipated findings: Survey's findings informed the selection of fieldwork sites. Survey results are compared with mixed-method in-situ experiment results, highlighting the preferred spaces and their relationship to degree of enclosure, natural light exposure, and restoration.

Novelty and implications for research and practice: Whist it is acknowledged that semi-external transition spaces are climate moderators, users' wellbeing while experiencing transition spaces is not well understood. Research outcomes can help quantify and qualify daylight access within semi-external transition spaces informing designs for our built environment.

---

521 The sound of running water may be intrinsically restorative regardless of its source attributions

Yasushi Suko
Tampere University, Tampere, Finland

Listening to natural sounds indoors is reportedly restorative, but whether these effects reflect the intrinsic properties of the sounds or the influence of semantic labeling is unclear. To bridge the research gap, this study examined whether the self-reported restorative outcomes of listening to natural sound would change when sound-source attributions were manipulated. In an online experiment, 168 subjects were randomly assigned to one of three groups, each listening to the same 10-minute pre-recorded sound of a running river but with different source attributions: 1) no source information (control), 2) live-streamed from a national park, or 3) artificially synthesized. We hypothesized that (H1) a 10-minute natural-sound listening session would significantly improve restorative outcomes regardless of its source attributions, (H2) the live-streamed label would further enhance restorative outcomes, and (H3) the synthesized label would attenuate the increase in restorative outcomes described in H1. Linear mixed-effects model analyses resulted in H1 being supported but in Hs 2 and 3 being rejected such that all three groups exhibited equally significant improvement of restorative outcomes. In line with stress reduction theory (SRT) and attention restoration theory (ART), these results suggest that easily identifiable natural sounds may elicit (1) a pre-cognitive, evolutionarily based, immediate effect and (2) a cognitive, spontaneous imagination-based effect. A combination of these two reflects the intrinsic restorative effects of the sounds themselves, independent of externally imposed source attributions. This implication counters the theoretical skepticism that the restorative effects of natural sounds arise largely from semantic attributions imposed on them.

SYMPOSIUM 29:
Environmental value research: Closing research gaps and breaking new ground

Weds 1 July, 14:15 – 15:45, AP 1

Chair: Désirée Schmid
Eawag: Swiss Federal Institute of Aquatic Science and Technology, Dübendorf, Switzerland

Personal values are well-established antecedents of environmentally relevant perceptions and behaviours. Yet, despite a long research tradition, important conceptual, methodological, and topical gaps remain. This symposium opens with a brief conceptual review of values, followed by presentations that address key gaps and explore new directions in environmental value research.

The first three presentations draw on the established environmental value typology (typically distinguishing biospheric, altruistic, hedonic, and egoistic values). Christina Saalwirth applies a person-centred approach to biospheric, altruistic, and egoistic values, identifying distinct value profiles and linking them to pro-environmental behaviour, climate engagement, and negative eco-emotions. Nadja Contzen then examines acceptance of Carbon Capture and Storage (CCS), integrating environmental values with attitudinal ambivalence and information selection to explain variation in acceptance. Chloe Sutcliffe shifts to everyday practice by examining environmentally motivated gardening in UK gardeners and relating environmental concern to sustainable gardening practices, anxiety and perceived wellbeing.

Désirée F. Schmid then addresses conceptual and methodological shortcomings of the value approach in environmental psychology. A refined value typology is introduced alongside the development and validation of a new 40-item instrument differentiating ten value orientations.

In the final presentation, Ottavia Damian extends the symposium from personal value orientations to place-based assigned values, namely the perceived value citizens attribute to public spaces and heritage. A new psychometric instrument is developed and validated.

Speakers: Christina Saalwirth, Nadja Contzen, Chloe Sutcliffe, Désirée Schmid, Ottavia Damian

---

252 Understanding climate engagement through value constellations: A person-centred approach

Christina Saalwirth[1], Silvia Caldaroni[2]
[1]University of the Bundeswehr Munich, Munich, Germany. [2]Sapienza University of Rome, Rome, Italy

Understanding how personal values shape individuals' environmental engagement is vital for addressing climate change and supporting psychological wellbeing. Previous research has primarily focused on single value dimensions, overlooking how people hold multiple, sometimes conflicting, values simultaneously. Adopting a person-centred perspective, this study investigates how configurations of biospheric, altruistic, and egoistic values relate to pro-environmental behavior (PEB), climate engagement factors (climate beliefs, green identity, and climate-related self-efficacy), and negative eco-emotions (eco-anger, eco-fear, eco-sadness).

Data from 363 adults were collected through an online survey. Participants completed validated measures of value orientations, PEB, climate engagement factors, and eco-emotions. Latent Profile

Analysis and K-means clustering were conducted to identify value-based subgroups, followed by ANOVAs to examine group differences across the outcomes.

The results revealed four distinct and interpretable profiles: eco-altruists, ego-driven contributors, detached individuals, and self-focused individuals. Significant group differences emerged for all outcomes. Eco-altruists showed the highest PEB, strongest green identity, greatest self-efficacy, strongest belief in climate change, and highest negative eco-emotions. Self-focused individuals showed consistently the lowest levels across all domains. Ego-driven contributors and detached individuals displayed intermediate patterns with no significant differences between them.

This study advances value-based environmental research by demonstrating that configurations of values, rather than single value types, meaningfully predict environmental engagement and emotional responses. The findings highlight the possibility of tailoring interventions to value profiles and suggest that understanding value constellations may enhance strategies promoting sustainable behavior and well-being.

---

215 Acceptance of Carbon Capture and Storage: The role of core values, ambivalence, and information selection

Nadja Contzen[1,2], Marlies Kok[2], Goda Perlaviciute[2], Linda Steg[2]
[1]Eawag: Swiss Federal Institute of Aquatic Science and Technology, Dübendorf, Switzerland.
[2]University of Groningen, Groningen, Netherlands

Carbon Capture and Storage (CCS) is a group of technologies that is increasingly considered as an option to fight climate change. However, CCS is controversial, because it has not only the benefit of reduced CO_2 emissions but also potential negative environmental implications, including a delayed phase-out of fossil fuels and the risk of CO_2-leakages. Because CCS has both potential positive and negative environmental implications, it could cause attitudinal ambivalence, especially in people with stronger biospheric values. Combining value research and research on attitudinal ambivalence, we investigated the role of core values, attitudinal ambivalence and information selection for the acceptance of CCS in the Netherlands through an online survey with Dutch inhabitants (N = 123). We assessed participants' core values before providing basic information on CCS and measuring initial attitudinal ambivalence towards CCS. Thereafter, participants were invited to select and read additional arguments in favour or against CCS, after which we measured again attitudinal ambivalence towards CCS and its acceptance. Data were analysed with regression and mediation analyses and mean comparisons. Unexpectedly, not only stronger biospheric values but also stronger egoistic values were associated with stronger attitudinal ambivalence towards CCS. Attitudinal ambivalence, in turn, was associated with information selection: the stronger participants' ambivalence, the more arguments against CCS they selected. Partly mediated by the valence of selected arguments, initial attitudinal ambivalence explained the final acceptance of CCS. Moreover, attitudinal ambivalence decreased after reading the additional arguments about CCS. We discuss the implications of our findings for value and ambivalence research.

---

497 Gardening for the environment: Wellbeing, anxiety and environmental concern amongst UK gardeners

Chloe Sutcliffe, Ashby Sachs
Royal Horticultural Society, Woking, United Kingdom

Gardening is a rich sensory experience with well-documented impacts on wellbeing, including as a therapeutic intervention for conditions such as anxiety. Some gardening activities also qualify as pro-environmental behaviours, aimed at limiting negative (or maximising positive) environmental impacts. Like other pro-environmental behaviours, environmental values (especially concern about

environmental harm) drive environmentally-friendly gardening practices. Given increasing public awareness of the climate and biodiversity crisis, stronger personal environmental values may result in comparatively greater negative affect amongst more environmentally-oriented gardeners, with unknown implications for gardening-related wellbeing. This study explores this question by quantitatively analysing associations between environmentally-motivated gardening, anxiety, wellbeing and environmental concern in a large sample of UK gardeners (n=694) with reference to additional qualitative analysis of six focus group discussions involving 31 gardeners. The study finds that whilst gardening primarily for an environmental reason is associated with higher mean scores for environmental concern, worry and sustainable gardening, it also acts as a positive moderator of the relationship between environmental worry and general anxiety, and a negative moderator of the relationship between perceived wellbeing benefits from gardening and sustainable gardening scores. These findings illustrate that environmental values interact with wellbeing in complex and nuanced ways in pro-environmental gardeners. The qualitative analysis illustrates how gardening can change environmental awareness and provides insights into motivations for gardening, including the role played by environmental values. These findings are of significance for academic understandings of the attitudinal and affective factors that promote pro-environmental behaviours.

---

237 Development and validation of a measurement instrument for environmentally relevant values

Désirée Schmid[1,2], Tobias Brosch[2], Nadja Contzen[1,3]
[1]Eawag: Swiss Federal Institute of Aquatic Science and Technology, Dübendorf, Switzerland.
[2]University of Geneva, Geneva, Switzerland. [3]University of Groningen, Groningen, Netherlands

Personal values are key antecedents of environmentally relevant perceptions and behaviors. Yet dominant value typologies in environmental psychology address only a limited number and conceptual range of value orientations, which might constrain research on emerging topics such as the acceptance of novel sustainable technologies and adaptation behaviors. In addition, existing measurement instruments may have limited construct validity due to mismatches between operationalizations and underlying definitions. In a previous study, we addressed the conceptual shortcomings by developing a refined typology of environmentally relevant values. Building on this refined typology, the current study developed and validated a measurement instrument to assess environmentally relevant personal values in multiple steps. First, we conducted a cognitive interview study to evaluate item comprehensibility. Next, we ran a quantitative study to explore the factor structure, followed by a second quantitative study to confirm the factor structure and assess construct and predictive validity.

The resulting instrument comprises ten value orientations: nature welfare, human welfare, in-group welfare, personal safety, learning, hedonism, power, faith, conformity, and temperance. The final scale includes 40 items and shows acceptable model fit. Results provide evidence for convergent and discriminant validity and indicate that the value orientations can be differentiated. Moreover, the value orientations predict value-specific attitudes, beliefs, and identities, supporting the instrument's predictive validity. Together, the refined value typology and the measurement instrument constitute a refined value approach in environmental psychology, which is expected to have greater explanatory power and provide more precise insights into the value underpinnings of environmentally relevant perceptions and behaviors.

---

499 Measuring citizens' perceived value of public natural spaces: Scale development and validation

Ottavia Damian, Margherita Brondino
University of Verona, Verona, Italy

In Italy, the valorization of public spaces is a debate topic, driven by citizens' demand for regenerated spaces. It seems there are no psychometric tools available to measure the perceived value of public goods from a psychological point of view.

The present research, based on Poveglia island case (Venice), tries to address this gap offering an instrument to explores the value that people attribute as a key criterion for informing public asset management.

The study aims at highlighting the importance of measuring the perceived value and the bond between citizens and public spaces, developing and validating an instrument to measure it, and presenting it to the competent institutions.

The instrument was built using a multi-step approach, including focus groups, to identify the key dimensions of the constructs, a pilot study (N=129; 59% women; 33% 19-30 years old) to assess the quality of the items and the construct structure, and a final survey (N=771; 57% women; 30% 51-65 years old) to finalize the validation process.

The scale of perceived value is organized in five dimensions: environmental value, historical-cultural value, functional value, social value, and psychological value. The reliability of the scale was excellent (ω= .89), as well for its dimensions (ω= from .74 to .83). Moreover, Confirmatory Factor Analysis confirmed the goodness of the psychometric properties of the scale. Criterion-related validity was verified by correlating other constructs such as motivation to visit and citizen participation.

The results of the study and the implications for valorization strategies will be discussed.

INDIVIDUAL ORAL PRESENTATIONS:
Energy: Perceptions and action

Weds 1 July, 14:15 – 15:45, AP 2

Chair: Christian Klöckner
Norwegian University of Science and Technology, Trondheim, Norway

---

577 Mental models of the energy transition

Karlijn van den Broek[1], Lynn de Jager[2], Rouven Doran[3], Gisela Böhm[3]
[1]Utrecht University, Utrecht, Netherlands. [2]National Institute for Public Health and the Environment, Bilthoven, Netherlands. [3]University of Bergen, Bergen, Norway

The energy transition is a complex process involving multiple interconnected pathways. Understanding citizens' perceptions of this transition, therefore, requires a systems-thinking approach that captures how these pathways are perceived to interact. Mental models provide a valuable lens for this purpose, as they reflect individuals' assumptions about causal relationships within the energy transition. Across two studies, we map and analyse mental models of the energy transition.

Study 1 presents the first systematic comparison of mental models across actor groups and individual differences. Using the M-Tool, we mapped mental models among experts (N = 25) and representative samples of Dutch (N = 299) and Norwegian citizens (N = 313). Across groups, mental models predominantly focused on renewable energy sources such as solar, wind, and hydropower. Experts emphasised policy pathways more strongly than citizens, while right-leaning participants placed less

emphasis on individual behaviour than left-leaning participants. Higher levels of climate change worry were associated with greater attention to both individual behaviour and policy pathways.

Study 2 examines how citizens' mental models align with national energy transition policy and with perceived pathway priority and effectiveness in the Netherlands and Norway. Results show strong correlations between the prominence of pathways in mental models and their prominence in national policy reviews, as well as moderate to strong correlations with perceived pathway priority and effectiveness.

Together, these findings demonstrate the value of mental model mapping for understanding energy transition perceptions and informing targeted communication and policy design to enhance public engagement.

---

692 Stakeholders' imaginaries of the public and contentions over renewable energy ownership models

Vanja Međugorac[1], Geertje Schuitema[2]
[1]Institute for Social Research in Zagreb, Zagreb, Croatia. [2]University College Dublin, Dublin, Ireland

Contentions among different stakeholders over desirable renewable energy ownership models have been documented in the literature. This study further explores these contentions by untangling practices of discursive legitimation that portray certain ownership models as more desirable than others. Using the framework of sociotechnical imaginaries, we examine how imaginaries of renewable energy ownership models get discursively co-produced based on imaginaries of the public, i.e. assumptions and beliefs about the public and their role in the energy system. Based on qualitative analysis of interviews with stakeholders in Ireland from industry, academia, civil society, and the public sector, we identified two imaginaries of renewable energy ownership models – an *instrumental* perspective whose proponents saw ownership as a means to achieving particular ends (e.g. community buy-in for industry-led developments) and an imaginary of ownership as *empowerment*, whose proponents advocated for alternative ownership models such as cooperatives or remunicipalisation initiatives. Furthermore, we identified two imaginaries of the public – the *energy consumer*, portraying the public as self-interested and economically rational individuals, and the *energy citizen*, depicting the public as political actors with collective agency for involvement in the energy transition. A theoretical framework is proposed, according to which instrumental perspectives on ownership get co-produced along with the imaginary of the public as energy consumers, whereas perspectives on ownership as empowerment are co-produced with the imaginary of the public as energy citizens. The framework discusses the societal processes behind this co-production process.

---

85 Interdisciplinary framework for personalised behaviour-change interventions in residential heating

Enzo Cabezas-Rivière[1,2], Aline Barlet[3], Maxime Robilliart[1,2], Thomas Recht[1,2], Laurent Mora[1,2]
[1]Univ. Bordeaux, CNRS, Bordeaux INP, I2M, UMR 5295, F-33400, Talence, France. [2]Arts et Metiers Institute of Technology, CNRS, Bordeaux INP, I2M, UMR 5295, F- 33400, Talence, France. [3]GRECCAU, ENSAP Bordeaux, 740 Cours de la Libération - CS70109, 33405, Talence, France

Residential heating contributes significantly to energy consumption, and moving toward more efficient heating behaviours can yield substantial energy savings. However, identifying strategies that can effectively change heating behaviours without compromising comfort remains challenging. This study proposes an interdisciplinary framework for selecting and implementing personalised interventions aimed at encouraging individuals to adopt and maintain energy-efficient heating behaviours.

The framework combines behavioural theory, *in situ* instrumentation, and Dynamic Energy Model (DEM) to design theory-driven, personalised interventions targeting the mechanisms underlying occupant behaviour. Intervention selection follows a systematic mapping of Behaviour Change Techniques (BCTs) to their underlying Mechanisms of Action (MoAs), using an adapted Stage model of Self-regulated Behavioural Change (SSBC) as a decision-support tool to identify the most relevant MoAs—and thus BCTs—for the case study. Room-level monitoring captures heating and window use, while shutter use is periodically estimated through occupant questionnaires. These data are integrated into DEMs, which are then used to generate tailored recommendations combining personalised advice with estimates of energy-saving potential, targeted saving objectives, and feedback on savings already achieved solely through behaviour change.

The approach was applied to two households (winter 2023–2024), achieving up to 12% energy savings while maintaining comfort, and has since been extended to approximately ten households (winter 2025–2026), involving around twenty participants. These findings demonstrate the novelty of combining behavioural insights with engineering tools to deliver personalised, evidence-based interventions. The approach provides a scalable, user-centred strategy for reducing residential energy use and enables researchers to isolate the impact of occupant behaviour .

---

610 The impact of learning about retrofit requirements on the decision to adopt a heat pump

Shane Timmons[1], Diarmaid Ó Ceallaigh[2], Adam Joachim Shier[1]
[1]Economic and Social Research Institute, Dublin, Ireland. [2]Maynooth University, Maynooth, Ireland

Background: Decarbonising home heating has important upsides for health, sustainability and equity in communities. Heat pumps, which extract heat from outdoor air, can improve indoor and outdoor air quality, reduce emissions and alleviate energy poverty. Despite these benefits and a series of grants to offset the upfront costs, adoption in Ireland remains below target. Preparatory retrofit works (e.g., improved air tightness) may dissuade many households, yet little is known about their actual impact on decisions.

Research Questions: This study investigates how learning about heat pump installation requirements influences homeowner willingness to adopt. Specific questions include: Does learning about benefits increases willingness? Does learning about retrofit works decrease it? If so, what works matter most? Does information order matter? How does grant size affect decisions?

Method: Over 650 homeowners completed an interactive, online experiment that varied information type and order. Information on retrofit requirements were personalised to each home, and materials were designed in collaboration with retrofit experts. Respondents' willingness to adopt was measured using methods informed by information integration theory.

Findings: Homeowners report low levels of knowledge but are initially open to heat pump adoption, particularly after learning benefits. However, willingness declines sharply after learning about preparatory works, particularly wall insulation.

Implications: Results imply policy design needs to consider more strongly the requirements of heat pump installation, such as air tightness measures, rather than merely focusing on the heat pump itself. This is especially important for lower-income households, where low-quality housing and additional costs and disruption likely exacerbate inequalities.

---

106 Energy Policy Incubators as a methodology to engage diverse stakeholders in local energy transition policy co-creation

Christian Klöckner
Norwegian University of Science and Technology, Trondheim, Norway

The energy transition from fossil to regenerative energy requires deep changes in societies, and many of these changes need to be implemented on the local level, where legitimate interests of different types of stakeholders are positively and negatively affected. Governing such transition processes is a challenging process where often perspectives are overlooked or marginalized, where opinions polarize, and where disagreements grow into (often personal) conflicts, which might be deteriorating local cohesion and social capital. Traditional ways of policy development and stakeholder involvement fall short on providing methodologies for navigating such wicked problems and delivering viable solutions for rapid and sustainable transitions. Against the background, the interdisciplinary NOTRAP research center is developing Energy Policy Incubators which are novel concept of involving diverse stakeholders (policy makers, industry, citizens, vulnerable groups, scientists, civil society organizations, environmental organizations, etc.) in a structured process of making potentially competing perspectives salient, separating disagreement from conflict, agreeing on shared underlying values (while disagreeing on measures), stimulating creativity, empathy, perspective taking and out-of-the box thinking, and paving the way for a more informed political process of defining future local energy policies. The Incubators will use a unique combination of methods from environmental psychology, critical design, serious gaming, provotyping, etc. The NOTRAP center is now developing the structure and concept of the Energy Policy Incubators and will implement a first round in early 2027. In this process, the concept will be presented and discussed. Feedback is highly welcome.

SYMPOSIUM 26:
Qualitative research in environmental psychology: An exhibition of the present, and a discussion of the future

Weds 1 July, 14:15 – 15:45, 39 MS 02

Chairs: Sam Lloyd[1] and Åshild Lappegard Hauge[2]
[1]University of Victoria, Victoria BC, Canada
[2]University of Oslo, Oslo, Norway

In a time of debate surrounding the role of qualitative research methods in environmental psychology, this symposium aims to explore the unique perspectives these methods can offer to people-environment researchers. It provides a space for open discussion about the future of qualitative methods in environmental psychology.

Through four presentations, the symposium demonstrates the diversity of qualitative research methods and their utility for generating both theoretical and practical insights rooted in place, offering both culture-specific and transferable findings that resonate across cultures. These presentations cover topics ranging from health and well-being in the physical environment to deeply applied perspectives on combating climate change, and demonstrate that qualitative methods are uniquely positioned to support desired shifts in our field, such as the incorporation of critical research approaches, the integration of psychological insights into climate policy, and the inclusion of diverse and underrepresented actors in our research.

The symposium will end with a guided discussion about the future of qualitative research in environmental psychology, which will be documented for use as data in a subsequent publication. Participants and audience members will be invited to reflect on questions such as: “In what areas of

environmental psychology would qualitative research be most valuable?" and "What are the main barriers and opportunities for qualitative research in this field?"

Speakers: Dora Soldis Asmundardottir, Åshild Lappegard Hauge, Samuel Lloyd, Christian Palacios Haugestad

---

416 Negotiating battery sustainability in the energy transition: A critical discursive psychology study of expert discourse

Dora Soldis Asmundardottir[1], Åshild Lappegard Hauge[1], Christian Andres Palacios Haugestad[2,1], Beate Seibt[1]
[1]University of Oslo, Oslo, Norway. [2]Oslo New University College, Oslo, Norway

Despite the necessity of batteries for a successful energy transition, the battery value chain poses numerous environmental, social, and governance challenges, which are further exacerbated by the rapidly growing demand. Although the sustainability of batteries is gaining increasing attention in policy and industry, no research has addressed how experts construct and negotiate the sustainability of batteries. We address this gap through a qualitative study, interviewing experts working in the battery industry in Norway, a context relevant case combining strong electrification ambitions with efforts to build a sustainable and profitable battery industry. Drawing on social representation theory and critical discursive psychology, we attend to both construction (what is said) and function (why it is said) of the expert talk. The analysis illustrates that the hegemonic representations of battery sustainability align with weak sustainability, framing batteries as a necessary solution compatible with continued growth and prosperity. Critical representations were also identified, where electrification and batteries are questioned as the path to a sustainable future. These alternative representations emphasize systemic transformation and sufficiency, opening space for stronger forms of sustainability. Overall, the findings highlight how expert discourse contributes to shaping the meaning and practical use of sustainability in the energy transition, primarily reinforcing dominant understandings of sustainability, while expressing personal aspirations for more transformative alternatives. Although context-specific, the study offers analytically transferable insights into how sustainability meanings are stabilized and contested within green industrial policy settings, dynamics likely relevant to other national and regional energy transitions initiatives facing similar pressures and trade-offs.

---

189 A portal to everyday life: The outdoor care retreat's role in supporting narrative identity processes during pediatric hospitalization

Eli Kindervaag[1], Åshild Lappegard Hauge[2], Maren Lindheim[3], Svein Åge Kjøs Johnsen[1]
[1]Inland University, Lillehammer, Norway. [2]University of Oslo, Oslo, Norway. [3]Oslo University Hospital, Oslo, Norway

Hospitalization for severe pediatric illness can profoundly disrupt children's everyday lives. While children usually develop within familiar physical environments that support agency and continuity in identity trajectories, hospitalization introduces institutionalized settings that may evoke uncertainty and altered roles, challenging these developmental processes. This study explores the meaning of the physical environment for narrative identity processes during hospitalization, using the Outdoor Care Retreat at Oslo University Hospital as a case. Drawing on narrative identity theory and research on the role of physical environments in healthcare, we sought to understand how pediatric patients and parents construct opportunities for identity development and repair during

hospitalization in relation to the OCR, and what insights these narratives offer into the role of the physical environment for narrative identity processes. Applying a narrative-constructionist approach that emphasizes storytelling as an arena for meaning-making, we conducted a narrative analysis of

10 interviews with pediatric patients and parents. The results illustrate how the OCR functions as a portal to everyday life, supporting reconnection, preservation, and expansion of self in ways that benefit children's narrative identity development and repair during illness. While grounded in a specific institutional and cultural context, the findings offer analytically transferable insights into how thoughtfully designed, non-institutional spaces within healthcare settings may support narrative identity processes among hospitalized children and families more broadly. Overall, the study highlights the meaningful relationship between narrative identity and the physical environment, as well as the relevance of storytelling in healthcare settings for fostering more compassionate and imaginative perspectives on care.

---

206 Scaling the ivory tower: Barriers and enablers to government-academia collaboration on climate action

Samuel Lloyd[1,2], Ekaterina Rhodes[1,2]
[1]University of Victoria, Victoria, Canada. [2]Accelerating Community Energy Transformation, Victoria, Canada

Recent years have seen insightful debate around how environmental psychology can increase its impact beyond academia – particularly in government decision making. While these discussions have led to vital insights for our field, one important voice has consistently been excluded: government decision makers. To fill this void, we used community-based participatory research methods (CBPR) to co-design a qualitative research project with senior policy advisors and Executive Directors in the British Columbia (BC) provincial government. In line with CBPR, government workers were treated as equals in the research and helped shape the interview questions as well as the priorities for the research project. As such, the goals of the study became more specific to the BC government's needs, and focused on identifying the barriers and enablers to psychologists informing the BC government's climate action plan: the CleanBC roadmap to 2030. Over the course of 10 interviews with members of the provincial government, it became clear that communication issues were not limited to psychology, and so the scope of the project was widened to include all academic disciplines. This led to a further 14 interviews with academics working in BC, who had a wide range of experience informing government decision-making. Interview transcripts were analysed using qualitative description, revealing a number of clear barriers and enablers to improving government-academia collaboration, several of which were specific to environmental psychology. We discuss these themes in context and consider how they might be useful beyond BC.

---

258 From climate emotions to affective-discursive practices: A critical social psychological approach to climate discourse

Helenor Tormis[1], Christian Palacios Haugestad[2,3]
[1]University of Helsinki, Helsinki, Finland. [2]University of Oslo, Oslo, Norway. [3]Oslo New University College, Oslo, Norway

As climate change becomes an increasingly emotionally loaded topic, dominant social-cognitive paradigms in environmental psychology have tended to conceptualize climate emotions as individual, measurable constructs. While valuable, these approaches often overlook the broader social, contextual, and ideological nuances that shape how people experience and talk about the environment. Here, we sketch out an affective-discursive approach rooted in critical social psychology. Qualitative inquiry is uniquely positioned to reveal how climate emotions are not merely internal states but contextually situated practices that perform specific social and political functions. To demonstrate the value of this approach, we draw on empirical interview data from the Nordic context, focusing on the meaning-making processes of youth—a critical demographic often treated as passive subjects in quantitative measures. Through the analysis of "affective dilemmas," we illustrate how young people navigate the tension between climate distress and the normative

pressures to self-care and maintain optimism. We demonstrate that qualitative analysis allows us to move beyond measuring *how much* fear or hope individuals feel, to understanding *what these emotions do* in interaction—such as managing accountability or legitimizing disengagement. Finally, we address the question of analytic generalization. We argue that, while discursive practices are context-specific, they enable researchers to map broader emotional regimes and ideological landscapes (e.g., neoliberal individualism or radical-right populist politics) that shape and constrain how climate change is felt and discussed. By reframing affect as a discursive practice, this research offers a robust qualitative framework for addressing the complex people-environment questions of the current crisis.

SYMPOSIUM 37:
Business as unusual:
Sustainability and well-being implications of new work

Weds 1 July, 14:15 – 15:45, 72 MS 03

Chair: Uros Tomic
Zurich University of Applied Sciences (ZHAW), Winterthur, Switzerland

Employers around the world are confronted with continuously increasing competition in attracting highly qualified employees. At the same time, they observe an increased pressure to contribute to climate policy goals (e.g. net zero) and undertake corresponding measures. Emergence of new working models based on accelerated digitalisation and increasing desire of employees for more flexibility brings additional complexity for decision-makers. Against this background, this symposium deals with the new working models and other measures the employers take to contribute to climate action and improve the well-being and job satisfaction of their employees. In particular, the five contributions being part of this symposium investigate the role that (1) corpoworking, (2) teleworking, (3) thermal comfort, (4) eco-nudges and mindfulness of work tasks and (5) biophilic elements in workspace design play for well-being and job satisfaction of the employees and the environmental performance of the companies and organisations based on a wide range of methods including amongst others surveys, focus groups and sensor-based measurement. Hence, the symposium covers a large variety of new trends in the working context and provides insights and platform for exchange regarding their consequences from sustainability and well-being perspective.

Speakers: Uros Tomic, Jana Z'Rotz, Luca Laezza, Giulia De Paolis, Elisa Menardo

---

517 Bringing office closer to home: Sustainability and wellbeing potential of corpoworking

Uros Tomic[1], Evelyn Lobsiger-Kägi[1], Rafaël Weissbrodt[2], Sebastiano Maltese[3]
[1]Zurich University of Applied Sciences (ZHAW), Winterthur, Switzerland. [2]University of Applied Sciences and Arts
Western Switzerland, Sion, Switzerland. [3]University of Applied Sciences and Arts of Southern Switzerland, Mendrisio, Switzerland

Rapid development of information technologies and the experiences made during the Covid-19 pandemic have boosted a considerable wave of experimentation with working models in office jobs. The variety of places where people work, organisations of the workspace beyond the fixed desk model and worktime arrangements beyond the usual office hours is becoming increasingly broad with complex impacts on the individual, organisational and societal level. One of those working models increasingly attracting attention is the so called corporate coworking, also known as corpoworking,

being defined as coworking initiatives within one and the same organisation. Firms deploy corpoworking for various reasons, including more flexibility and space efficiency (which is however rarely monitored), transformation of the corporate culture towards more trust and personal responsibility, boosting innovation, collaboration, mutual learning and exchange within an organisation. However, little is known regarding the user profiles of corpoworking spaces, e.g. regarding their motivation to use them, as well as the impact corpoworking spaces have on mobility, wellbeing, job satisfaction and work productivity of the users. In this case study, we analyse occupancy and user profiles of a corporate coworking space of a Swiss university of applied sciences with a central location and well connected to public transport, managed in a hot-desking mode and available for the employees having their usual place of work in any of the three cities in which the university is located. The study provides valuable insights for practitioners and research community regarding the emerging working models and their sustainability potentials.

---

384 Telework, subjective well-being, and sustainability: What are the impacts? Evidence from Switzerland

Jana Z'Rotz
Lucerne University of Applied Sciences and Arts, Lucerne, Switzerland

This presentation examines and discuss the effects of teleworking on individual well-being and sustainability in Switzerland. Teleworking, defined as paid work performed outside the employer's regular workplace, has gained importance in recent years and increasingly shapes the everyday lives of a growing share of the working population.

In a broader view, the effects of teleworking are manifold, including ICT, mobility, housing and the workplace and non-energy-related on subjective well-being (SWB) and work-life balance (WLB). Teleworking reduces commuting and associated CO_2eq emissions. However, these reductions are partly offset by increased living space consumption and additional ICT, as well as by rebound effects such as longer commuting distances or increased leisure mobility.

Empirical evidence indicates that the effects of teleworking on SWB are mixed.Greater spatial and temporal flexibility can enhance autonomy, satisfaction, and the coordination of paid work and private life, while simultaneously giving rise to new strains and inequalities. To date, however, comprehensive analyses that systematically link teleworking, mobility behaviour, and SWB from a gender perspective remain scarce.

This PhD study addresses this research gap by examining, in an integrated manner, the effects of teleworking on SWB and sustainability. Drawing on multiple surveys of teleworkers in Switzerland between 2023-2025, the analysis captures everyday practices related to teleworking, mobility behaviour, living conditions, and SWB. By integrating social and environmental dimensions and explicitly accounting for gender-specific differences, the presentation provides an empirical contribution to the current debate on the diverse and ambivalent effects of telework on sustainability and SWB.

---

385 Perceived thermal comfort and workplace well-being: A seasonal analysis integrating environmental sensor data

Luca Laezza[1], Margherita Pasini[1], Samar Thapa[2], Giovanni Pernigotto[3]
[1]University of Verona, Verona, Italy. [2]Competence Centre for Mountain Innovation Ecosystems - Free University of Bozen-Bolzano, Bolzano, Italy. [3]Free University of Bozen-Bolzano, Bolzano, Italy

Background: Thermal comfort plays a critical role in workplace satisfaction and well-being. However, few studies combine objective sensor data and subjective perceptions across real-world office settings and seasonal variability.

Aims: This study investigates whether objective and perceived indicators of thermal comfort predict job satisfaction. We examined whether discomfort is driven more by physical conditions or by a mismatch between current and preferred thermal states.

Method: Data were collected across four seasons in three public office buildings in Bolzano, Italy. Participants (n ≈ 56 per season) completed a survey on perceived thermal comfort, desired thermal state, causes of discomfort (e.g., air drafts, surfaces), job satisfaction, perceived performance, and well-being. Indoor temperature was continuously monitored via environmental sensors. A hierarchical linear regression was conducted with job satisfaction as the dependent variable. Predictors were added in four steps: (1) objective variables (temperature, season, building), (2) perceived causes of discomfort, (3) desired thermal state and (4) a mismatch index based on absolute deviation from thermal preference**.**

Findings: Only the third model was statistically significant (p = .009), with both causes of discomfort (β = –0.51, p = .018) and desired thermal state (β = 0.61, p = .001) predicting job satisfaction. Temperature, season, and building were not significant. The final model showed a small additional improvement (adj. R^2 = .11), but no significant effect for mismatch.

Novelty and implications: Subjective perceptions, especially unmet thermal preferences, appear more critical than objective temperature in shaping workplace satisfaction. Findings support user-centered approaches to indoor climate regulation.

---

578 Workplace wellbeing and sustainability: Nudging and mindfulness for promoting pro-environmental behaviors at work

Giulia De Paolis, Federica Caffaro, Lorenza Tiberio, Giuseppe Carrus
Roma Tre University, Rome, Italy

Organisations can accelerate the decarbonisation process by promoting Energy Saving Behaviours (ESBs) and other pro-environmental behaviors among employees. However top-down interventions may not always be the more effective solutions in the organizations, both in terms of environmental outcomes and worker's wellbeing.

In this paper we present 2 studies, assessing the effectiveness of nudging interventions co-designed with workers in promoting ESBs and job satisfaction in an Italian sports centre (Study 1) and the role of mindfulness and job satisfaction for promoting climate-related behaviors and workers' wellbeing (Study 2).

Study 1 (N = 71) consisted in baseline survey, focus groups and nudging co-design sessions, and a pre-post survey to evaluate the impact of the nudging interventions. Results show that the co-designed nudging interventions were appreciated by the workers and were positively related to energy saving behaviors at work.

Study 2 (N = 151) consisted in a cross-sectional survey conducted among employees of a large energy company in Italy. Results show that job satisfaction positively predicts worker's donations to climate change-related causes, and the moderating role of mindfulness in this relation.

In conclusion, the adoption of eco-nudges at work and the promotion of positive and mindful work-experiences are both promising approaches to foster more sustainable behavior in the workplace,

and to accelerate the sustainable transition in large scale sectors of the society, through low-cost and high-impact solutions.

---

477 Bringing nature where it is absent: The RestPod as a portable biophilic space for well-being

Elisa Menardo, Margherita Brondino, Camilla Marossi, Margherita Pasini
University of Verona, Verona, Italy

The RestPod was conceived as a biophilic micro-environment designed to promote psychological restoration and well-being across diverse workplace contexts. Grounded in environmental psychology and Attention Restoration Theory, its design integrates key principles from the 14 Patterns of Biophilic Design, with a particular focus on refuge, prospect, and connection to nature.

The primary objective of the RestPod is to mitigate cognitive fatigue and stress while fostering positive emotions and overall well-being. The interior configuration incorporates wooden surfaces, stabilized moss, and potted plants, drawing on evidence that natural materials and vegetation enhance comfort, mood, and cognitive functioning. Satin-finished panels balance privacy and visual permeability, supporting both perceived refuge and environmental connectedness. Adjustable warm lighting, together with user-controlled airflow and illumination, contributes to a calming atmosphere while enhancing perceived control and agency, known to buffer environmental stress.

Beyond the organizational settings in which it has been tested, the RestPod is conceived as a flexible and scalable solution suitable for a wide range of work environments, including contexts with limited or no access to natural elements. Moreover, its design opens opportunities to extend restorative, nature-based experiences to schools, healthcare facilities, and other indoor environments, offering an accessible “micro-oasis” capable of supporting well-being wherever nature is absent.

Preliminary findings indicate significant reductions in heart rate following 15-minute RestPod sessions, alongside increases in positive affect and perceived well-being. These results highlight the novelty and practical relevance of biophilic micro-environments as transferable tools for promoting regenerative well-being across multiple applied contexts.

INDIVIDUAL ORAL PRESENTATIONS:
Sustainable and pro-environmental behaviour 1

Weds 1 July, 14:15 – 15:45, 32 MS 03

Chair: Adina Dumitru
University of A Coruña, A Coruña, Spain

---

737 Toward a comprehensive framework for understanding environmentally relevant behaviour: Differentiating behavioural types, domains, and settings

Bernadette Sütterlin, Debora Frei
ZHAW Zurich University of Applied Sciences, Winterthur, Switzerland

Environmentally relevant behaviours encompass different types of behaviours in different domains and settings. These behaviours are psychologically different and depend to different degrees on facilitating conditions. For instance, sufficiency behaviours such as reducing car use or meat consumption involve changes in lifestyle, habits, and wellbeing. In contrast, behaviours such as

investing in energy-efficient appliances require only a single action without changes in everyday behaviour or comfort. Consequently, determinants identified for one behavioural type in a specific domain and setting may not generalize to others. A systematic differentiation of types, domains, and settings of environmentally relevant behaviour is essential for advancing theoretical understanding of the determinants of pro-environmental behaviour and designing effective interventions. We aim to provide a more comprehensive framework for understanding environmentally relevant behaviour accounting for differences between behavioural types, domains, and settings. To do so, we conducted an online survey with a representative Swiss sample (N = 1,533) assessing different behavioural types (sufficiency, efficiency, smart living, sharing), domains (housing, mobility, food), and settings (private vs. public). Furthermore, psychosocial drivers, personal capabilities, and sociodemographics were assessed. Analyses revealed that efficiency behaviours were predicted by a broader range of factors (situational, psychosocial) than sufficiency behaviours that were primarily driven by willingness to renounce. Behaviours with a strong visual component (e.g., smart living, environmental action) were significantly influenced by the social context. Mobility behaviours showed higher dependence on situational factors, while housing and food behaviours were shaped mainly by psychosocial determinants. Findings bear important implications for targeting interventions and understanding spillovers.

---

630 Behavioural pathways between energy poverty and indoor air quality: Insights from time-use diaries

Celine Fox[1], James McGrath[2], Shane Timmons[1,3]
[1]ESRI, Dublin, Ireland. [2]Maynooth University, Maynooth, Ireland. [3]Trinity College Dublin, Dublin, Ireland

Background: Energy poverty (i.e., inadequate heating or inability to meet energy costs) has well-documented health impacts. While financial strain and poor thermal conditions are recognised pathways, behavioural mechanisms remain underexplored. Everyday practices such as reducing heating or limiting ventilation can degrade indoor air quality, yet these behaviours are rarely captured in existing research.

Research Questions: This study investigates behavioural pathways linking energy poverty and indoor air quality. Research questions include: Do heating and ventilation behaviours differ between households in and not in energy poverty? Do indicators of indoor air quality differ between these groups? Is the link between energy poverty and indoor air quality mediated by heating and ventilation behaviours?

Method: We developed an interactive online time-use diary using the Day Reconstruction Method to improve recall accuracy. A representative sample of 1,000 adults and a boosted sample of 50 adults from deprived areas reconstructed their previous day, reporting heating and ventilation behaviours, indoor conditions (e.g., mould, condensation), and home characteristics. Additional data includes socio-demographics and indicators of energy poverty.

Findings: Initial findings show strong associations between measures of energy poverty, behavioural responses (e.g., reduced ventilation) and indicators of health-harming indoor air quality (e.g., presence of mould).

Implications: Results will inform policies targeting energy efficiency and health equity by addressing behavioural and environmental dimensions of energy poverty. The findings imply the need to consider not only affordability but also household practices that shape indoor environments and health outcomes.

---

684 The role of inter-identity associations and identity self-importance in pro-environmental behaviors

Sandor Czellar, Simona Haasova, Leïla Rahmani
University of Lausanne, Lausanne, Switzerland

Extant research shows that environmental identity is one of the key drivers of pro-environmental behavior. Because environmental identity develops through multiple influences, its effects may not operate in isolation; rather, they may emerge in conjunction with other self-relevant identities. If environmental identity is associated with alternative identities in a person's mind, the situational salience of those identities may co-activate environmental identity, thereby increasing identity-consistent pro-environmental behavior across situations. We therefore hypothesize that stronger inter-identity associations between environmental identity and other self-relevant identities are conducive to a higher tendency to engage in pro-environmental behaviors. We further examine identity self-importance as an antecedent of inter-identity associations. Specifically, we propose that greater self-importance of environmental identity strengthens its association with alternative identities, and that greater self-importance of alternative identities similarly strengthens their association with environmental identity.

Two pre-registered online studies test these predictions by comparing environmental identity with eight alternative identities (consumer, gender, political, place, recreational, family, ethnocultural, and religious identities). Findings suggest that stronger associations between environmental identity and other self-relevant identities predict higher self-reported pro-environmental behavior. It also appears that inter-identity associational strength is dependent on the stated self-importance of environmental identity and alternative identities.

Our further studies will involve experimentally manipulating the salience of alternative identities to directly test whether, for identities with a stronger (vs. weaker) association with environmental identity, the increased co-activation of environmental identity is indeed more conducive to the enactment of pro-environmental behaviors.

---

752 Warm glow and going green: Affective responses to sustainable vs. unsustainable actions

Sydney Barrett[1], Heather Barnes-Truelove[2,1], Erin Largo-Wight[1], Abbey Young[2,1], Katie Wilkinson[2,1], Alex Nakamura[2]
[1]University of North Florida, Institute of Environmental Research and Education, Jacksonville, Fl, United States. [2]University of North Florida, Department of Psychological & Brain Sciences, Jacksonville, Fl, United States

People feel warm glow after performing green behaviors, but often overestimate the environmental impact of those behaviors. Little is known about whether warm glow persists after learning that an intended green action was ineffective and whether these effects are impacted by age. In this study, 1278 American panel participants were randomly assigned to imagine using a plastic bottle and disposing it in a bin labeled as *landfill*, *recycling*, or *recycling* with a notice that the bin contents are actually landfilled (failed recycling attempt). Participants' attitudes regarding themselves, their disposal decision, and their bottle use were collected. Results replicate warm glow when comparing a green vs. brown behavior: recycling led to more positive feelings about the self, use, and disposal compared to landfilling. Age moderated warm glow effects for feelings about the self (coeff = .020 [boot CI: .002, .039], p = .030) and disposal (coeff = .025 [.005, .044], p = .015), but not use, with stronger effects as age increased. There was no warm glow effect for self-ratings after learning that the green attempt failed and the effect was reversed for use and disposal decisions, with less positive feelings about the plastic use and disposal after failed recycling vs. landfilling. Age moderated these effects for self-ratings only (coeff = 022 [.005, .040], p = .013) with stronger effects among younger

participants. Findings suggest that information provision may help limit warm glow following performance of ineffective green actions and provide insight into how warm glow may change as people age.

---

763 Transformative potential of Energy Citizenship: Insights from a participatory workshop in Spain

Luisa Losada-Puente, Adina Claudia Dumitru Dumitru, Manuel Peralbo, Eva Peralbo
University of A Coruña, A Coruña, Spain

The energy transition is a deeply social and political process requiring active citizen engagement alongside changes in governance, collective organisation, and decision-making. Energy Citizenship (ENCI) has emerged as a key analytical concept for advancing democratic, inclusive, and socially just energy transitions (Debourdeau et al., 2024). This paper examines ENCI's transformative potential from a multilevel psychosocial perspective, focusing on structural conditions that shape and constrain citizen agency.

The study draws on participatory workshops from five EnergyPROSPECTS case studies, focusing on the A Coruña (Spain) workshop involving nine actors from institutional, cooperative, academic, and civil society sectors. Participants identified key facilitators and barriers to ENCI in Spain and co-produced strategies to strengthen its transformative capacity. The analysis applies an empowerment framework (Dumitru et al., 2023) integrating individual-collective dimensions and distinguishing between empowerment conditions and outcomes.

Findings indicate that transformative ENCI depends on citizens' willingness to engage, access to situated knowledge, and collective organisational structures, and faces persistent structural constraints (bureaucratic complexity, regulatory instability, concentration of power in the energy sector, weak participatory culture). Tensions arise between predominantly top-down transition pathways and locally articulated claims for energy justice. Drawing on the widening, deepening, and lengthening framework (Strasser et al., 2022), the paper identifies pathways for scaling, embedding, and sustaining ENCI initiatives, highlighting the intermediary role of local governments, the professionalisation of community-based efforts, and integrated approaches linking environmental sustainability, social justice, and energy sovereignty. It concludes by framing collective empowerment as a key mechanism in reconfiguring power relations within the energy system.

INDIVIDUAL ORAL PRESENTATIONS:
Nature-based interventions

Weds 1 July, 16:15 – 17:45, 03 MS 01

Chair: Katherine Irvine
The James Hutton Institute, Aberdeen, United Kingdom

---

559 Nature-based therapies for student mental health and resilience: Results from a randomized factorial four-arm pragmatic trial within the RESONATE project

Freddie Lymeus
Institute for Housing and Urban Research, Uppsala University, Uppsala, Sweden. Department of Psychology, Uppsala University, Uppsala, Sweden

Background: The Nature-Based Biopsychosocial Resilience Theory and growing evidence suggest that Nature-based Therapies (NbTs) can build coping resources and complement conventional mental health interventions. Mental health problems are prevalent among young adults, and hamper the well-being and achievements of many university students.

Aim: We aimed to generate robust evidence for well-defined NbT programs tailored to university students and feasible for implementation in academic contexts.

Method: N = 253 students with diverse backgrounds and up to moderate psychological symptoms participated in a four-arm trial conducted across four waves (spring 2024–autumn 2025). Two five-week NbT programs, conducted in groups, were compared: (1) Restoration Skills Training (ReST), integrating nature-based and mindfulness-based treatment components, and (2) a program emphasizing accessible and meaningful nature activities without specific psychotherapeutic components. These were tested against an active control (indoor mindfulness training) and a waitlist condition. Depression, anxiety and stress symptoms were assessed through self-reports pre-intervention, post-intervention, and at 1- and 6-month follow-ups, alongside other resilience dimensions including psychosocial coping resources, environmental values, and behaviors.

Results: Analyses of symptoms up to the 1-month follow-up showed that all three active interventions improved mental health trajectories compared to the waitlist. Secondary analyses indicated that the nature-based and mindfulness-based treatment components had both shared and distinct effects on different resilience dimensions.

Implications: These findings support integration of NbTs as part of universities' mental health strategies and commitment to resilient academic environments. They also advance theory and practice by disentangling the contributions of common nature-based and mindfulness-based treatment components in NbTs.

---

655 Equity in nature-based interventions: A scoping review of how health (in)equities are conceptualised and assessed

Jarne Ghijsels, Eva Cornelus, Sara Willems
Ghent University, Ghent, Belgium

Nature-based interventions (NBIs) are increasingly promoted as strategies to improve population health and support sustainable lifestyles. Observational studies on green space have suggested that natural environments may buffer socioeconomic health disparities through equigenesis, potentially via increased opportunities for nature contact or indirect environmental pathways, e.g. decreased heat and pollution. However, these mechanisms remain largely speculative due to the predominance of observational designs. Interventional studies offer a unique opportunity to examine whether, and through which pathways, NBIs may contribute to reducing health inequities. This review assesses to what extent the current evidence base is equipped to do so.

This scoping review maps how current NBI research conceptualises and evaluates impacts on health inequities, including whether studies consider differential effects across social groups or intersectional vulnerabilities. NBIs were defined as interventions with an explicit focus on contact with nature. We systematically searched PubMed, Scopus, Web of Science, Embase, and CINAHL, screening 3,368 records and identifying seven studies meeting the inclusion criteria.

Preliminary analysis indicates that although many interventions reference "vulnerable" groups, few adopt an explicit intersectional lens. Environmental and nature-interaction outcomes are largely absent from current evaluations, hindering exploration of more-than-human dimensions of NBIs. Detailed results will be presented at the conference.

Our findings highlight a significant gap in the solid integration of equity, diversity, and inclusion principles within NBI research. This review provides a foundation for advancing evidence-based approaches to nature-based health promotion by strengthening attention to intersectionality and equity-focused evaluation.

---

636 A qualitative investigation of forest therapy as a nature-based wellbeing intervention for women 40 years and older in Scotland

Sharon Flanigan[1], Sara Warber[2], Raynae Dumpfrey[1], Mindi Premarathne[1], Katherine Irvine[1]
[1]The James Hutton Institute, Aberdeen, United Kingdom. [2]University of Michigan, Ann Arbor, United States

Scotland's Women's Health Plan prioritises mental health and wellbeing. Non-pharmaceutical interventions such as nature-based interventions (NBIs) are highlighted as an important opportunity. Research on forest bathing, an NBI, shows positive impacts on health and wellbeing, yet reveals a gap in understanding the impacts for women 40 years and older who often encounter challenges associated with the menopausal transition.

Our aim is to understand how forest therapy (FT), a 2-3-hour sensory walk, similar to forest bathing, might improve women's mental health and wellbeing through exploration of motivations, experiences, and outcomes associated with participation.

Within a mixed methods study exploring the feasibility and acceptability of FT, we conducted semi-structured interviews with a purposively selected maximum variation sub-sample of twelve women 4-6 weeks following participation in an FT experience.

We highlight key elements of their stories that underpin the value of FT as a wellbeing practice, and potential barriers to uptake. Participating alongside other women in their age group was important for emotional comfort and safety. Barriers include accessibility issues and concerns (location, terrain), life commitments (work, family), and pre-existing perceptions/uncertainty (activity-related, self-consciousness). Taking time for self, to slow down, be present, and notice nature in a mindful way was important in participants' experience and outcomes. All interviewees highly recommended the experience.

We present a perspective on FT that has been absent from the literature, including attention to a distinct segment of the population. Forest therapy holds potential to support women's health and wellbeing and warrants further study for utilisation in Scotland.

---

659 Assessing the feasibility and acceptability of forest therapy as a nature-based intervention: Insight from a UK-based mixed methods study

Katherine Irvine[1], Raynae Dumpfrey[1], Sharon Flanigan[1], Mindi Premarathne[1], Sara Warber[2]
[1]The James Hutton Institute, Aberdeen, United Kingdom. [2]University of Michigan, Ann Arbor, United States

Forest bathing (Shinrin-yoku) and the related forest therapy (FT) show promise as nature-based interventions (NBIs) for mental wellbeing. Internationally, there is increasing interest in green prescribing. In Scotland, research priorities include meeting needs of peri- and menopausal women, supporting use of local natural settings, and providing evidence for green prescribing.

Within a mixed methods study, the viability of researching FT for wellbeing in women aged 40+ in Scotland was assessed by evaluating (1) the feasibility of combining research procedures with FT experiences and (2) participants' acceptance of the intervention.

With a sample of 24 participants, we implemented protocolized 2-hour slow, sensory FT walks for groups of 5-13 led by a certified guide. Quantitative (surveys) and qualitative (arts activity, interviews) data were collected. Validated self-report measures assessing biopsychosocial-spiritual health domains and a menopause rating scale (MRS) were administered at baseline, pre- and post-walk, and 1 and 2 weeks. A bespoke feasibility and acceptability survey was completed at 3 weeks. Researcher notes recorded programme delivery, environmental, and social factors.

Results include the feasibility of recruitment and study procedures, completion and retention rates, the acceptability of FT conducted in an urban woodland, and measurement burden. We reflect on programme fidelity and collaboration with NBI practitioners. The MRS psychological sub-scale improved 1 week following FT and had not returned to baseline at 2 weeks.

Findings reveal multiple challenges associated with implementing protocolized NBIs and highlight critical research design solutions for a future large-scale trial that could support green prescribing of forest therapy.

SYMPOSIUM 22:
Second-order beliefs in sustainability transitions

Weds 1 July, 16:15 – 17:45, AP 1

Chairs: [1]Wouter Poortinga and [2]Thijs Bouman
[1]Cardiff University, Cardiff, United Kingdom
[2]University of Groningen, Groningen, Netherlands

While most people support pro-environmental goals and actions, many believe others support these goals and actions much less. It has been argued that such second-order beliefs (i.e., beliefs about what others think and do) can have serious consequences for sustainability transitions. By shaping perceptions of environmental problems, social norms, and collective support, these beliefs may influence people's willingness to express pro-environmental views, engage in sustainable behaviour, and endorse transformative policies. However, empirical evidence on these consequences remains fragmented and domain-specific.

This symposium brings together five complementary studies that examine how second-order beliefs shape environmental behaviour across individual, community, and organisational levels. Talk 1 demonstrates systematic underestimation of support for post-growth business practices, revealing hidden readiness for organisational transformation. Talk 2 shows that frequent flyers overestimate public flight frequency and underestimate their own emissions, helping explain low perceived responsibility and weak policy support among the highest emitters. Talk 3 reveals that people underestimate others' environmental motives for adopting electric vehicles, which undermines willingness to engage in collaborative energy practices. Talk 4 shows that underestimations of other tourists' environmental values heighten concern about environmental problems and, in this context, encourage pro-environmental action. Talk 5 examines the role of second-order beliefs in shaping support for diverse climate policies across 13 EU countries, while integrating insights from the preceding studies. Together, these contributions clarify when and how second-order beliefs facilitate or hinder sustainability transitions, and highlight strategies for mobilising collective action through more accurate, inclusive, and empowering social perceptions.

Speakers: Dario Krpan, Wouter Poortinga, Charlie Walker Clarke, Wencke Groeneveld, Thijs Bouman

---

113 Pluralistic ignorance and support for post-growth business practices

Dario Krpan[1], Frédéric Basso[1], Jeni Miles[2]
[1]London School of Economics and Political Science, London, United Kingdom. [2]Wholeloop Labs, London, United Kingdom

Background: Business organisations play a central role in driving the climate crisis, yet little is known about how professionals within these organisations perceive post-growth business practices—approaches that prioritise human wellbeing and ecological sustainability over continuous economic expansion. Emerging evidence suggests that support for such practices may be inhibited by pluralistic ignorance, where individuals underestimate how strongly peers endorse sustainability-oriented change.

Aims: This research examines: (1) professionals' support for post-growth business practices, (2) the presence of pluralistic ignorance in these perceptions, (3) how organisational capability, opportunity, and motivation (COM-B model) are viewed as prerequisites for implementing post-growth practices, and (4) psychological predictors and perceived systemic barriers to change.

Method: A survey of 409 UK business professionals assessed endorsement of post-growth principles across five organisational dimensions (e.g., governance, strategy, relationship to profit), perceived peer support, COM-B-related views, willingness to learn about post-growth practices, and open-ended reflections on barriers.

Findings: Preliminary findings show strong personal support for post-growth business practices (86%) but substantial underestimation of peer support (53%), indicating pronounced pluralistic ignorance. Participants generally believe organisations should have the capability, opportunity, and motivation to adopt post-growth practices and express high willingness to learn. The Transformative Utopian Impulse emerges as the strongest predictor of support, while perceived barriers include structural economic pressures and limited training opportunities.

Novelty and Implications: This is the first empirical demonstration of pluralistic ignorance surrounding post-growth business practices. Correcting these misperceived norms may unlock organisational support for sustainability transitions and inform interventions targeting structural barriers to transformative change.

---

111 Second-order beliefs in UK flying behaviour: Misperceptions of personal and public flight frequency

Wouter Poortinga[1], Francesca Tirotto[1], Christina Demski[2]
[1]Cardiff University, Cardiff, United Kingdom. [2]University of Bath, Bath, United Kingdom

Flying is one of the most carbon-intensive individual activities and is disproportionately undertaken by high-income groups, thereby contributing significantly to inequalities in carbon emissions. Efforts to reduce aviation demand may be hindered by systematic misperceptions about how often people fly and how individuals view their own behaviour compared to others. Using a large UK-based sample (n = 1,500), this study examines how self-assessed flying frequency and second-order beliefs about others' flying behaviour shape people's feelings of personal responsibility, willingness to reduce flying, and support for policies such as frequent-flyer levies. Results show that higher-income respondents frequently underestimate their relative standing: many high-frequency flyers classify themselves as flying "less than" or "about the same as" others in the UK, despite belonging to the highest-emitting segment. At the same time, respondents systematically overestimate how often the general public flies. These misperceptions help explain why frequent flyers report low perceived personal responsibility for aviation emissions and express weaker support for aviation-related climate policies. Further analyses show that personal responsibility mediates the relationships between self-placement

and second-order beliefs on the one hand, and willingness to reduce flying and policy support on the other. Overall, the findings reveal pronounced pluralistic ignorance around flying in the UK, particularly among the highest-frequency flyers, which may impede acceptance of demand-reduction policies and limit the effectiveness of norm-based interventions.

---

118 From perception to participation: How second-order beliefs drive local energy collaboration

Charlie Walker Clarke, Thijs Bouman, Elliot Sharpe
University of Groningen, Groningen, Netherlands

Background: The transition toward renewable energy sources, such as solar and wind, creates the need for flexible balancing of energy supply and demand. Households are becoming increasingly central actors in this, with some moving from consumers to providers of energy and storage capacity, and opportunities for energy exchange (e.g., vehicle-to-grid). Unlocking this flexibility requires collaboration between households that do and do not have production/storage capacity, possibly making their perceptions of each other's motivations crucial.

Aims: Explore the role of second-order beliefs, defined here as perceptions of other groups' underlying motivations, in shaping willingness to participate in local energy collaboration.

Method: We examine how Dutch individuals (n = 1,239) perceive the motivations of EV drivers, and how these perceptions relate to willingness to collaborate. EV drivers represent an ideal case because they can be seen as being environmentally and/or egoistically motivated.

Findings: Non-EV drivers perceived EV drivers as more egoistically than biospherically motivated, in contrast to how EV drivers rated their own motivations. Perceptions of environmental motives were positively associated with acceptance of different collaboration options, in particular among those most unlikely to adopt an EV soon.

Novelty: Misperceptions about others' motives to adopt energy technologies may hinder collaborations. For policymakers and communicators, emphasising shared environmental values and collective benefits rather than individual advantages may strengthen public support for flexible, decentralised energy systems and foster a more inclusive energy transition.

---

123 Understanding perceived group values among coastal tourists: Implications for marine conservation norms and behaviours

Catho Vermeulen[1,2], Thijs Bouman[2], Ariadna Gabarda-Mallorquí[3], Wencke Groeneveld[2], Bartolomé Deyá-Tortella[4], Dolores Tirado[4], Veroline Cauberghe[1]
[1]Ghent University (Communication Sciences), Ghent, Belgium. [2]University of Groningen (Environmental Psychology), Groningen, Netherlands. [3]Catalan Institute for Water Research (ICRA-CERCA), Girona, Spain. [4]University of the Balearic Islands, Palma, Spain

Background: Coastal regions are popular among tourists, offering ample opportunities for pleasure, relaxation, and natural restoration. However, the presence of tourists also poses threats to these regions, for example endangering natural environments (e.g., pollution) and fresh water supplies (e.g., overconsumption). What motivates tourists to act more environmentally responsible, and what role do second-order beliefs about tourists play in this?

Aim: Disentangle when and how personal and second-order beliefs relate to each other and affect environmental beliefs (e.g., concern) and behaviours (e.g., reducing waste, reducing water consumption) in different touristic coastal areas.

Methods: Two studies will be presented, measuring personal and perceived values of coastal tourists in Flanders (n = 761) and Mallorca (n = 1400), as well as identification and different pro-environmental beliefs and behaviours.

Results: Whereas tourists report to substantially care about diverse environmental goals, they believe other tourists do so much less. Both these personal and second-order beliefs relate to diverse environmental outcomes, including environmental concerns and pro-environmental behaviors. Moderation and mediation analyses show outcomes of second-order beliefs are not always straightforward, and may vary across persons and contexts.

Novelty: These findings highlight the impact of the discrepancy between personal and group values on environmental beliefs and behaviours, offering valuable insights for promoting pro-environmental behaviors among tourists of coastal areas.

---

187 When second-order beliefs affect environmental actions: Which beliefs, under what circumstances, affect our environmental actions?

Thijs Bouman[1], Zan Mlakar[1,2], Elliot Sharpe[1]
[1]University of Groningen, Groningen, Netherlands. [2]University of Amsterdam, Amsterdam, Netherlands

Background: Research has shown that individuals structurally underestimate others' engagement in and support for diverse environmental goals and actions. Whereas these second-order beliefs are often argued to obstruct sustainable transitions, empirical evidence for this relationship is less clear, with effects being inconsistent and varying in size.

Aim: In this presentation, we explore (i) how these second-order beliefs across groups and contexts relate to each other, (ii) which of these second-order beliefs are most likely to impact actions (i.e., environmental behavior and policy support), and (iii) under which conditions such impacts most likely occur.

Methods: The primary analysis is based on data we collected in a national-representative survey conducted across 13 EU countries (n = 19,328). This analysis is supplemented with additional, in-depth analyses of other new and older datasets, as well as findings of the other talks within this symposium.

Results: The combined analyses suggest that people are more inclined to act on second-order beliefs when these beliefs are about more relevant others, which varies depending on group and context. Moreover, second-order beliefs may also affect efficacy beliefs and worry, particularly when these are about larger (e.g., national) populations, which paradoxically discourages and encourages pro-environmental action respectively.

Novelty: Second-order beliefs may affect our environmental actions, but not under all circumstances in the same ways. Understanding when and how second-order beliefs are most relevant adds to current theorising on second-order beliefs, and may inform strategies and policies aimed at promoting sustainable transitions.

SYMPOSIUM 28:
Creative participatory methods for people–environment research

Weds 1 July, 16:15 – 17:45, AP 2

Chairs: Chloe Lucas[1] and Nadav Sprague[2]
[1]University of Tasmania, Hobart, Australia
[2]Harvard University, Boston, United States

Community-Based Participatory Research (CBPR) has a long history of engaging people directly in the research process to address environmental and social challenges, build trust in science, and ensure that findings are meaningful and usable within specific contexts. More recently, scholars across socioecological fields have increasingly turned toward creative and interdisciplinary participatory approaches, including arts-based methods, co-design, and embodied or playful practices such as storytelling, model-making, mapping, and deliberative play.

These creative participatory methods open new possibilities for engaging communities across the life course, particularly those often marginalized or excluded from conventional research. By centering lived experience, cultural expression, and place-based knowledge, creative participatory methods challenge extractive research traditions and reveal dimensions of people–environment relationships that are otherwise overlooked. In doing so, they offer complementary insights to traditional scientific methods on issues such as climate change, environmental justice, and collective adaptation.

This symposium brings together researchers from geography, architecture, public health, education, and related fields working across the US, UK, and Australia who employ creative participatory methods to collaborate with communities around environmental change, health, and socioecological design. The symposium will explore how these approaches can be used not only to generate knowledge, but also to redistribute power, support community agency, and inform policy, planning, and practice. We invite discussion around shared principles, methodological tensions, and practical lessons for conducting participatory research that is both methodologically rigorous and genuinely empowering.

Speakers: Chloe Lucas, Nadav Sprague, Savannah Steele, Sara-Jayne Williams, Sadie Barnes

---

213 Futures in play: An exploration of games for climate adaptation decision-making

Chloe Lucas
School of Geography, Planning, and Spatial Sciences, University of Tasmania, Hobart, Australia

As the climate heats, the places we belong in and to are changing in ways that are both perceptible and alarming. There is a need for place-based strategies to allow social-ecological communities to adapt to these changes. A key consideration in designing just adaptation strategies is how to enable diverse publics to participate in dialogue, deliberation and decision-making.

Does this sound important? I hope you think so! Does it sound fun, exciting and appealing to people from all walks of life?... probably not. But what if it could be?

This presentation explores how playful methods of engagement might be used to achieve democratic deliberation about climate adaptation with diverse and intersectional social groups, including vulnerable and hard-to-engage groups. In doing so it draws upon learnings from a range of examples of games and gamified approaches to social learning and deliberative democracy.

As a case study, I will present 'The Heat Is On', a tabletop climate adaptation game co-designed with young people that is currently being used in schools in Tasmania, Australia to engage young people in social learning about climate change adaptation and decision-making. I will identify the key challenges of engaging publics in democratic deliberation for climate adaptation, and investigate the affordances of games. These include immersion in game-worlds in which habitual and dominant frames, and the injustices they perpetuate, are interrupted, as players are invited to encounter and consider alternative ways of being and doing.

---

393 Climate & Canvas: How children experience and cope with environmental extremes across seasons

Nadav Sprague
Harvard Medical School, Boston, United States

Children are among the most susceptible populations to climate change as childhood represents a sensitive developmental period, children have limited agency to avoid or mitigate environmental exposures, and today's children are exposed to more climate extremes than any prior generation. Yet children's perspectives on how climate change shapes their health, wellbeing, and daily coping remain largely absent from climate and environmental health research. This study aimed to center children's voices to better understand how children experience and adapt to climate-related seasonal extremes, and to explore how creative participatory methods can surface needs and coping strategies that are often overlooked in traditional research approaches. Within a long-standing community–academic, nature-based partnership, we piloted *Climate & Canvas*, an arts-based participatory initiative developed in collaboration with a local contemporary art museum. Forty fourth- and fifth-grade students from Title I (low income serving) public schools in St. Louis participated alongside ongoing nature-based environmental education programming. Students selected a season of personal significance and created self-statue artworks representing the climate extremes they experience and how they cope with associated physical, emotional, and social stressors. Data included artwork, written reflections, and facilitated group discussions, analyzed using inductive thematic approaches. Emergent themes included embodied experiences of heat and cold, emotional distress linked to seasonal disruption, and constrained access to safe outdoor spaces. This work demonstrates the value of centering children's perspectives to inform climate adaptation, education, and intervention efforts, and positions arts-based participatory research as a critical tool for addressing climate change as a life-course health equity issue.

---

291 Co-design methods: Design studio, youth & community

Savannah L. Steele[1], Timothy Griffin[2], Kayla Ignatowicz[1], Anukriti Misra[1], Julia W Robinson[1]
[1]School of Architecture, University of Minnesota, Minneapolis, United States. [2]Minnesota Design Center, University of Minnesota, Minneapolis, United States

The Investing with North Minneapolis project, located in a disadvantaged Minneapolis neighborhood, took place as a 15-week architectural design class (Griffin et al., forthcoming). Reacting to frustration with city projects that residents saw as not serving their interests, we collaborated with community members using co-design methods (McKercher, 2020) to create projects they saw as advancing the neighborhood's future. In the previous three years we had developed working relationships with community organizations that led to joining forces with a local youth organization. Thus, the last two project years our graduate students worked not only with community members, but also with high school interns participating in an after-school and summer program for youth of color on sustainability. Weekly classes and reviews, and three public meetings in the neighborhood each year, enabled community members and local professionals to participate in the designs as they evolved.

Working with the instructors from the youth program and our students, we developed a variety of co-design methods. Some, like model-building, required a little one-on-one instruction, which we assigned to our students as they worked alongside participants. Others, like community drawing, just needed encouragement and providing fun-to-use tools like markers and pens. Students did not use digital renderings in our initial design explorations to not intimidate those with less developed drawing skills. We will discuss and show examples of methods including sketch models with corrugated cardboard and plasticene, questionnaires asking for drawings based on a prompt, collective drawing by the group, team-building questionnaires, and mapping.

---

324 More than verbal methodological approaches to studying eco-emotions: A critical narrative review

Sara-Jayne Williams, Erika Peklanska, Rosamund Portus
University of the West of England - UWE Bristol, Bristol, United Kingdom

Eco-emotions are increasingly recognised as central to how people experience and respond to environmental change, yet much existing research relies on verbal, individualised, and survey-based methods that capture only a narrow range of emotional responses. This paper presents a critical narrative review examining the contribution of *more-than-verbal* (those that include creative participatory approaches) to the study of eco-emotions. Reviewing 247 peer-reviewed studies published over the past decade, the analysis reveals a dominant focus on fear- and sadness-based emotions, often investigated through conventional survey methodological designs.

In contrast, a detailed examination of eight studies employing creative, embodied, visual, or arts-based methods such as drawing, mapping, and co-creation illustrates how more-than-verbal approaches open space for alternative forms of participation and knowledge production. These methods are shown to surface complex, relational, and often ambivalent emotional responses that are difficult to articulate verbally, including care, hope, uncertainty, and guilt. Participants also report benefits of participation in the methodological process describing practices as supportive, reflective, and enabling movement through difficult emotions associated with climate crisis.

The paper situates these findings within traditions of community-based participatory research, arguing that creative and more-than-verbal approaches can challenge extractive research dynamics by centring lived experience, cultural expression, and place-based meaning-making. Reflecting on methodological tensions, ethics, and issues of power, I invite thoughts and discussion about how eco-emotions research can be designed to deepen our understanding of how the climate crisis is being experienced.

---

329 Bridging voices in the climate crisis: A participatory approach to strengthen youth-decision-maker dialogue on climate adaptation in South Wales

Sadie Barnes, Sara-Jayne Williams, Rosamund Portus, Enda Hayes
University of the West of England - UWE Bristol, Bristol, United Kingdom

The climate crisis is inherently intergenerational, yet youth voices remain marginalised in climate policy decision-making. Current frameworks oscillate between tokenistic consultation and overly demanding participation, expecting young people to navigate complex, adult-centric policy spaces. This paper introduces a PhD project, situated at the intersection of youth studies, environmental policy, and creative methods, arguing that authentic youth voices emerge not from independence, but through relational scaffolding that meets young people where they are.

Adapting Dunlop et al.'s (2025) methodology for intergenerational deliberative dialogue, the paper details a three-stage method. Stage one involved conducting school-based workshops across South

Wales, utilising an idea board activity to introduce the Welsh Climate Adaptation Strategy. This creative approach addressed barriers to engaging diverse demographics, encouraging them to engage with complex ideas and choose creative modes of expression.

Stage two involved an online co-productive phase where tensions of participation were experienced. While young people expressed a clear interest in engaging with decision-makers, the expectation of long-term commitment risked an extractive dynamic, with little immediate benefit. These findings indicate that participation frameworks must be adaptable and reflective of young people's wants.

The final stage builds on these insights to facilitate an intergenerational event where youth and Welsh decision-makers come together to discuss key themes derived from the stage one workshops. By combining low-intensity engagement with high-value dialogue, this research demonstrates that meaningful participation need not be exhaustive and that creative, relational approaches can redistribute power while avoiding the extraction of youth labour.

SYMPOSIUM 44: Neuroinclusion by design: Creating organizational environments that benefit all

Weds 1 July, 16:15 – 17:45, 39 MS 02

Chairs: Luca Frankó[1] and Clara Weber[2]
[1]ELTE Eötvös Loránd University, Institute of Psychology, Budapest, Hungary
[2]Institute of Facility Management, School of Life Sciences and Facility Management, Zurich University of Applied Sciences, Wädenswil, Switzerland

Neurodiversity has gained increasing recognition in organizational research and practice; however, most workplaces remain designed around neurotypical assumptions regarding attention, communication, sensory processing, and social interaction. Such design standards can marginalize neurodivergent employees and limit organizational potential for innovation, collaboration, and well-being. This symposium explores neuroinclusive organizational environments can support employees with ADHD and those on the autism spectrum, while benefiting the workforce as a whole.

Luca Frankó introduces the Organizational Neuroinclusion Scale in her presentation. Initial results show that higher organizational neuroinclusion reduces sleep disturbances, stress, and burnout not only among neurodivergent employees but across the entire workforce. Virág Varga highlights that employees with ADHD report significantly less experienced privacy at work – a key predictor for fulfillment of basic psychological needs at work. This makes control over privacy crucial for well-being and performance. Clara Weber examines sensory challenges for employees with ADHD and their coping strategies, emphasizing that sensory stress is contextual-dependent and requires both physical and cultural interventions. Kathrin Radtke reports on sensory barriers for autistic employees, identifying social and auditory stimuli as major challenges. These barriers relate to lower job satisfaction, performance, and self-efficacy, mediated by perceived environmental control. Maria Lackovicova addresses indoor environment quality for employees with autism. Inclusion of interviews provides context-sensitive insights to heterogeneous preferences, revealing how coping strategies can mask underlying discomfort.

Together, these contributions offer a multifaceted view on neuroinclusion spanning organizational structures, privacy, sensory experiences, and environmental quality underscoring the complexity and richness of designing workplaces for everyone.

Speakers: Luca Frankó, Virág Varga, Clara Weber, Kathrin Radtke, Maria Lackovicova

---

663 Introduction of the Organizational Neuroinclusion Scale: Initial findings on stress, burnout, and sleep quality

Luca Frankó[1], Ajna Erdélyi[2], Virág Varga[3]
[1]ELTE Eötvös Loránd University, Institute of Psychology, Budapest, Hungary. [2]Corvinus University of Budapest, Institute of Data Analytics and Information Systems, Budapest, Hungary. [3]ELTE Eötvös Loránd University, Doctoral School of Psychology, Budapest, Hungary

Background: As awareness of neurodiversity in the workplace continues to grow, organizations are challenged to create environments that systematically support diverse cognitive profiles in an evidence-based manner. Despite its growing importance, few validated tools exist to measure organizational neuroinclusion, and empirical research on the topic has also remained limited so far.

Objectives: This presentation introduces the Workplace Neuroinclusion Scale, designed to assess the extent to which organizational environments support neurodiverse ways of functioning. The scale consists of five subscales: (1) **physical environment, (2) work organization, (3) leadership, (4) teamwork and (5) policies and communication.** In the first study, the scale was used to examine the effect of **perceived organizational neuroinclusion** on stress, burnout and sleep quality.

Methods: Using an online questionnaire with snowball sampling, we were able to reach a total of 581 participants.

Results: The Workplace Neuroinclusion Scale shows great psychometric properties. The findings suggest that higher levels of perceived neuroinclusion are associated with lower levels of burnout (β = -0.36) and stress (β = -0.42), as well as better sleep quality (β = +0.36). Notably, these associations were observed not only among neurodivergent employees but also among the neurotypical employees.

Conclusion: The results highlight the importance of a neuroinclusive environment for mental health and support an influential perspective that conceptualizes neurodiversity as a dimensional rather than dichotomous phenomenon. From this perspective, organizational neuroinclusion efforts can be understood as a form of **universal design,** contributing to the well-being and sustainable functioning of the entire workforce.

---

679 Practicing organizational neuroinclusion: privacy and psychological needs among employees with ADHD

Virág Varga[1,2], Luca Frankó[3]
[1]Eötvös Loránd University, Doctoral School of Psychology, Budapest, Hungary. [2]Eötvös Loránd University, Institution of Psychology, Budapest, Hungary. [3]Eötvös Lorand University, Institution of Psychology, Budapest, Hungary

There is an increasing prevalence of neurodivergence, particularly ADHD, challenging organizations to create inclusive workplaces that support both performance and psychological well-being among neurodivergent and neurotypical employees alike. Neurodivergent individuals often adopt environmental and behavioral strategies to regulate social and sensory stimuli at work. A key psychological function of such regulation is **experienced privacy**, which plays a central role in sustaining basic psychological needs—autonomy, relatedness, and competence. These boundary-regulation processes are strongly shaped by the socio-physical characteristics of the workplace.

The aim of this study was to examine the relationship between **experienced privacy and basic psychological need satisfaction** in the workplace, with a specific focus on an under-researched employee group: individuals with ADHD.

An online questionnaire was administered, yielding a total sample of 581 respondents, of whom 281 met criteria for ADHD. ADHD symptom severity was assessed dimensionally to capture individual differences in affectedness.

Results indicate that participants meeting ADHD criteria reported significantly lower levels of experienced privacy and basic psychological need satisfaction compared to those without ADHD symptoms. Regression analyses showed that experienced privacy was a strong predictor of basic psychological need satisfaction in both ADHD and non-ADHD groups.

These findings suggest that employees with ADHD may be particularly sensitive to workplace environmental conditions. Organizational practices enhancing privacy appear beneficial not only for neurodivergent employees but for the workforce as a whole. The study highlights that neuroinclusion requires attention to both physical workspace design and **organizational culture**, offering implications for research and practice in people–environment relations.

---

582 Sensory stress at work: How context shapes strain and coping in adults with ADHD

Clara Weber[1,2], Eunji Häne[1], Pascale Bébié-Gut[1], Marisa Bolzern[1], Davide Pisaturo[1], Frank Wieber[3], Anthony Klein Swormink[3], Beate Krieger[4], Swen Kühne[5], Nicole Anja Baur[6], Nancy Doyle[7]

[1]Institute of Facility Management, School of Life Sciences and Facility Management, Zurich University of Applied Sciences, Wädenswil, Switzerland. [2]Environmental Psychology Department, School of Psychology, University of Surrey, Guildford, United Kingdom. [3]Institute of Public Health, School of Health Science, Zurich University of Applied Sciences, Winterthur, Switzerland. [4]Institute of Occupational Therapy, School of Health Science, Zurich University of Applied Sciences, Winterthur, Switzerland. [5]nstitute of People, Society & Technologies, School of Applied Psychology, Zurich University of Applied Sciences, Winterthur, Switzerland. [6]Institute of Nursing, School of Health Science, Zurich University of Applied Sciences, Winterthur, Switzerland. [7]Department of Organizational Psychology, Birkbeck University of London, London, United Kingdom

Background: Attention Deficit Hyperactivity Disorder (ADHD) affects 1-7% of adults. At work, altered sensory sensitivity, sensory filtering differences, and unmet sensation-seeking needs can contribute to sensory stress. Despite legal rights to adjustments, solutions and research remain limited, fostering health problems and work exclusion.

Objective: This study aimed to (1) better understand sensory challenges in office environments, (2) examine how physical, social, organizational, and individual factors influence sensory stress, and (3) identify coping strategies and contextual conditions that support them.

Methods: Semi-structured interviews with 20 adults diagnosed with ADHD in German-speaking Switzerland (26–61 years; 8 males) were conducted across sectors, roles, and office types. Thematic analysis was informed by the Model of Human Occupation.

Results:

1. Participants reported high strain from conversational noise and peripheral movement, often causing involuntary attentional shifts. Odors, non-regulatable lighting and temperature, tactile discomfort, and unmet sensation-seeking options (e.g., movement) could become intolerable;

strain was strongest when stimuli were unpredictable, uncontrollable, or socially difficult to legitimize.
2. Sensory stress was shaped by contextual conditions. Physical features (e.g., limited acoustic shielding), social dynamics (e.g., pressure to be available), and organizational structures (e.g., rigid schedules, low autonomy) intensified overload by reducing opportunities to anticipate, control, or avoid sensory demands. Offices lacking zoning and withdrawal options were challenging.
3. Coping strategies (e.g., movement breaks, retreat, low-stimulation focus times, noise-cancelling technologies, flexible home-office) were effective only when organizationally supported and culturally accepted.

Conclusion: Sensory inclusion at work requires structurally supported, context-sensitive adaptations addressing multiple workplace dimensions (physical, social, and organizational).

---

596 The sensory workplace puzzle: Which stimuli are perceived as most disruptive by autistic employees?

Clara Weber[1,2], Kathrin Radtke[3], Elsa Goncalves Baptista[4], Louise Thomson[4], Joanna Yarker[5]

[1]Institute of Facility Management, School of Life Sciences and Facility Management, Zurich University of Applied Sciences,, Wädenswil, Switzerland. [2]Environmental Psychology Department, School of Psychology, University of Surrey, Guildford, United Kingdom. [3]Institute of Facility Management, School of Life Sciences and Facility Management, Zurich University of Applied Sciences, Wädenswil, Switzerland. [4]Centre for Organizational Health and Development, Division of Psychiatry and Applied Psychology, School of Medicine, University of Nottingham, Nottingham, United Kingdom. [5]Department of Organizational Psychology, Birkbeck University of London, London, United Kingdom

Background: Autism is associated with sensory processing differences, including hypersensitivity to sound, light, smell, and social proximity. Consequently, office environments can be experienced as “real torment,” undermining wellbeing and functioning at work. Although workplace accommodation guidelines recommend managing sensory conditions, the evidence base remains limited, highlighting the need for theoretically driven studies that identify disruptive stimuli and mechanisms such as perceived environmental control.

Objectives: This study aimed to (1) identify which sensory stimuli in office settings are appraised as the greatest barriers to working well by autistic employees; (2) examine whether sensory barriers are associated with self-efficacy, job satisfaction, and job performance; and (3) test whether perceived environmental control mediates these relationships.

Methods: An online cross-sectional survey employing an ICF environmental-barriers lens was conducted with autistic office workers in the United Kingdom (N = 206; 26–61 years; 38% men) across sectors, roles, and office types. Recruitment was multi-source via social media, national charities, and Prolific.

Results: Social and auditory stimuli were most prominent barriers. Open-text responses highlighted limited personal space, high social density, and auditory disruption (e.g., background and competing noise, and low-level repetitive sounds). Sensory barriers were associated with lower job satisfaction, job performance (technical and social), and self-efficacy with perceived environmental control mediating this relationship. Effects were small-to-moderate in magnitude.

Conclusion: Social and auditory stimuli appear particularly problematic in office settings, and perceived environmental control could be a key mechanism linking sensory barriers to work-related

outcomes among autistic employees.

---

621 A mixed-methods exploration of thermal and acoustic comfort among autistic employees in diverse office environments

Maria Lackovicova[1], Dirk Saelens[1,2], Andrea Jelić[1]
[1]KU Leuven, Leuven, Belgium. [2]EnergyVille, Genk, Belgium

Background: Despite increased attention to neurodiversity, autistic employees remain challenged with barriers related to their employment. Organizational inclusion introduces supporting social norms and inclusive policies; however, the role of the built work environment and its indoor environmental quality (IEQ) remains underexplored. IEQ encompasses acoustics, lighting, thermal and hygric comfort, air quality, vibration, and odours, which influence the comfort and satisfaction of autistic employees.

Aim: This study is situated within a research project investigating how IEQ shapes everyday experiences of autistic employees. Here, we present a mixed-methods analysis focusing on the thermal and acoustic comfort of nine autistic employees in diverse office environments, reporting preliminary results.

Methods: This study employs a sequential explanatory mixed-methods design integrating quantitative and qualitative data. The quantitative phase comprises sensory sensitivity questionnaire and repeated questionnaires on satisfaction and momentary experiences administered via the Experience sampling method (ESM), over seven consecutive workdays in diverse office environments across different seasons. ESM data are time-matched with sensor-based IEQ measurements. The qualitative phase consists of semi-structured interviews.

Findings: Correlational analysis of ESM and IEQ data indicates heterogeneity in thermal and acoustic comfort among autistic employees. Interviews provide context-sensitive insights, showing how fluctuations in comfort link to routines and social aspects, and that coping strategies may mask discomfort in the comfort ratings.

Conclusions: Autistic employees experience workplace IEQ in diverse ways. Integrating interviews into ESM and IEQ data enhances interpretability and offers nuanced insights into the satisfaction ratings, clarifying how thermal and acoustic conditions shape autistic employees' everyday work experiences.

---

114 Restorative infill: Co-producing "missing middle" housing for sustainability and urban wellbeing

Eun Young Kim[1], Landon Parker[2], Blake Burba[2], Jacob Ridenour[1,3], Robyn Dukes[1,4]
[1]University of Tennessee at Chattanooga, Chattanooga, United States. [2]University of Tennessee, Knoxville, United States. [3]HOMEStretch, Knoxville, United States. [4]DH&W Architects, Chattanooga, United States

Background: Urban centers face a critical shortage of "Missing Middle" housing that bridges the gap between single-family homes and high-density apartments. In rapidly growing urban contexts, development often prioritizes density over resident wellbeing, neglecting the social and psychological impact of the built environment.

Aim & Objectives: This project aims to develop a modular housing prototype, the "Restorative Infill" model, designed to densify underutilized urban lots while intentionally restoring the social fabric and mental health of the neighborhood.

Method: The study utilized a Knowledge Co-Production (KCP) framework, established through a year-long partnership between a transdisciplinary university design team and a local non-profit developer. This collaboration integrated real-world operational constraints, such as replicability, cost-effectiveness, and durability, ensuring the design serves as an actionable research product rather than a speculative exercise.

Implications: The architectural logic centers on "Sustainability as Wellbeing" through two social catalysts. First, a **Shared Porch System** utilizes Prospect-Refuge theory to create transitional settings that encourage spontaneous interaction and mitigate urban isolation. Second, a **Shared Courtyard** serves as the project's "social heart," providing a secure, biophilic "third space" for community bonding and natural ventilation.

Importance: This project offers a replicable blueprint for delivering dignified, restorative housing. By eliminating utility burdens for the urban workforce and fostering community activation, this case study demonstrates that healthy, green, and equitable communities are best achieved when architectural innovation is grounded in collaborative, community-based practice.

359 Sustainability features of the residential environment and home-related subjective well-being: An empirical analysis using Japanese survey data

Yusuke Arima[1], Jun Munakata[2], Hiromi Itami[3], Akihito Ozaki[1]
[1]Kyushu University, Fukuoka, Japan. [2]Chiba University, Chiba, Japan. [3]Polytechnic University of Japan, Tokyo, Japan

Housing is expected to enhance residents' well-being, and residential environments that contribute to well-being have been widely studied. At the same time, achieving the Sustainable Development Goals (SDGs) requires pursuing sustainability in housing. Sustainability-related features of residential

environments range from active and passive measures that reduce energy use to factors that promote biodiversity and support the continuity of culture and traditions. To advance both well-being and sustainability in housing, clarifying their relationship is an important challenge.

This study empirically evaluates how sustainability-related residential features are associated with occupants' well-being. First, drawing on the concept of subjective well-being, we defined domains of home-related subjective well-being (HoSWB) and developed a corresponding measurement scale, comprising home satisfaction (HoSAT), emotions at home (HoEMO), and eudaimonia derived from home (HoEUD). We then conducted a survey of 2,500 Japanese respondents and analyzed determinants of HoSWB.

The results suggest domain-specific patterns. For example, durable design that supports structural longevity is associated with higher HoSAT; passive design features—particularly access to daylight and natural ventilation—are associated with higher HoEMO; and factors contributing to the continuity of tradition and culture show the strongest association with HoEUD. Overall, these findings suggest that pursuing sustainability in residential environments is likely to enhance residents' well-being by improving multiple, distinct domains of HoSWB.

---

465 Is a green home also a healthy home? Examining behaviours and perceived indoor environmental quality in retrofitted homes using a mixed-method approach

Christine Boomsma, Anne Buitenhuis, Kristina Erdelyi, Rosanne Fikke, Marije Reedijk
National Institute for Public Health and the Environment (RIVM), Bilthoven, Netherlands

Energy retrofitting measures in homes such as replacing gas boilers with heat pumps and improving insulation are primarily targeted at mitigating climate change. However, they may also affect the indoor environment, leading to effects on health and well-being. These effects can be positive as well as negative; their net effect on the indoor environment is currently unknown. This is thought to strongly depend on how the measures installed as part of energy retrofits are used and/or how their effects are perceived. In turn, effects on (perceived) indoor environmental quality associated with energy retrofitted homes may impact attitudes towards, and support for, these measures. ENABLE (2024-2027) is an interdisciplinary research project which aims to develop a methodology to determine the health impact of energy retrofitting measures in homes. Data is collected in a joined case study in 30 homes in the Netherlands before (February-March 2025) and after (February-March 2026) energy retrofitting measures. This presentation will focus on WP6 where a mixed-method approach is used to examine the role of perceptions and behaviour. Research includes the development of a diary app to measure relevant behaviours and perceived indoor environmental quality. We will discuss the lessons learned during the app development, and look ahead at the results from the second wave of the case study where behavioural data will be linked to sensor and modeling data. The results of ENABLE will be translated into knowledge that is important for (policy) advice provided by Governments, Municipal Health Services and other stakeholders.

---

450 Nature-based climate solutions in campus environments: Effects of vegetation area and type on adjacent environmental temperature

Chia-Jung Chung, Pei-Yi Weng
NPUST, PingTung, Taiwan

Climate change has intensified the urban heat island effect, increasing the frequency and severity of heat exposure in urban environments and highlighting the importance of nature-based climate solutions (NbCS). Urban vegetation is widely recognized for its potential to reduce environmental temperatures through shading and evapotranspiration; however, the cooling performance of different vegetation types and areas, as well as their effective cooling distance, remains insufficiently

understood under subtropical climatic conditions. This study investigates the cooling effects of vegetation on adjacent environmental temperatures within the campus of National Pingtung University of Science and Technology in southern Taiwan. Field measurements of air and surface temperatures were conducted during summer midday periods at multiple sites characterized by different vegetation types, vegetation areas, pavement materials, and spatial orientations. By comparing temperature variations across these conditions, this research quantifies the cooling magnitude of vegetation and examines how temperature changes with distance from vegetated areas. Results indicate that shading is the dominant factor influencing surface temperature reduction, often exceeding the effects of pavement material properties. Air temperature exhibits a clear spatial gradient, increasing with distance from forest edges, demonstrating a measurable cooling influence zone. However, higher vegetation density does not necessarily result in lower temperatures; excessively dense planting may impede airflow and reduce cooling efficiency. These findings suggest that effective thermal mitigation requires a balanced configuration of shading and ventilation. The study provides empirical evidence to support climate-responsive green space planning and contributes to the application of NbCS in subtropical urban environments.

---

561 Urban pocket forests extending the human–nature relationship in residential areas

Fredrika Mårtensson, Misagh Mottaghi
Department of People and Society, Swedish University of Agricultural Sciences (SLU), Lomma, Sweden

Green spaces in residential areas promote health and well-being by shaping how children and their families relate to their surroundings, each other, and nature. Many residential areas in Sweden built during the post-war era contain large areas of green, open space with accessible networks of paths for pedestrians, cyclists and children´s play. After decades of densification through infill housing, and in the face of climate-related challenges such as heat mitigation and stormwater management, interventions increasing biodiversity aim to reconnect people with nature and stabilise local ecosystems. The urban pocket forest containing compact, species-rich, multi-layered plantings, is a solution for dense urban conditions. This study aims to investigate how people perceive and make meaning of such infills of biodiverse land in residential areas. A municipal housing company, in collaboration with a non-profit nature conservation association, is applying the Miyawaki method to create an urban pocket forest in the courtyard of one of its housing estates. Data was collected through participant observation during the planning, planting and management of the site, involving residents and schoolchildren. Interviews were conducted with the professionals and volunteers heading the project. How biodiverse outdoor environments gain acceptance in a population is key for the development of sustainable everyday habits where the human–nature interface becomes associated with residential satisfaction.

---

340 Behavior change categories influence climate action willingness: Psychological foundations for the Avoid-Shift-Improve (ASI) framework

Elisa Tedaldi[1], Gregg Sparkman[2]
[1]Univerisity of Zurich, Zurich, Switzerland. [2]Boston College, Boston, United States

Many policies aim to promote sustainable behavior, but not all behavioral changes are the same. They differ in terms of how they relate to one's existing behavior: some require ceasing an existing behavior, others substituting it, and others yet modifying how it is performed. In four preregistered studies we examine how these categories of change impact perceived effort and willingness to change.

In Study 1, 821 participants evaluated 'avoid', 'shift', and 'improve' changes across three sustainability domains: diet, transport, and energy usage. Across domains, 'avoid' changes were seen as most effortful, followed by 'shift', and then 'improve', with the inverse pattern for willingness to change.

If the type of change systematically shapes perceived effort and intentions, can a behavior be reframed as a more favorable type of change to improve appeals to adopt sustainable behavior? Studies 2–4 (total N = 4646) participants read appeals promoting renewable energy or reduced meat consumption framed as either 'avoid', 'shift', or 'improve' change requests, and then reported their willingness to change, and perceived effort and message pressure. 'Avoid' appeals were perceived as most effortful and pressuring, whereas 'improve' appeals were least effortful and pressuring. Correspondingly, willingness was highest for 'improve' and lowest for 'avoid' changes. Study 4 confirmed the same results while testing both prescriptive and proscriptive avoid appeals.

These studies lay a foundation to understand and harness categories of behavior change that will allow scholars and policy-makers to create better and more efficient interventions to promote sustainability.

401 Feeling the environment: Integrating experiential factors into the Value-Belief-Norm framework

Valeria Vitale[1,2], Nina Vaupotič[2], Sabine Pahl[2]
[1]Department of Human and Social Sciences, Faculty of Social and Communication Sciences, Mercatorum University, Rome, Italy. [2]Urban and Environmental Psychology, Department of Cognition, Emotion, and Methods in Psychology, Faculty of Psychology, University of Vienna, Vienna, Austria

Background: Environmental pollution poses complex and often intangible risks, requiring not only technological solutions but also sustained public engagement and behavioral change. Beyond the established role of values, beliefs, and norms, experiences and affect may also shape these outcomes.

Aims: This pre-registered study examines how pro-environmental behavioral intentions are shaped by affective, experiential, cognitive, and normative processes, based on, but extending, the Value–Belief–Norm (VBN) framework.

Method: Survey data were collected from 5,206 participants across five European countries (Belgium, Bulgaria, Greece, Ireland, Netherlands), as part of the SOSZEROPOL2030 project. The study focused on four marine pollutants: microplastics, PFAS, eutrophication, and underwater noise. Structural equation modeling tested an extended VBN framework incorporating negative holistic affect as mediator between values, beliefs of risk perception, personal norms, and behavioral intentions, with personal experience included as antecedent.

Findings: Correlational evidence showed that biospheric and altruistic values indirectly predicted behavioral intentions by eliciting stronger negative affect toward pollutants. This affect heightened risk perceptions, which reinforced personal norms, consequently motivating pro-environmental intentions. Egoistic values showed an opposite effect. Experience with pollution was unexpectedly linked to lower negative affect, whereas uncertainty about exposure increased negative affect. Pollutant-specific and cross-national analyses demonstrated a similar structural pattern, with minor variations. Alternative conceptual models were tested.

Novelty and Implications: Findings highlight the importance of integrating affective and experiential processes into the VBN framework to better predict pro-environmental decision-making under complex environmental risks. This work informs both theoretical development and practical interventions aimed at fostering public engagement in environmental protection.

---

420 Teaching values thinking as a sustainability competency: Concepts, activities and assessments

Jeff Sharp, Taylor Valentine
The Ohio State University, Columbus, United States

Values-thinking, a critical element of the Key Competencies in Sustainability Framework (Redman and Weik, 2021), refers to the capacity to identify, reconcile, and negotiate the goals and trade-offs inherent in addressing sustainability challenges. Sometimes referred to as normative competence, it requires understanding the values of diverse stakeholders as well as reflecting on one's own. This presentation outlines how values-thinking is taught and assessed in a team taught, interdisciplinary undergraduate introduction to sustainability course that includes both lectures and active-learning labs. Lab activities guide students to explore diverse stakeholder perspectives and goals in a variety of contexts, such as water management, community climate action, and food systems. We describe and evaluate the strategies we use to assess student competence, such as scenario-based analyses, pre-/post surveys, and reflective self-assessments. Drawing on outcomes from recent course offerings in both face-to-face and online formats, we analyze patterns in student performance to identify strengths and limitations of our instructional approach. We are especially focused on student self-assessments and exploring what students believe they have learned about values thinking. While systems thinking (another key sustainability competency) has a relatively well-developed pedagogical literature, guidance for teaching and assessing values-thinking within the key competency framework is limited. This presentation contributes to filling that gap by offering evidence-based practices, example assessments, and lessons learned to inform sustainability educators seeking to more intentionally integrate values-thinking into their curricula.

---

526 Finnish youths' beliefs about the future and their links to pro-environmental behavior

Katri Savolainen[1], Liisa Mäkinen[1], Alisa Horsmanheimo[2], Sofia Laine[3]
[1]University of Jyväskylä, Jyväskylä, Finland. [2]Aalto University, Espoo, Finland. [3]Finnish Youth Research Society, Helsinki, Finland

Despite increasing attention to young people's role in addressing environmental challenges, limited knowledge exists about how young people perceive the future and how these perceptions are connected to their environmental behavior. This study examined beliefs about the future among Finnish young people aged 15–29 and their connections to pro-environmental behavior. It explored what kind of belief in the future was held by young people regarding both their own futures and the future of the world, how individual background factors were found to explain these beliefs, and how beliefs about the future were related to pro-environmental behavior. The main dataset consisted of responses to the 2025 Youth Barometer (n = 2312). In addition, responses (n = 95) from a survey conducted by the Youth Nature and Climate Group operating under the Prime Minister's Office were analyzed, with a focus on environmental guilt and acting beyond one's own resources. The results showed that young people were clearly more optimistic about their own futures than about the future of the world. Beliefs about the future among young people were most strongly associated with financial situation, a sense of belonging to society, and political orientation. Individual background factors were found to explain pro-environmental behavior, and beliefs about the future were found to provide only limited additional explanatory power for this phenomenon. Environmental guilt and acting beyond one's own resources were emphasized among socially active youth involved in organizations.

---

592 Clicks for conservation: A citizen science task for studying pro-environmental behavior in online and lab settings with real-word ecological benefits

Mathias Hofmann, Marilisa Herchet
Dresden University of Technology, Dresden, Germany

The need for sustainable practices is growing fast, so it is essential to measure how individuals act in ways that help the environment, i.e., pro-environmental behavior (PEB). In most psychological studies PEB is assessed only as self-reports in questionnaires, or with tasks which neither affect the respondents nor the environment to a substantial degree. Recent attempts to establish more consequential methods can be expensive for the researchers or come with potential ceiling effects. Hence, we propose a new task that both measures PEB and creates real ecological benefits. Inspired by web-based citizen science approaches, participants can support a nature conservation organization by analysing pictures of wildlife photo traps. While the task itself is lay-person friendly, results will inform conservationists about the behavior of endangered species, which can guide protection actions. After a short practice session, participants decide on their own how many pictures they want to examine, a direct measure of how much PEB they engage in. We will present results from a pilot study involving a sample of university students. This study addressed general task feasibility, typical outcome ranges, and perceived difficulty of singular images. Correlations with personal values and related measures of PEB are used as proxies for validity. We discuss reproducibility, open-data practices, and construct validity. After further refinement the task could become a cheap, internationally usable, online tool for reliably quantifying PEB while simultaneously contributing to real conservation work.

Thursday 2 July 2026

Schedule at a glance

Time	Room	Session
09:00-09:50	03 MS 01	Keynote: Charles Ogunbode
09:50-10:00		*Movement break*
10:00-11:15	03 MS 01	Climate change: Children and young people
	AP 1	Soundscapes
	AP 2	Towards socio-ecological justice in current sustainability policies: The relevance of a critical research approach
	39 MS 02	Flooding
	72 MS 03	Environmental design and interaction
	32 MS 03	Circular economy
11:15-11:45	*AP 3/4*	*Tea and coffee*
11:45-13:15	03 MS 01	Social influence for climate action: New perspectives on people–environment relations (11:45-13:00)
	AP 1	Nature and restorative environments
	AP 2	New perspectives in people-environment research
	39 MS 02	Biophilic design
	72 MS 03	Environmental education
	32 MS 03	Sustainable transitions and policy
13:15-14:15	*AP 3/4*	*Lunch*
14:15-15:45	03 MS 01	Sustainability as wellbeing
	AP 1	Lived experiences of nature immersion and nature-based interventions: Harnessing interdisciplinary approaches and methodological innovation to engage underserved and minoritised groups
	AP 2	Fields of gold: Experiencing, valuing, and governing sustainability in changing environments
	39 MS 02	Urban commons initiatives: Bridging individual well-being and societal transformation
	72 MS 03	Active mobility in urban environments: Integrating multiple perspectives on urban design for vulnerable user groups
	32 MS 03	Biodiversity and land management
15:45-17:00	AP Foyer	Poster Café 2 (tea and coffee will be served in AP 3/4)
17:00-18:00	03 MS 01	IAPS Annual General Meeting
18:00-19:00		*Guided biodiversity walk (fully booked)*
19:00-22:00	*Marquee*	*Conference Dinner*

Chair: Silvia Collado
University of Zaragoza, Teruel, Spain

---

546 Environmentally conscious, denialist, and apathetic youth: Profiles of young people's attitudes and behaviours toward climate change and environmental issues

Isabel Lema-Blanco
Universidad Internacional de La Rioja, Logroño, Spain

Moving beyond generalized representations of youth as uniformly environmentally engaged, the study aims to distinct profiles that reflect how young people think about, act upon, and participate in responses to the ecological crisis. An online survey was conducted in Spain with a representative sample of youth population between 14-28 years old (n= 2.000). The sample was distributed in terms of age, gender, social class and type of resident population. Using factorial analysis, the research examines three interrelated dimensions: environmental attitudes, consumption habits, and political-social engagement. This methodological approach allows for the identification of coherent profiles that integrate cognitive, behavioural, and participatory components. The results classify young people into three overarching groups: negationist, environmentally conscious, and apathetic. Environmentally conscious youth display high environmental awareness and attempt to align their consumption practices with sustainability principles. They are actively engaged in collective action, although they sometimes exhibit an overly confident belief in the effectiveness of individual action. The apathetic profile is defined by scepticism and a sense of powerlessness regarding mitigating environmental degradation. Consistently, they also show low levels of political and environmental participation. Finally, the negationist profile share an anthropocentric paradigm, prioritisation of personal consumption, and a tendency to downplay the severity of environmental crisis and they often express confidence in technological solutions. The study concludes that strengthening youth environmental engagement requires more strategic environmental education interventions, educate global citizens with strong environmental identities and the reinforcement of individual and collective self-efficacy for individuals to participate responsibly in social transformation.

---

741 The apparent inaction and apathy of Costa Rican youth toward climate change

Alejandra Fernández-Álvarez, Catalina Ramírez-Vega, Yordan Brenes-Vargas
University of Costa Rica, San Jose, Costa Rica

Costa Rica has long been internationally recognized for its commitment to sustainability, however, in recent years the country has shifted toward increasingly unsustainable production patterns and weakened environmental protection. This shift is reflected in public opinion, as recent national polls indicate that young people are the least concerned about climate change and the group engaging in the fewest proenvironmental actions. The present study aimed to explore young Costa Ricans' perceptions of climate change, the proenvironmental behaviors they engage in, and the determinants underlying these behaviors. The study employed a qualitative methodology with an exploratory and descriptive design. Semi-structured interviews were conducted with 21 young adults aged 20 to 35 years residing in the central region of Costa Rica. Information was analyzed using Reflexive Thematic Analysis, resulting in a thematic map comprising six themes. Participants expressed a bleak and uncertain outlook regarding the future under climate change. This pessimism and sense of powerlessness were associated with feelings of anxiety and fear, consistent with the concept of eco-

anxiety. The most frequently reported proenvironmental behaviors were those requiring minimal effort or intentionality and those already embedded in daily routines. These behaviors aligned with participants' perceptions that climate change is mainly caused by large corporations and wealthy individuals, and as such viewed their own actions as largely inconsequential. The findings offer an initial framework for future research and contribute to addressing climate change perceptions and proenvironmental behaviors within the Latin American context, particularly in Central America, where empirical research on this topic remains scarce.

---

47 Comprehension and salience of climate change in early childhood: The mediating role of parental communication

Silvia Collado[1], Carballo-Losada Marta[2], Rocío Rodríguez-Rey[2], Abigail Brown[3], Gary W. Evans[3]
[1]University of Zaragoza, Teruel, Spain. [2]Universidad Pontificia Comillas, Madrid, Spain. [3]Cornell University, Ithaca, United States

Background: Children are particularly vulnerable to climate change (CC). Given their cognitive development stage, young children may struggle to comprehend such an abstract concept, and their reactions to CC are largely unexplored. Knowledge about the associations between parental reactions to CC and those of their child is also scarce.

Objectives: We examine the CC salience (i.e., importance children attribute to CC) in 5- to 8-year-old children and their understanding of CC. We further examine age-related differences and assess whether parental communication mediates the link between parents' temporal perception of CC and children's understanding and salience.

Method: Data were collected from 312 child–parent dyads. Children were interviewed individually using a standardized protocol that included verbal questions and a drawing task to assess CC comprehension and salience. Parents completed questionnaires assessing their perception of CC and CC-related communication with their child. Statistical analyses included binary logistic regressions and mediation models.

Results: Findings revealed a strong age-related trend: both CC comprehension and salience increased significantly with age, with a marked rise around age 7. Parental temporal perception of CC predicted their communication about CC with their child. This communication, in turn, mediated the relationship between parental perception and children's CC salience and understanding.

Implications: Environmental education initiatives should target children at developmentally appropriate stages. For children younger than 7, practitioners may consider focusing on aspects of CC that children can directly experience, rather than presenting it as an abstract issue. Attention should be placed on parents as facilitators of early environmental socialization.

---

239 Predictors of five-to-seven-year-olds' understanding of climate change

Gary Evans[1], Abigail Brown[1], Jiayi Guo[2], Silvia Collado[3], Marta Carballo-Losada[4], Rocio Rodriguez-Rey[4], Qiqi Shan[1], Ruopu Lu[1], Tiernan Weeden[1], Siyu Zhu[1], Wenqiong Yu[1], Molly Heinzelman[1]
[1]Cornell University, Ithaca, United States. [2]Cornell University, Ithaca, United States. [3]Universidad de Zaragoza, Teruel, Spain. [4]Universidad Pontificia Comillas, Madrid, Spain

Despite growing concerns about ecoanxiety among children with respect to global climate change (GCC), few studies have rigorously investigated this phenomenon. Moreover, most studies of children's emotional responses to GCC suffer from a critical omission- documentation of whether the child understood what GCC is. This is particularly salient for samples of young children who may not

have the cognitive ability to comprehend GCC. With a mixed-methods approach consisting of open-ended probes, semi structured interviews, pictorial rating scales, and children's drawings, we find in the US, Spain, and China (total n= 641) that the majority of children do not know what GCC is until age 7. Moreover, a sizeable minority (46%) of seven-year-olds do not know what GCC is. Furthermore, among those children who understand GCC, nearly all have incomplete and/or partially inaccurate knowledge. There are no significant national differences in the relations between age and comprehension, and in all three countries age predicts much of the variance in GCC comprehension. The primary aim of this paper is to describe additional variables that may predict early childhood comprehension of GCC. In addition to basic sociodemographic factors including age, nationality, gender, household income and parental education, we investigate several other potential predictors of GCC comprehension among 5-7 year-olds. These factors include children's outdoor play, parental political values, parent-child communication about GCC, plus parental knowledge and affective responses to GCC. Parental perceptions of GCC are also investigated as predictors, including temporal and geographic distancing along with their beliefs about GCC reality.

INDIVIDUAL ORAL PRESENTATIONS:
Soundscapes

Thurs 2 July, 10:00 – 11:15, AP 1

Chair: Gunnar Cerwén
Swedish University of Agricultural Sciences, Alnarp, Sweden

---

467 Walks in forests and urban built environments: Effects of traffic noise and environment

Nicole Bauer, Julia Schaupp
Swiss Federal Institute for Forest, Snow and Landscape Research WSL, Birmensdorf, Switzerland

Background: People in urbanized societies commonly spend time in greenspaces to alleviate stress and promote restoration and wellbeing. However, in urban areas access to greenspaces is often limited, and urban environments are commonly exposed to increased road traffic noise, a major environmental stressor. Despite extensive research on the benefits of greenspaces compared to urban built environments, the extent to which these effects depend on differences in noise levels remains underexplored.

Objectives, materials & methods: We present a randomized, controlled field study investigating the psychophysiological effects of 30-minute walks in forests versus urban built environments with differing road traffic noise levels. Outcomes include a range of physiological and psychological outcomes, as well as attention.

Results: Walking in forests, in environments with lower road traffic noise and longer relative quiet time, was associated with increased feelings of restoration, subjective stress recovery and perceived restorativeness, compared to walking in urban built environments, in environments with higher road traffic noise and with less relative quiet time. However, these effects were not observed for physiological stress or attention, with cortisol levels decreasing uniformly across all conditions, likely due to the act of walking.

Implications: The findings underscore the impact of road traffic noise, even at relatively low levels, as a barrier to perceived restoration and subjective stress recovery. This study highlights the importance of addressing traffic noise in the planning and design of urban environments to optimize

their restorative potential and support the wellbeing of urban inhabitants.

---

96 Predicted effects of a utility-scale solar farm on the tranquillity of a rural landscape using TRAPT

Gregory Watts
University of Bradford, Bradford, United Kingdom

Tranquillity is increasingly recognised as a key environmental attribute supporting psychological restoration, wellbeing, and the quality of recreational experiences in rural landscapes. This paper investigates the predicted impact of a proposed 70-acre solar farm at Boyah Grange Farm, Derbyshire (UK), on perceived tranquillity along public footpaths. The site lies within Green Belt land close to Dale Abbey and is widely valued for its quiet, natural character. Tranquillity impacts are assessed using an established predictive model (TRAPT) combining sound pressure level (LAeq) and the proportion of natural features in view (NCF) to derive a Tranquillity Rating (TR). Noise propagation from inverter stations is modelled using ISO 9613-2, and changes in visual naturalness are estimated using panoramic image analysis. Results indicate that for the footpath passing through the centre of the site, LAeq is predicted to increase from approximately 30 dB(A) to nearly 50 dB(A), while NCF falls from about 99% to 50%. The combined effect is a reduction in TR from around 9.4 ('excellent') to 4.6 ('unacceptable'). The findings demonstrate the sensitivity of human experience in quiet rural environments to combined visual and acoustic intrusions and highlight the value of this tranquillity-based prediction tool.

---

711 The impact of natural and urban soundscape exposure on creativity and the semantic content of creative output

Enrico Cipriani[1], Damian Swat[2], Bendik Wessel[2], Martin Moldeklev[2], Simone Grassini[2]
[1]University of Pisa, Pisa, Italy. [2]University of Bergen, Bergen, Norway

The sonic qualities of environments play an important role in influencing affective states and cognitive functioning. Previous research suggests that urban soundscapes can impair mood and cognition, whereas natural soundscapes exert restorative effects. As populations become increasingly urbanised, it is essential to examine how everyday sound environments shape creative cognition and the semantic content of thought.

In a preregistered within-subject online study, we examined differences in creative output following exposure to natural and urban soundscapes. A representative UK sample (N = 327; age range 18-83 years, M = 46.9, SD = 15.6; 51.7% women) was exposed to five 20-second soundscape recordings (Control/white noise, Nature Positive, Nature Negative, Urban Positive, Urban Negative). After each exposure, participants completed the Figural Interpretation Questionnaire (FIQ) as a measure of creative interpretation, alongside semantic differential scales assessing perceived emotionality. Presentation order was fully randomised. Trait nature connectedness (EINS) and nature exposure (NES-II, R-NES-II) were also assessed to capture individual differences in person–environment relationships.

Results showed that positive natural soundscapes elicited significantly higher creativity scores and more positive emotionality ratings compared to both urban categories. No significant differences in creativity emerged between positive natural, negative natural, and control soundscapes. Importantly, exposure to positive natural soundscapes increased nature-related semantic content in FIQ responses, suggesting a semantic priming effect. Individual differences in nature connectedness and exposure did not significantly moderate these effects.

These findings highlight the role of perceived soundscape valence in shaping creative cognition, with implications for understanding how everyday acoustic environments influence psychological experience.

---

525 Restorative potential of ocean soundscapes: A psychophysiological study on temporal alignment and breathing

Gunnar Cerwén[1], Tin Oberman[2], Francesco Aletta[2], Jian Kang[2]
[1]Swedish University of Agricultural Sciences, Alnarp, Sweden. [2]University College London, London, United Kingdom

Natural soundscapes are increasingly recognized for their restorative potential. Most research has focused on sound source categories (e.g. birds, water, forest sounds), with less attention given to structural properties of sound, like tempo. The present study aims to increase understanding of temporal patterns in soundscapes and their relevance for restorative experience. The study is inspired by a proposition put forward by R. Murray Schafer (1977), suggesting that the sense of well-being associated with the sea may relate to the temporal cycle of ocean waves and its alignment with breathing at rest—an idea that has not yet been empirically tested.

A within-subject experiment was conducted (n = 33) to examine whether temporal alignment occurs between wave sound patterns and breathing rhythms. Two ocean wave sound conditions with manipulated temporal cycle lengths corresponding to normal and slow breathing rates were compared to brown noise and silence as control conditions. All auditory conditions were paired with a congruent ocean image and presented in an ambisonic laboratory following stress induction. Autonomic markers of physiological restoration, including heart rate, heart rate variability, and skin conductance, were recorded continuously. Soundscape perceptual appraisal was collected subsequently from the same participants using the Soundscape Indices (SSID) protocol, conceptually aligned with ISO 12913.

Preliminary findings will indicate associations between wave sound tempo, breathing rhythms, physiological recovery, and perceptual appraisal. The findings are expected to inform the design of restorative environments by highlighting the potential relevance of temporal properties, alongside sound type, in water features and other soundscape interventions.

SYMPOSIUM 31:
Towards socio-ecological justice in current sustainability policies: The relevance of a critical research approach

Thurs 2 July, 10:00 – 11:15, AP 2

Chair: Susana Batel
ISCTE - University Institute of Lisbon, Lisbon, Portugal

This symposium aims to discuss the relevance of critical research approaches to people-environment studies, namely regarding current sustainability policies, like those fostered by the European Green Deal and UN's Sustainable Development Goals, and to empirically illustrate it based on diverse research contexts in Portugal. It will particularly highlight the relevance of attending to how power dynamics shape people-environment relations across time and through material infrastructures, to examine and foster socio-ecological justice. The first contribution proposes psycho-social historiographies as a methodological approach to trace and address socio-environmental injustices, by focusing on a case study revolving around small dam removal and local resistance in the polluted Alviela river. The second contribution discusses the relevance of a critical approach to social sciences'

energy justice research for better understanding local responses to large-scale solar plants. The third contribution analyses the lived experiences of energy vulnerabilities within current smart and green cities' initiatives, like positive energy districts. Finally, the fourth contribution discusses how exploring the history and spatialities of Mouraria, often defined as a multi-cultural and touristified neighbourhood in Lisbon, contributes to understand how people relate with it nowadays and implications for just housing and sustainable urban planning policies. As such, these contributions reflect on the relevance of critical approaches across several key areas of people-environment studies, from urban environments and their relations with global mobilities, energy vulnerability and senses of place; to socio-ecological justice in riverine communities and communities affected by the solar energy transition.

Speakers: Susana Batel, Ross Wallace, Minh Thu Nguyen, Maria Alba

---

583 The river is (r)existence: River restoration, pollution and the ecology of resistances in the Alviela river basin

Susana Batel[1], Maria Alba[1], Maria Assunção Gato[1], Lígia Figueiredo[2], Ana Catarina Miranda[2], Regina Falcão[2]
[1]ISCTE - University Institute of Lisbon, Lisbon, Portugal. [2]GEOTA, Lisbon, Portugal

To the diverse forms of extractivism that have been colonizing the most silenced and invisibilised territories within capitalist logics, such as rural ones, have accumulated the visions, projects and infrastructures of the so called green energy transition, such as hydroelectric power plants and waste water treatment plants.

Despite the urgency of fossil capitalism for the end of the world, its replacement by a green capitalism risks the reproduction of socioenvironmental injustices and skepticism regarding any transition.

This paper proposes to discuss the relevance of conducting psychosocial historiographies of territories to (re)think present ecological practices and narratives so that these are neither rejected by the learned institutional-colonialist helplessness of communities, nor coopted by right-wing populisms.

For that, we focus our analysis on the basin of Alviela river, Portugal, departing from a project lead by GEOTA (NGO for the Study of Environment and Territorial Planning), initiated in 2023. The project "Free rivers" aims to remove obsolete barriers from rivers and implement associated measures for river restoration to improve rivers' connectivity and related ecosystems. Departing from this – research, lived, geographical – territory and its historiography, we attempt to trace the ecology of resistances against socioenvironmental injustices therein coexisting and discuss in which ways can we anticipate and construct possibilities for futures that grow form the river and current ecological practices. Empirical data was collected from fieldwork conducted between August 2024 and February 2025 in the basin of the Alviela river, including archival research, "river post", individual interviews and group workshops.

---

433 From place-protective imaginaries to representing alternative energy futures: A report from a Portuguese "sacrifice zone"

Ross Wallace
ISCTE-IUL, Lisbon, Portugal

Driven by the construction of new large-scale solar power plants, recent years have seen a rapid expansion of solar photovoltaic energy, with global capacity tripling between 2018 and 2023. By the end of this decade, solar is expected to become the world's largest renewable energy source. This expansion is increasingly associated with significant socio-ecological impacts and injustices and, as

a result, conflicts at deployment sites are becoming more frequent, challenging long-standing assumptions about the public acceptability of solar energy.

This article contributes to the growing body of critical research on "green energy transitions" by examining local responses to a proposed large-scale solar energy park in the Alentejo region of Portugal. Drawing on interviews with community members and an analysis of public consultation responses and other documents, we explore how community members interpret and contest the project. Beyond documenting opposition, we focus on instances of reflexive political engagement and on how social representations of solar energy become anchored in emerging visions of alternative futures.

We follow the activities of a group of residents resisting the project, tracing the discursive strategies through which they mobilize local knowledge and articulate both personal and collective futures. We show how notions such as "sacrifice zone" and "desertification" play a central role in these struggles: they express competing imaginaries of place and anticipated loss, while simultaneously transforming personal experiences into public issues. By foregrounding these dynamics, the article highlights the political work performed by local imaginaries in shaping conflicts around renewable energy transitions.

---

660 From energy vulnerability to energy citizenship: A critical approach to tackling energy poverty in Positive Energy Districts

Minh Thu Nguyen, Susana Batel
Center of Psychological Research and Social Intervention, CIS-IUL, Lisbon, Portugal

With the rise in electricity prices and the urgent need to tackle climate change, in Europe citizens are taking on more active roles in building Positive Energy Districts (PEDs), an urban planning endeavour to achieve net zero and energy surplus cities and neighbourhoods. However, research has shown that these projects are often deployed with a focus on the neoliberal city and citizen, within which marginalized and vulnerable citizens' needs and agencies are often excluded, making them further vulnerable to energy poverty and related inequalities.

This research aims at understanding the lived experiences of and responses to energy vulnerability in PEDs. Through participative workshops with vulnerable groups in Torres Vedras, a PED-like city in Portugal, citizens were invited to reflect on their experiences of energy vulnerabilities such as inefficient heating, lack of mobility… - and how these are structurally induced by climate change, precarious housing and transport, and lack of social support networks. Analyses show that these vulnerabilities are often dealt with just individually, through higher electricity and transport costs and also related costs to health and wellbeing, especially impacting the elderly, women, children, people with disabilities and those who live in more peripheric territories.

Based on the social psychology of precarity framework, we shed new light on energy vulnerability not as an individual phenomenon, but as a historical process shaped by political and material, including spatial, dynamics. This has implications for opening opportunities to negotiate vulnerable citizens' roles from only beneficiaries, to active citizens and community members in PEDs.

---

674 Archiving urban transformation for emplaced social justice: Representations and territorialisation of Mouraria over time

Maria Alba[1], Susana Batel[1], Andrés Di Masso[2]
[1]ISCTE-IUL, Lisbon, Portugal. [2]Universitat de Barcelona, Barcelona, Spain

Deriving from increasing global mobilities and insufficient related urban public policies, touristification and gentrification currently pose major challenges for Southern European cities. Rising and unsustainable housing prices, together with the transformation of neighbourhoods into sites of tourist consumption, are reshaping how dwellers experience their everyday places. Recent critical psychosocial research on people–place relations has highlighted the need to examine how these urban transformation processes, by disrupting shared place meanings and situated social networks, lead to physical but also symbolic forms of displacement. In this ongoing research, we focus on a touristified neighbourhood in Lisbon's historical centre – Mouraria – associated to diverse representations over time, from popular and traditional to multicultural and cosmopolitan. Our aim is to critically explore how representations of Mouraria spatially unfold and are (re)produced by different actors over time, with a focus on how they relate with past and present mobilities. We perform a Thematic Analysis of media materials and official documents, such as urban regeneration plans, to assemble a Mouraria Archive, from the end of the Portuguese dictatorship to the present day. We argue that this historical and spatial approach allows for an understanding of how Mouraria has been symbolically and materially territorialised over time. In turn, it contributes to discuss how past representations of the neighbourhood evolve into present ones and are appropriated by actors holding uneven social power within contexts of urban change. Overall, this study provides insights for research on people-place relations and to inform socially just and sustainable urban policies.

INDIVIDUAL ORAL PRESENTATIONS:
Flooding

Thurs 2 July, 10:00 – 11:15, 39 MS 02

Chair: Clare Twigger-Ross
Eunomia Research and Consulting, London, United Kingdom

---

169 Challenges in building resilient communities for the elderly under flood disasters: A case study of the Dongning Community in Neipu Township, Pintung County, Taiwan

Tzu-Wei Yu, Chuan-Ming Tung
Ming Chuan University, Taoyuan, Taiwan

Taiwan became a super-aged society in 2025, with over 20% of its population aged 65 or older. As climate change intensifies the frequency and severity of floods, older adults face heightened vulnerability. However, community resilience and disaster prevention policies often adopt generalized approaches that overlook older adults' specific needs, capacities, and lived realities, resulting in persistent gaps between local demand and institutional support. Focusing on the flood-prone Dongning Community in Neipu Township, Pingtung County, this study examines how older residents experience and cope with flood events, identifies policy shortcomings in current disaster management practices, and explores strategies for developing people-centered, elderly-inclusive community resilience. Methodologically, this study combines systematic analysis of local disaster prevention and response plans with in-depth interviews with flood-experienced older residents and key stakeholders to compare policy intentions with community-level experiences. Anticipated findings include a conceptual framework categorizing elderly disaster response patterns, evidence of mismatches between policies and community needs, and insights into the underrecognized potential of older adults as active contributors to community governance and disaster preparedness. By foregrounding seniors' perspectives amid rapid population aging, this study reframes older adults as empowered participants rather than passive victims, offering actionable insights for inclusive flood management and resilience-oriented policymaking.

---

744 Urban risk, climate change and housing insecurity: Wellbeing in informal territories of Santiago, Chile

Marcelo Lagos[1], Laís Pinto de Carvalho[2]
[1]Pontificia Universidad Católica de Chile, Santiago, Chile. [2]Universidad de Valparaíso, Valparaíso, Chile

Background: Santiago de Chile concentrates some of the country's most acute expressions of the housing crisis, informal urbanisation and exposure to climate-related hazards. In peri-urban territories such as Noviciado (Pudahuel), deficient urban planning has enabled residential expansion into flood-prone and hydrologically unstable areas, where increasing hydrometeorological events linked to climate change threaten the safety, health and everyday wellbeing of residents.

Aims: This study examines how risk, precarious housing and institutional disconnection shape people-environment relations and experiences of safety and wellbeing in Noviciado. It asks how hydrological threats, urban informality and regulatory failures intersect with residents' lived experience of inhabiting a high-risk territory.

Method: The study draws on an interdisciplinary risk assessment combining critical physical geography, urban planning and participatory research. It integrates hydrological and geological modelling, housing and infrastructure surveys, and community participation processes conducted with residents, municipal teams and planners.

Findings: Results show widespread exposure to groundwater flooding, together with risks from river overflow and environmental contamination. These hazards intersect with informal tenure, precarious housing, overcrowding and weak infrastructure, generating chronic insecurity, disrupted everyday life and significant threats to physical and mental health. Community participation reveals strong local awareness of risk, alongside limited institutional responsiveness to community needs.

Novelty and implications: By linking climate processes, urban informality and wellbeing, the study advances a people-environment perspective on urban risk. It highlights the need for participatory, climate-sensitive planning and housing policies that prioritise safety, dignity and environmental justice in vulnerable metropolitan territories.

---

645 RISCOM: Citizen risk perception, disinformation, and community resilience in the context of flood emergencies

Angela Castrechini[1], Isabel Pellicer[2], Mihaela Vancea[1], Itziar Salazar[1], Osman Hakan Can[1], Sergi Valera[1], Anna Forés[1], Teresa Sauras[1]
[1]University of Barcelona, Barcelona, Spain. [2]Autonomous University of Barcelona, Barcelona, Spain

Background: Climate change is increasing the frequency of extreme rainfall and flood events, posing significant challenges to both the environment and public health. Beyond physical impacts, flooding leads to lasting psychological effects, such as anxiety, depression, and PTSD, which are often exacerbated by social inequalities and inadequate preparedness.

Aims/Objectives: The RISCOM project aims to analyze flood risk perceptions and study the role of misinformation and fake news in risk management. It seeks to identify social factors that strengthen community resilience and to design evidence-based educational and communication resources.

Method: Adopting an interdisciplinary and mixed-methods approach, the study focuses on two municipalities in Catalonia: Premià de Mar and Castelldefels. The methodology combines a quantitative online survey—assessing risk perception, fake news discernment, and institutional

trust—with qualitative focus groups that utilize "risk maps" and "emotional thermometers" to capture citizens' narratives.

Anticipated Findings: Preliminary results identify critical communication gaps, including the underestimation of risk due to cognitive biases (such as optimism and normality bias) and limited credibility caused by disinformation. Survey insights suggest that institutional trust and collective cohesion are significantly influenced by socio-demographic factors like housing type and education.

Novelty and Implications: RISCOM provides a novel framework by integrating psychology, climate sciences, and data science to address complex environmental risks. The project's findings will facilitate the co-design of inclusive, accessible messaging and practical tools—such as infographics and preparedness booklets—to foster institutional trust and community involvement in crisis management.

---

742 Understanding the flood recovery process

Clare Twigger-Ross, Rolands Sadauskis, Maria Evangelina Filippi, Isabellle Williamson, William Fitter, Shai Kassirer, Zoe Boulderstone, Tracey Garrett, Amanda Davies
Eunomia Research and Consulting, London, United Kingdom

Floods have devastating and long-lasting impacts on individuals, communities, and businesses across England. With climate change set to increase flooding frequency and severity, improving flood recovery processes has become a critical priority (Environment Agency, 2020; 2022). Flood recovery is usefully located within the wider work of resilience (Cutter et al, 2010; Twigger-Ross et al, 2015; 2020) and adaptation to climate change, with an emphasis on adaptive resilience "bouncing forward". This paper presents findings from a study carried out in 2024/25 that examined interactions between the institutional provision for flood recovery in England and the community experience of recovering from a flood. The research questions included:

- how is recovery understood?
- how is institutional support experienced by members of communities?
- to what extent are different aspects of flood impact (social, economic, physical) supported? and
- how can the process of recovery from a flood be improved?

A multi-stage methodology combined a systematic evidence synthesis, interviews with national stakeholders and in-depth case studies (interviews and focus groups with local stakeholders and residents) in four flood affected locations in England. Thematic analysis was carried out on the primary data collected. Key findings included highlighting critical gaps between needs and support specifically in the areas of communication and coordination, advice on insurance and resilient repair, the use of community networks, and support for children. The findings will be presented with recommendations for improving the process of recovery from floods for individuals and communities in England.

Chair: Celen Pasalar
North Carolina State University, Raleigh, United States

---

152 Assessing the association between multimodal scene features and physiological response using wearable devices in different neighborhood contexts

Nan He
Tongji University, Shanghai, China. National University of Singapore, Singapore, Singapore

Neighborhoods play a critical role in supporting residents' physical and mental health, yet existing empirical studies are often constrained by a binary "urban artificial–natural" framework. Taking a historical district as the study site, this research conducted dynamic physiological monitoring of 48 participants using wearable sensors and GPS, complemented by questionnaires to establish a multidimensional "physiology–psychology–space" data chain. Place attachment was introduced as a grouping variable, while scene-experience sequence was treated as a control variable. A two-step analytical framework combining linear mixed-effects modeling and categorical principal component analysis (CATPCA) was employed to systematically examine the effects of urban scene types and multimodal environmental features on physiological stress responses.

Results indicate that scene effects exerted a substantially stronger influence on galvanic skin response (GSR) than any individual environmental feature. Identical environmental features showed varying directions and magnitudes of impact on GSR across different scene types. Interactions between sound intensity and scene type had a greater effect on GSR than interactions between visual features and scene type. Place attachment moderated physiological stress patterns: residents exhibited lower and more stable GSR and skin temperature in neighborhood, whereas non-residents showed significantly higher and more volatile GSR in the same environments. Scene-experience sequence also played a regulatory role, with prior exposure to restorative scenes enhancing physiological resilience in subsequent scenes.

These findings suggest that neighborhoods should be conceived as "stress-buffering layers" in renewal practices, emphasizing optimized spatial sequences and respect for residents' emotional bonds to place to promote healthier everyday experiences.

---

296 Simulating human evaluation of urban walkability with visual language models

Min-Hsuan Yen[1], Yen-Cheng Chiang[1], Li-Chih Ho[2]
[1]National Chiayi University, Chiayi City, Taiwan. [2]Tunghai University, Taichung City, Taiwan

The rapid advancement of artificial intelligence has transformed data acquisition and analysis in urban studies. Because urban environments encode abundant visual and spatial information, visual language models (VLMs) offer a promising approach for extracting perceptual and environmental cues at scale. This study evaluates the feasibility of using VLMs to simulate human judgments of urban walkability and to identify environmental attributes associated with walkability. Taichung City, Taiwan, served as the study area. We compiled 242,525 street-view images and assessed them using five state-of-the-art VLMs (LLaVA, InternVL, MiniCPM, Qwen-VL, and VILA). The model demonstrating the highest consistency with human ratings was then selected for downstream analyses. To characterize spatial structure and interpretability, we applied spatial autocorrelation

analysis and SHapley Additive exPlanations (SHAP) to examine the spatial patterns and relative contributions of four walkability dimensions: land-use mix, sidewalk facilities, safety, and aesthetics. Results indicate significant positive spatial clustering across all dimensions, with sidewalk facilities exhibiting the strongest clustering. The most influential factors include land-use diversity, wayfinding and guidance elements, barrier-free design, lighting quality, and street greenery. Overall, our findings suggest that VLMs can approximate human walkability perceptions and provide a scalable, interpretable technical pathway for advancing people–environment perception research and evidence-informed urban design.

---

196 Perceived affordances and coping with risk: Environmental interaction and fear of falling among older adults with mild-to-moderate disabilities

Ruiying Jia, Na Li, Leiqing Xu
College of Architecture and Urban Planning, Tongji University, Shanghai, China

Background: For elderly individuals with mild-to-moderate disabilities, the home environment presents a mix of potential risks and available supports. While "designed affordances" are standard interventions, little is known about how Fear of Falling (FOF) drives the discovery and utilization of "informal affordances" for mobility.

Objectives: This pilot study investigates the correlation between FOF, fall history, and the compensatory use of environmental affordances. It aims to understand how disability levels reshape the perception of what the home environment affords for support.

Method: A survey was conducted with 30 participants recruited via home visits and clinics. The instrument captured demographics, FES scores, and home modification status.

Confirmed Findings: Preliminary analysis indicates that high FOF significantly correlates with greater reliance on the inherent affordances of the surrounding environment. Participants frequently prioritized the immediate proximity of furniture and architectural features. The fear of falling while walking is significantly positively correlated with the frequency of grabbing onto environmental objects. It also mapped the frequency of "holding behaviors" across three categories of affordance providers: building elements, furniture, and equipment. The largest proportion of people walk while holding onto the wall.

Novelty and Implications: This research contributes to IAPS by highlighting the gap between prescribed function and actual use. It implies that effective design must go beyond installing aids to consider the layout and stability of furniture as critical, continuous affordances that compensate for psychological insecurity.

---

164 Navigating with awareness: How wayfinding tools alter perception, safety, and urban experience

Yanhua Lu[1], Celen Pasalar[2]
[1]Iowa State University, Ames, United States. [2]North Carolina State University, Raleigh, United States

Digital navigation tools increasingly shape how people engage with urban environments, mediating not only movement and efficiency, but also perception of safety, environmental awareness, and wellbeing. Within the context of One Health and planetary wellbeing, this study examines how different wayfinding tools influence embodied people-environment interactions in public space. Drawing on environmental psychology and theories of perception, we investigate how navigation tools act as

perceptual filters, shaping attention, spatial understanding, and situational awareness during pedestrian mobility.

A campus-based experiment was conducted with 108 university students and postdoctoral researchers, who navigated a five-section walking route using one of three wayfinding tools: augmented reality (AR), 2D digital maps, or printed maps. Quantitative and qualitative data were collected through surveys, mental mapping, and behavioral observation to assess perceived safety, spatial memory, environmental engagement, and wayfinding performance.

Participants using AR wayfinding reported higher directional confidence but demonstrated reduced attention to environmental cues such as landmarks, traffic flows, and physical conditions. In contrast, participants using traditional map-based tools engaged in more active environmental scanning and exhibited stronger spatial memory and situational awareness. These findings highlight trade-offs between navigational efficiency and attentional engagement with urban environments, with direct implications for pedestrian safety, wellbeing, and inclusive access to public space.

By revealing how digital navigation technologies mediate people-environment relations, this research contributes to discussions on equitable urban design. As cities promote walkability, sustainability, and access to public space, understanding how navigation tools shape attention, safety, and environmental perception is essential to fostering healthier and inclusive urban environments.

INDIVIDUAL ORAL PRESENTATIONS:
Circular economy

Thurs 2 July, 10:00 – 11:15, 32 MS 03

Chair: Kathryn Colley
The James Hutton Institute, Aberdeen, United Kingdom

---

595 Let's talk about the Circular Economy! But is there a Circular Economy for all?

Jianyu Chen[1], Sari Verachtert[2], Tony Craig[1], Kathryn Colley[1], Alice Hague[1], Graciela Martínez Sánchez[3]
[1]The James Hutton Institute, Aberdeen, United Kingdom. [2]NTNU: Norwegian University of Science and Technology, Trondheim, Norway. [3]Biomathematics & Statistics Scotland, Edinburgh, United Kingdom

Background: The Circular Economy (CE) has become a prominent concept in recent research and policy, presented as a comprehensive framework for transforming production and consumption systems. However, CE remains largely within expert, academic, and policy discourses, with limited attention to how it is appropriated in everyday thinking. As a result, CE risks functioning as an abstract and ambiguous concept, disconnected from people's lived experiences and social practices.

Aims/objectives/research questions: Using Social Representation Theory (Moscovici, 1961), this study explores how CE is made meaningful by the public. We examine how individuals relate CE to a range of other elements, including abstract ideas, existing values, and everyday practices. The study further questions whether seeking an overarching definition of CE is analytically useful for research and communication, or whether greater insight may be gained by focusing on specific circular practices and meanings already embedded in daily life.

Method or approach: An online survey will be conducted in early 2026 in both Norway and the UK, using two national representative samples (N>=1500 in each country), enabling cross-cultural comparison. The survey uses hierarchical association tasks to capture social representations of CE and connect it with broader range of socio-demographic information.

Confirmed or anticipated findings: Preliminary findings from this online survey will be presented at the conference.

Novelty and implications for research and practice: This study questions the uncritical use of CE as a singular research object and informs more socially grounded approaches to future research, communication, and policy engagement.

---

503 Consumers' participation in sharing activities within and beyond their neighbourhood: Insights from Norway and the UK

Sari Verachtert[1], Jianyu Chen[2]
[1]NTNU, Trondheim, Norway. [2]James Hutton Institute, Scotland, United Kingdom

Background: Circular economy (CE) has received increased attention on the political agenda. However, there is still a limited understanding of how consumers perceive their role in the transition toward a more sustainable way of consumption. Participation in informal sharing activities such as borrowing and ownership swapping of items could contribute to reducing resources waste by giving products another life.

Aims: This study investigates how and why individuals engage in these informal sharing activities. We focus on psycho-

social determinants at the individual level, including attitudes, perceived behavioural control, and social and personal norms. In addition, we look at factors at the collective level, such as social identity, sense of community, collective efficacy and trust within and beyond the neighbourhood.

Approach: The study draws on psychological models such as the Theory of Planned Behaviour (Ajzen, 1991) and the social identity model of pro-enviornmental action (SIMPEA) developed by Fritsche et al. (2018). An online survey will be conducted in early 2026 in both Norway and the UK, enabling cross-cultural comparison of sharing attitudes and behaviours. Preliminary findings will be presented at the conference.

Implications: CE practices can help reduce CO2 emissions. This depends not only on the success of the production and policy, but also on consumers. However, within the field of environmental psychology, studies examining circular practices are still scarce. By looking at psychological and social mechanisms that encourage or hinder consumer engagement in informal sharing activities, this study contributes to a growing, yet underdeveloped, field of research on circular practices.

---

673 Close to home or beyond the here and now? Imagining circular futures to motivate collective action

Beatrice Beitz[1,2], Wolfgang Irrek[3]
[1]Prosperkolleg e.V., Bottrop, Germany. [2]Universität Duisburg-Essen, Duisburg/Essen, Germany. [3]Hochschule Ruhr-West, Mülheim/Bottrop, Germany

Background: Climate communication often relies on threat-based approaches with limited potential to sustain engagement. While positive future visions can motivate social change, the role of spatial

scale in motivating collective action remains unclear. The circular economy serves as a salient example of a positive socio-environmental future.

Aims: This study examines how imagining circular economy futures at different levels of abstraction influences motivation for collective action. Drawing on Construal Level Theory and Social Identity Theory, it investigates how abstract versus place-based future imaginaries shape collective action motivation. The study is designed to inform future-oriented communication in a developing participatory real-world lab (BoGeZi, EFRE/JTF project).

Method: A preregistered online experiment will be conducted with a representative German sample. Participants are randomly assigned to four conditions: imagining an idealised circular future society, an idealised circular future of their local city, a hybrid condition combining both, or a control condition. Measures include place identification, system justification, collective efficacy, and collective and environmental citizenship intentions.

Anticipated findings: Distant circular imaginaries are expected to promote collective action by fostering abstract construals and reducing system justification. Proximate imaginaries may increase place-based engagement while reinforcing system justification, as change is framed as locally achievable without questioning broader socio-economic structures. The hybrid condition is expected to yield the strongest motivation.

Novelty/Implications: The findings reveal whether future visions encourage localised adaptation or support transformative change, advancing theory on imaginative thinking. The contribution contextualises the findings within existing literature and derives implications for future-oriented communication and community-based sustainability interventions.

---

586 Testing variations of the COM-B framework for modelling circular economy behaviours

Kathryn Colley[1], Jianyu Chen[1], Graciela Martínez Sánchez[2], Gary Polhill[1], Alice Hague[1], Phoebe Somervail[1], Tony Craig[1]
[1]The James Hutton Institute, Aberdeen, United Kingdom. [2]Biomathematics and Statistics Scotland, Aberdeen, United Kingdom

Background: The Capability, Opportunity, Motivation – Behaviour (COM-B) model (Michie et al., 2011) has received significant interest in behaviour change research, policy and practice as an integrative and interdisciplinary conceptual framework. However, application of the COM-B to underpin quantitative models of pro-environmental behaviour remains limited.

Aim: This study aims to test the COM-B model, in its various forms, to understand relationships between capabilities, opportunities, motivation and behaviour in the context of the circular economy.

Method: Data were collected through an online survey of N=1488 residents of Scotland, UK, using a questionnaire co-developed with policymakers, government analysts and other stakeholders. Behaviours were measured using subscales from the previously validated Circular Behaviours Scale (Colley et al., 2025). We conducted a preregistered analysis of relationships between repairing, sharing and recycling behaviours and C-O-M antecedents using structural equation modelling. Two variations of the COM-B model were tested: a) the original COM-B model (Michie et al., 2011) and b) a revised COM-B model incorporating moderation effects (West & Michie, 2020).

Findings: Preliminary results indicate that models based on the original COM-B explain observed circular economy behaviours. The inclusion of interaction effects (based on the revised COM-B) improved the model fit for recycling behaviours but not for repairing and borrowing behaviours.

Implications: This study is the first to operationalise and parameterise versions of the COM-B for modelling circular economy behaviours. It suggests that, with some caveats, the COM-B may be useful as a conceptual grounding for quantitative environmental behaviour research.

SYMPOSIUM 32:
Social influence for climate action: New perspectives on people–environment relations
Thurs 2 July, 11:45 – 13:00, 03 MS 01

Chairs: Sam Hampton[1] and Briony Latter[2]
[1]University of Bath, Bath, United Kingdom
[2]Cardiff University, Cardiff, United Kingdom

This symposium examines how social influence shapes climate-relevant attitudes and behaviours across everyday settings, social networks and institutional contexts. Although influence processes are central to people–environment relations, research remains fragmented across disciplines and behavioural domains. The session brings together four connected contributions demonstrating how influence operates at multiple scales through diverse social mechanisms.

Sam Hampton and Briony Latter begin by introducing the Social Influence for Climate Action framework, outlining its four dimensions—influencer, audience, mode of influence, and behavioural domain—and discussing how this multidimensional approach can strengthen conceptual clarity and guide future research and practice.

Steve Westlake follows by exploring the emotional dynamics of influence through the case of 'flight free' pledges, showing how behaviour change among high-profile individuals can diffuse through social networks via both positive and negative emotions.

Francesca Tirotto presents research on how influence plays out in travel. Drawing on a nationally representative UK survey of attitudes toward aviation, this work highlights how identities, emotions, and perceived norms influence the acceptability of both supportive ('pull') and restrictive ('push') policy measures.

The final speaker, Katie Wright, draws on sociological work on climate silence to examine the limits of influence in everyday contexts, considering why climate conversations are avoided, and how social norms, emotional labour and relational concerns shape influence.

The symposium offers interdisciplinary perspectives spanning psychology and sociology, and explores how social influence can both enable and constrain climate action.

Speakers: Sam Hampton, Briony Latter, Steve Westlake, Francesca Tirotto, Katy Wright

---

262 Social influence for climate action: A novel framework

Sam Hampton[1,2], Briony Latter[3]
[1]University of Bath, Bath, United Kingdom. [2]University of Oxford, Oxford, United Kingdom. [3]Cardiff University, Cardiff, United Kingdom

Social influence is an important mechanism for climate action but is under-leveraged and research in this area is fragmented. Our talk will introduce the *Social Influence for Climate Action* framework alongside research and impact case studies showcasing examples of influential groups in the United Kingdom (UK). We will outline the four dimensions of the framework—*influencer*, *audience*, *mode of influence*, and *behavioural domain*—and discuss how this multidimensional approach can strengthen conceptual clarity and guide future research and practice.

We will discuss our research into hairdressers who are a prime example of everyday influencers on climate change and sustainability. Our interviews with sustainable hair salon owners and directors across the UK highlighted the unique skills that hairdressers have for engaging with clients, the type of conversations already happening in these spaces, and the potential for training and greater public engagement.

Our presentation will include findings from our research into parenting and impact-focused work with the National Childbirth Trust and the Women's Institute. These are two influential community organisations who we have partnered with to deliver workshops and materials aimed at improving carbon capability. Our UK-wide survey and interviews with parents demonstrated their capacity to influence and be influenced by others, holding a critical role in climate action.

This talk will open the symposium on social influence for climate action, setting the scene for the next talks.

---

382 Leaders who fly less encourage others to follow suit by stimulating positive and negative emotions

Steve Westlake[1,2], Christina Demski[1], Nick Pidgeon[2]
[1]University of Bath, Bath, United Kingdom. [2]Cardiff University, Cardiff, United Kingdom

Flying less is one of the most effective ways someone can reduce their environmental impact, and yet current social norms heavily promote flying. To explore social influence as a motivator for flying less, we surveyed 344 recent flyers about their reasons for pledging to go "flight free" for a year because of climate change. Around three-quarters of respondents who knew someone else who was flying less because of climate change said they had been influenced by that person to go flight free. The proportion of respondents who were influenced rose to 85% if the known person was someone in the public eye (a "leader"). Respondents who knew a leader reported significantly higher levels of positive and negative emotions in response to the leader's behavioural example (emotions such as feeling inspired, hopeful, guilty, and pressured to fly less). These emotions were all positively correlated with the leader's influence, indicating that positive *and negative* emotions help to stimulate climate-friendly behaviour change. Leaders were attributed several influential qualities by respondents, such as commitment, clarity, passion and expertise. Leaders were more influential for respondents who were newer to making climate-friendly lifestyle changes, indicating the educational role of leaders at moments of change. This novel research evidences the powerful effect of social influence on others' choices to fly or not, and highlights the agency of leaders to promote sustainable behaviour changes and new social norms via leading by example.

---

84 Travel identities, flight shame and social norms in support for aviation climate policies

Francesca Ausilia Tirotto[1], Christina Demski[2], Wouter Poortinga[1]
[1]Cardiff University, Cardiff, United Kingdom. [2]University of Bath, Bath, United Kingdom

Air travel is a major source of carbon emissions within the transport sector, producing some of the highest emissions per passenger-kilometre. Emissions from air travel continue to rise, with progress

toward decarbonising the sector remaining slow. Widespread behaviour change remains one of the key routes to reducing emissions. Flying less often, avoiding short-haul flights where alternative travel modes exist, and choosing nearer holiday destinations can all help to substantially reduce emissions in the sector. However, many people feel little environmental worry about flying or reduce this worry through dissonance-reduction strategies. Meaningful policies are therefore needed to incentivise desired low-carbon behaviours and disincentivises unwanted high-carbon behaviours to decarbonise the sector.

This study uses a nationally-representative UK-based online sample (N = 1,000) to examine public support for a range of 'push' and 'pull' policies aimed at reducing emissions from holiday air travel, and the role of travel identity, flying-related emotions, and social norms therein. Support for non-coercive measures such as sustainable aviation fuels (SAF), carbon labelling, and investment in public transport alternatives was generally high. In contrast, support for more restrictive policies that directly limit or disincentivise flying (e.g., frequent-flyer levies, higher flight taxes, or bans on short-haul routes) was lower and more strongly shaped by people's travel identities, experienced flight shame and injunctive norms.

These findings show how psychological factors shape the acceptability of different types of policies, and suggest that effective aviation decarbonisation will require policy designs that account for identities, emotions, and social norms.

---

770 Climate silences: The limits of influence in everyday climate talk

Katy Wright
University of Leeds, Leeds, United Kingdom

This paper draws on published findings from a sociological study of climate silence to examine how climate silences constrain the potential of informal social influence for climate action. While concern about climate change is increasingly widespread, research suggests that it remains relatively rare for people to discuss the issue in everyday conversation, even among those who are most concerned. In this paper, I explore findings to show how "climate silences" are actively shaped by relational dynamics and the contexts in which interactions occur, rather than being understood simply as the absence of climate talk. Emphasising the importance of relational contexts, I examine how practices of self-silencing can emerge from a desire to avoid conflict and maintain relationships, or from perceptions of the appropriateness of climate talk in particular settings. I consider the implications for the role of informal conversations, often seen as potentially important ways to influence others, in fostering climate engagement or action. The paper suggests it is important to broaden our understanding of climate silence and offers insight into why climate talk remains uncommon, and seems not to reflect the extent of public concern.

Chair: Seiji Shibata
Sagami Women's University, Sagamihara, Japan

623 Towards balanced living territories: Green infrastructure, collective care and wellbeing across rural–urban landscapes

Cristina Garcia Fontan, F. Alberto Varela Garcia
University of A Coruña, A Coruña, Spain

Background: Over the past six decades, demographic change—urbanisation, rural depopulation and ageing—together with climate change has transformed everyday environments across Europe. These processes affect people–environment relations and increase pressures on health, wellbeing and territorial resilience. Planning approaches based on rigid rural–urban distinctions and administration-led action often fail to address these interconnected challenges. This paper presents research from the international Green Gap project, focusing on application in Galicia (Spain) and Northern Portugal through green infrastructure and planning frameworks.

Aims: The study explores how green infrastructure can support balanced living territories that enhance physical and mental wellbeing, environmental quality and climate resilience. It emphasises collective territorial care, arguing that healthy landscapes emerge from shared responsibility rather than public action alone. A key objective is to develop culturally and geographically situated participation and territorial stewardship mechanisms adapted to local ways of living.

Method: The research combines GIS-based cartographic analysis with the application of local planning instruments and public policies. These spatial methods are complemented by participatory processes linked to territorial stewardship networks. Ecosystem service assessment approaches foreground intangible and relational dimensions, including wellbeing, sense of place and social cohesion.

Findings: Results indicate that integrated green infrastructure networks contribute to healthier everyday environments, improved ecological connectivity and reduced local climate risks, such as wildfires in inland Galicia. Place-based participation strengthens attachment, collective care and resilience.

Novelty: By linking green infrastructure, wellbeing and collective care, Green Gap offers a people-centred, transferable framework for research and planning practice, supporting healthier territories.

690 A walking electroencephalography study of attention restoration in urban and natural city environments

Jason Chan[1], Joy Hurley[1], Franziska Friemel[2], Annalisa Setti[1]
[1]University College Cork, Cork, Ireland. [2]Forschungszentrum Jülich, Jülich, Germany

Exposure to natural environments can enhance mood, cognition and confer overall psychological benefits, as well as physical benefits. Between cognitively demanding tasks, such as the Attentional Network Task (Fan et a. 2002), exposure to natural environments ‘restored’ cognition and improved participant performance (Berto, 2005; c.f. Cassarino et al. 2019). This is contrary to when participants

were exposed to urban environments. There has been very little research into the neural mechanisms associated with walking in natural or urban environments. In this study, participants performed the Attentional Network Task before and after walking in either a green or urban environment. Throughout the study, participants' brain activity was monitored using an Emotiv 32-channel Flex EEG system. After conducting a series of time-frequency analyses, we found that there was higher theta and alpha power during the green walk compared to the urban walk. These frequency bands have been associated with cognitive restoration (Bollimunta et al 2011). Conversely, there was increased gamma-band activity while participants walked in the urban environment. We also found increased theta activity during the ANT, after the green walk. Conversely, we found decreased beta-band activity during the ANT after the urban walk. These data provide neurological evidence of mechanisms for which natural environments can improve cognitive performance. Importantly, people who are more connectedness to nature are more likely to exhibit these neural patterns of activity. In turn, people who are more connected to nature are more likely to exhibit pro-environmental behaviour.

---

597 The Ulrich et al. (1991) replication study

Agnes van den Berg
University of Twente, Enschede, Netherlands

This presentation reports a preregistered replication of a classic study on stress recovery in natural versus urban environments, initiated in 2018. The replication largely confirmed the original findings for self-reported affective recovery. Physiological results were more mixed, with deviations mainly observed in sympathetic measures; evidence for greater recovery during viewing nature was generally less strong than originally reported. Two rounds of peer review led to one acceptance and one minor revision. Then the manuscript was rejected following a new Elsevier authorship policy. Under this policy, the voluntary withdrawal of a single author for reasons unrelated to the manuscript required written approval from all 23 remaining co-authors. This case illustrates how procedural rigidity can undermine collaborative research in environmental psychology.

---

631 Decomposing the naturalness of dappled sunlight

Özge Karaman-Madan[1], Kynthia Chamilothori[1], Mariëlle P.J. Aarts[2], Yvonne A.W. de Kort[1]
[1]Human-Technology Interaction, Industrial Engineering and Innovation Sciences, Eindhoven University of Technology, Eindhoven, Netherlands. [2]Building Lighting, Department of the Built Environment, Eindhoven University of Technology, Eindhoven, Netherlands

A well-established relationship exists between perceived naturalness and restoration, with scenes perceived as more natural also being more restorative. Although existing studies have attempted to identify the visual features that predict perceived naturalness, to the best of our knowledge, no prior research has systematically and objectively manipulated naturalness. Thus, this work focuses on dynamic dappled light (i.e., sunlight filtered through a tree canopy) as a promising stimulus for restoration indoors and systematically manipulates its characteristics to examine the relationship between objective naturalness, perceived naturalness, and perceived restoration potential.

The study follows a full factorial 2×2×2×2 design, varying independently the movement, edge characteristics, luminance distribution, and shape of the dappled light pattern and creating natural (original) and non-natural (manipulated) variations for each visual feature with image processing techniques. In a within-subject online experiment, 59 participants viewed videos of 16 light stimuli shown as projections onto the wall of an office space and provided responses on perceived restoration potential in a paired comparison task and on perceived naturalness in a rating task.

Results show that each deviation from objective naturalness, i.e., each manipulation of a visual feature to its non-natural counterpart, resulted in a decrease in perceived restoration potential.

Moreover, although, as expected, perceived naturalness strongly correlated with perceived restoration potential, it mediated only a small proportion (8%) of the

effect of condition on restoration. These outcomes imply that natural stimuli possess inherent restorative properties that are perceived as restorative independently of whether they are consciously identified as natural.

---

71 Beyond "green nature": Seasonal color and fractal features as predictors of restorative perception

Seiji Shibata[1], Akinori Ikeuchi[2], Kenro Tokuhiro[2], Kodai Ito[3], Hirotaka Kaji[3], Masayoshi Muramatsu[3]
[1]Sagami Women's University, Sagamihara, Japan. [2]Toyota Central R&D Labs., Inc., Nagakute, Japan. [3]Toyota Motor Corporation, Toyota, Japan

Nature is often associated with green, yet natural environments change color seasonally, and red and yellow dominate in fall. However, the effects of such color differences on perceived restorativeness remain underexplored. This study investigated whether these differences influence perceived restorativeness and whether a prediction model based on green scenery can also be applied to autumn foliage landscapes. An online survey was conducted in which adult participants evaluated Being Away, Fascination, and Extent for 84 landscape photographs: 76 taken in early summer and 8 autumn foliage landscapes. First, evaluations were compared for pairs of green and autumn foliage landscapes photographed at the same locations. Then, prediction models were built using Lasso regression based on the summer landscapes, excluding the eight corresponding to the autumn foliage locations, with brightness, saturation, and their fractal properties as predictors. The results showed no substantial differences in perceived restorativeness between green and autumn foliage landscapes, suggesting that color hue itself was not a primary determinant. Being Away was predicted with moderate accuracy ($R^2 = .58$) from the image features, and the model based on green landscapes was applicable to autumn foliage landscapes. In contrast, Fascination and overall perceived restorativeness tended to be rated higher than predicted for autumn foliage landscapes with larger red foliage areas. These findings suggest that fractal properties of brightness and saturation, together with seasonal color changes, contribute more to perceived restorativeness than the amount of green and that considering seasonal color change may benefit landscape design.

INDIVIDUAL ORAL PRESENTATIONS:
New perspectives in people-environment research

Thurs 2 July, 11:45 – 13:15, AP 2

Chair: Kathryn Williams
University of Melbourne, Melbourne, Australia

---

628 Links between the environment, health, and quality of life—a question of social justice? Findings from the Environmental Awareness Study 2024

Vivian Frick[1], Angelika Gellrich[2], Julia Fülling[1], Torsten Grothmann[3]
[1]Institute for Ecological Economy Research, Berlin, Germany. [2]German Environment Agency, Dessau, Germany. [3]Carl von Ossietzky Universität Oldenburg, Oldenburg, Germany

Background: The Environmental Awareness Study has been conducted biennially since 1996. The representative survey of the German population measures environmental awareness and attitudes.

Aims: In 2024, the study focused on the relationship between the quality of the environment, health and quality of life.

Method: 2,552 people took part in the representative survey from 4.9.-14.11.2024. In a mixed methods design, the questionnaire was designed based on insights from four qualitative focus groups. Two subsequent focus groups helped contextualize survey results afterwards. We analyzed quantitative data by comparing sociodemographic characteristics and social milieus to account for different dimensions of social inequality (e.g., using regression analyses).

Findings: The survey results show a correlation between environmental quality, health and quality of life of the respondents. Many people perceive negative environmental factors such as heat waves as a health burden. People with low incomes perceive negative effects of environmental pollution on their overall health more strongly and rate the environmental quality in their surroundings less positively.

Implications: Respondents assessed measures improving health and quality of life differently depending on their social situation. Those on low incomes expressed greater needs in their own environment (e.g., less air pollution, better heat protection, access to green spaces). Environmental policy should therefore make it more visible how improving the environment has a direct positive impact on people's quality of life and health. In addition, it should actively ensure that socially disadvantaged groups in particular benefit from environmental measures and that their costs are distributed in a socially equitable manner.

---

267 Migration as environmental transition: Mental health, wellbeing, and the brain

Izabela Maria Sztuka
Center for Environmental Neuroscience, Max Planck Institute for Human Development, Berlin, Germany

Migration has been an integral part of human history. Contemporary evidence points to migrants as population that may be particularly vulnerable to psychological distress and psychiatric disorders. Migration involves large-scale transitions, yet its environmental dimensions remain relatively underexplored. Evidence on how transitions between physical environments shape migrant wellbeing is fragmented, and biological mechanisms are rarely examined.

This contribution conceptualizes migration as complex environmental transition and examines how environmental characteristics shape wellbeing outcomes by integrating across psychological and neurobiological levels. We combine conclusions from systematic review of studies on migration and mental & brain health with findings from empirical neuroimaging analysis. The systematic review synthesizes evidence on environmental moderators of migrant wellbeing, including features of the built and natural environment, neighborhood characteristics, and broader ecological contexts. The empirical analysis investigates neural signatures associated with transitions away from early-life environments following migration among individuals living in shared environment.

The systematic review reveals heterogeneous literature in topic that remains understudied. Nevertheless, certain environmental characteristics - such as urban density, neighborhood deprivation, access to restorative environments, and environmental familiarity - are repeatedly associated with mental health and wellbeing outcomes in migrant populations. Most existing studies, however, focus on distal outcomes, offering limited insight into underlying mechanisms. Complementing this, the empirical analysis provides glimpse into neurobiological adaptation associated with environmental transition. Together, this contribution highlights importance of studying the environment as an active component of migration-related adaptation. Integrating this perspective may help to identify environmental characteristics that support adaptive outcomes for some

individuals, while increasing vulnerability for others.

---

762 Social, cultural and behavioural dimensions of zoonotic emergence: A systematic review

Adina Claudia Dumitru Dumitru[1], Luisa Losada Puente[1], Julia Wesely[2], Kerstin Krellenberg[2], Nadja Kabisch[3], Jan Felix Drexler[4]
[1]University of A Coruña, A Coruña, Spain. [2]University of Vienna, Vienna, Austria. [3]Leibniz University Hannover, Hannover, Germany. [4]Charité - Universitatsmedizin Berlin, Berlin, Germany

Zoonoses—pathogens transmitted between animals and humans—cause the majority of human infectious diseases, yet the social and behavioural mechanisms that drive their emergence remain poorly understood (Alhaji et al., 2018; Woldehana et al., 2015). Here we present a systematic review of empirical research linking human behaviour, culture and institutions to zoonotic spillover in the context of land-use change, biodiversity loss and ecosystem degradation. From 1,382 records in Web of Science (2010–2024), we identified 90 studies meeting PRISMA criteria. Most were conducted in Africa and Asia, with limited coverage in Latin America despite its high ecological risk. Across 25 zoonoses, recurrent high-risk behaviours included bushmeat hunting and trade, bat guano extraction, unsafe livestock handling, raw sap harvesting and recreation in vector-rich environments. These practices were patterned by gender, occupation, and belief systems, and reinforced by poverty, weak infrastructure and limited health access. Knowledge of zoonotic risk was often low and, even when present, rarely translated into safer practices. Synthesizing across disciplines, we propose an integrative framework in which (1) landscape change creates preconditions for contact, (2) wildlife adaptation intensifies interfaces, (3) human practices and institutions transform potential exposure into transmission, and (4) social and policy feedbacks reshape behaviour over time. Our findings reveal that spillover is not an ecological inevitability but a socially mediated process conditioned by environmental transformation and human adaptation. Integrating social science with ecology and public health is therefore essential for predicting, preventing and mitigating zoonotic emergence in a rapidly changing world.

---

431 Sustainable built environments to enhance socio-ecological systems thinking for youth

Laura Cole[1], Laura Zangori[2], Amanda Gonczi[3]
[1]Colorado State University, Fort Collins, United States. [2]University of Missouri, Columbia, United States. [3]Michigan Tech University, Houghton, United States

Systems thinking is a foundational skillset for sustainability education but is not well understood for youth in K-12 education. This study explores youth socio-ecological systems thinking (SEST), seeking to “overcome the dichotomy between natural and social systems by viewing the interrelationship between society and nature” (Mehren et al., 2017, p. 688). Built environments, which interface both humans and nature, are compelling venues to study SEST. To this end, our interdisciplinary team created a middle school unit that utilizes the school building to trace energy between natural and built environments. The unit capstone includes energy-efficient classroom design where students balance human comfort with environmental outcomes within a budget. This presentation features student outcomes from four rural middle school classrooms in the Midwestern U.S. This in-progress, exploratory study examines how students relate environmental issues with human factors in the built environment (e.g., cost, visual and thermal comfort). With this guiding question, qualitative content analysis will be conducted with in-depth interviews with students (n=40) and teachers (n=4), pre/post unit assessments (n=125), and student design work (n=125). Multiple researchers will use a consensus-based coding process (Wibowo & Deng, 2013) with inter-rater reliability checks to generate a codebook and overarching themes in response to the research question. Anticipated results will illuminate how and if students are crossing social and environmental factors

(demonstrating SEST) in their conceptualizations of energy-efficient building design. Findings have theoretical implications for systems thinking in sustainability education and practical implications for educators seeking to combine socio-scientific issues in the middle school classroom.

---

249 How diverse scientific worldviews shape studies of human-environment relations

Kathryn Williams[1], Terry Hartig[2], Freddie Lymeus[2], Rose Macaulay[1], Kim-Pong Tam[3], Mathew White[4]
[1]University of Melbourne, Melbourne, Australia. [2]Uppsala University, Uppsala, Sweden. [3]Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong. [4]University of Vienna, Vienna, Austria

What does it mean to do 'good' research on questions about people-environment relations? How can we best conceptualise human-environment relationships? These questions have a long history of exploration in our field, but lack of resolution is clear in continuing tensions regarding the standing of qualitative research and critical theoretical approaches, and how we ensure the impact of our work. There is concern that some long-valued ways of thinking about human-environment relationships are now being neglected or crowded out. In this presentation, we introduce a narrative review of theoretical diversity in environmental psychology that provides practical orientation and guidance for researchers and practitioners. The review synthesises variation in scientific approaches to studying human-environment relationships, describing different assumptions about the nature of the phenomena we examine (mechanistic through relational), approaches to knowledge (objectivist through relativist) and research goals (understanding- through transformation-oriented research). It also examines variation in how human-environment relationships are conceptualised, including diversity in the scale at which environment is considered, the relative emphasis on physical or socially defined attributes of environment, the level of analysis of people (individual through to collective), the psychological processes in focus, as well as variation in matters of time, determinism and agency, and overall contextualisation of phenomena observed. We affirm that understanding and transforming human-environment relationships depends on diversity in scientific approaches, and demonstrate contexts under which different approaches are particularly vital. We provide practical guidance orient one's work in this field and respecting theoretical diversity in research practices.

INDIVIDUAL ORAL PRESENTATIONS:
Biophilic design

Thurs 2 July, 11:45 – 13:15, 39 MS 02

Chair: Theresa Wheele
ETH Zurich, Zurich, Switzerland

---

308 The influence of wellbeing-related design elements on propensity to dwell in airports

Jacqueline Baker[1], Kristy Ilhe[2], Matthew Findlay[3], Ivo Favotto[4]
[1]COX Architecture, Melbourne, Australia. [2]Think Global Research, Melbourne, Australia. [3]Populous, Melbourne, Australia. [4]The Mercurius Group, Sydney, Australia

Aviation architects have long recognized a lack of empirical evidence quantifying the return-on-investment (ROI) of quality design elements within airport commercial spaces. This gap limits their ability to demonstrate, during value management processes, how well-designed environments contribute to improved commercial performance.

Value management (VM) is a process that occurs during the design of building projects, aimed at optimising function, performance, quality, and cost. In practice, clients often focus VM on reducing build costs, placing the onus on aviation architects to defend the design's ROI and estimate potential commercial implications of cheaper alternatives.

The Stimulus-Organism-Response (SOR) model offers a theoretical framework to understand how physical design influences consumer behaviour and commercial outcomes, explaining how environmental stimuli triggers emotional and cognitive states, which in turn shape behaviours like the propensity to dwell.

Underpinned by the SOR model, this study examines how wellbeing-related design elements influence dwell time in retail, food and beverage, and duty-free zones of airports. We identified 11 key design elements, focusing on those most scrutinized by aviation clients of a major Australian architectural practice, and established ‘good, better, best’ quality tiers.

Using a choice modelling approach, we presented 250 airport consumers with simulated multi-attribute airport profiles, in an attribute trade-off task. Multinomial logistic regression revealed that provision of quiet rooms, biophilic features, natural light, and views result in longer dwell times. Further, the research demonstrates that better quality design elements have a greater impact on dwell time (and spending) than mid-range and lower quality alternatives.

---

602 Nature on the inside: Linking biophilic design to wellbeing in sustainable interiors

Erin Hamilton, Rachael Shields
University of Wisconsin-Madison, Madison, United States

Background: Exposure to natural environments supports mental well-being (Berman et al., 2008; Zhong et al., 2022). However, humans spend most of their time indoors. Even limited contact with nature, through windows or nature-themed imagery, offers benefits, suggesting an innate human affinity for nature. In design, biophilia is expressed through patterns integrating nature into built environments. Browning et al. (2014) identify 14 patterns within three categories: nature in the space, natural analogues, and nature of the space. While research examines overall effects of biophilic design, less is known about which patterns foster perceived restoration. Understanding these links is useful for promoting sustainability as a pathway to well-being in green buildings.

Research Questions: This study compares a biophilic LEED-certified university building to a neighboring comparison LEED-certified building. Key questions include: 1) Do occupants perceive the biophilic building as more restorative? 2) Which features are identified as restorative? 3) Which biophilic patterns correspond to these features?

Methods: An online survey using the Perceived Restorativeness Scale (Pasini et al., 2014) was distributed. Participants (n = 250) selected restorative features from building images and explained choices. Visual data were analyzed with heat maps; open responses were deductively coded (Cohen’s Kappa = 1.00).

Findings and Implications: Occupants rated the biophilic building significantly more restorative ($p < .001$). Frequently cited patterns included Dynamic and Diffuse Light (24.5%), Visual Connection with Nature (23.3%), and Presence of Water (15%). These findings underscore how biophilic strategies in sustainable design may support mental well-being.

---

254 Biophilic office design: Effects of 360-degree Green View Index and plant placement in VR

Kodai Ito[1], Benjamin Hansel[1], Seiji Shibata[2], Akinori Ikeuchi[3], Kenro Tokuhiro[3], Eriko Wada[4], Masayoshi Muramatsu[1]
[1]Toyota Motor Corporation, Toyota, Japan. [2]Sagami Women's University, Toyota, Japan. [3]Toyota Central R&D Labs., Inc., Nagakute, Japan. [4]Pasona Nihon Somubu Co., Ltd., Osaka, Japan

While the Green View Index (GVI) is widely used as an indicator of biophilic design effects, conventional GVI typically measures only the frontal field of view. However, impressions formed while working in an office are believed to be influenced by greenery in the 360-degree environment. From this perspective, the placement and amount of plants in a room are thought to significantly impact these impressions, yet comprehensively testing many patterns in physical space is challenging. Therefore, we conducted an evaluation using virtual reality (VR) environments. The study involved 40 participants and 16 scenes. Starting with a meeting room without plants as a baseline, we created scenes by gradually increasing plants in five locations: ceiling, front, back, desk, and sides, across three density patterns. Participants assessed each scene for perceived restorativeness and spatial impression. Results showed that plants placed in the front had the greatest impact. Other locations showed different tendencies in how impressions changed with increasing amount of planting. Across all locations, the largest difference was observed between the condition without plants and that with a small amount of plants. These findings suggest that placing a small amount of plants evenly throughout the room may be an effective strategy. In addition to proposing a simple 360-degree metric, the Spherical Green View Index (SGVI), and evaluating spaces using this index, this paper discusses cognition-based analyses within this design framework. It also explores the potential of plant placement simulation for spatial design.

---

395 Beyond grey walls: A living lab unveiling the benefits of biophilic design in university classrooms

Cathérine Hartmann[1], Riccardo Meier[1], Anita Reber[1], Martina Guhl[1], Pascale Bebie Gut[2], Clara Weber[2], Swen Kühne[1]
[1]Zurich University of Applied Sciences, Zurich, Switzerland. [2]Zurich University of Applied Sciences, Wädenswil, Switzerland

Indoor learning environments shape psychological well-being and performance. Integrating natural elements through biophilic design has shown positive effects on these outcomes. This study examines whether biophilic design in university classrooms can enhance students' well-being and cognitive performance, aiming to provide evidence-based and scalable solutions for sustainable learning spaces.

A conventional classroom was redesigned into a "Green Classroom" using biophilic principles in a participatory process with students, staff, and facility management. Co-design workshops generated spatial concepts and 3D prototypes, which formed the basis for the use of natural materials, greenery and acoustic elements. Over two months, one psychology class (N_{pre} = 40, N_{post}= 39) was taught in the Green Classroom, while a comparable class (N_{pre} = 49, N_{post} = 31) remained in a standard "Grey Classroom." A pre-post design measured affective state (PANAS), attention (ANT & ACS-12 short) and perceived room quality (semantic differential).

The results show an increase in participants positive affects ($t = 5.21$, $p < .001$), increased attention control ($t = 7.04$, $p < .001$), and a positive shift in the perceived room quality ($t = 11.50$, $p < .001$), from pre to post in the Green Classroom but not in the Grey Classroom.

Biophilic design offers a modular, low-threshold approach to upgrading educational spaces, supporting well-being and cognitive performance. This project provides empirical evidence for the

effect of integrating nature into learning environments and demonstrates a participatory, scalable model for transforming existing classrooms.

INDIVIDUAL ORAL PRESENTATIONS:

Environmental education

Thurs 2 July, 11:45 – 13:15, 72 MS 03

Chair: Sarah Payne
University of Surrey, Guildford, United Kingdom

---

579 Alt Theory: A domain-specific AI mentor for Environmental Psychology theoretical learning and innovation

Shuai Yuan[1], Matthew Browning[2], Fu Li[2], Esther Yung[1]
[1]The Hong Kong Polytechnic University, Hong Kong, China. [2]Clemson University, Clemson, United States

The widespread adoption of generative AI brings environmental psychology both opportunities for knowledge dissemination and risks of marginalization. Researchers relying on general-purpose models often receive generic "ways of thinking" and knowledge, missing opportunities to engage with the field's nuance. Meanwhile, efforts to democratize AI for academic domains remain limited. Two years ago in Barcelona, the iapsREN meeting emphasized the need for accessible resource libraries; today, we extend that objective by proposing "Alt Theory," a domain-specific AI system designed to ease knowledge retrieval while bridging AI use with domain expertise.

"Alt Theory" serves as an AI cognitive mentor for theoretical learning and innovation in environmental psychology, featuring three components: 1) a knowledge base of environmental psychology theories to ensure domain relevance and minimize fabrication; 2) a pathway for theoretical comprehension, guiding users to examine definitions, logic, and contextual boundaries; and 3) cognitive scaffolding for theoretical innovation, prompting users to analyze problems through a) diverse epistemological lenses (e.g., post-positivist, interpretivist, transactional), b) deductive concept application, or c) inductive hypothesis building from hypothetical or observed phenomena. We will present: 1) the tool's latest design and evaluation results; 2) an evaluation framework incorporating experts, users, and "LLM-as-a-Judge"; and 3) a future roadmap. We envision this prototype as a foundation for community co-creation, inviting the IAPS network to expand these cognitive scaffoldings and "ways of thinking." This initiative will help us collectively "think like environmental psychologists," representing a pioneering effort to shape AI-assisted research and secure agency over our field's intellectual future.

---

57 Evaluating an AR-based tour system for environmental learning in wetland

Tzuhui Angie Tseng[1], Yao-Jung Hsu[2]
[1]National Tsing Hua University, Hsinchu, Taiwan. [2]Pohe Elementary School, Hsinchu, Taiwan

This study aims to investigate the effectiveness of an AR2VR tour system, which combines augmented reality (AR) and virtual reality (VR), in a primary school wetland environmental education curriculum. It also examines the system's impact on students' knowledge acquisition, environmental attitudes, and learning motivation. The research employs a mixed-methods design, with the quantitative portion being a quasi-experimental design. A total of 400 upper-grade students from three elementary schools in the Hsinchu area of Taiwan participated in three different instructional modes

for wetland environmental education: traditional lecture-based, tablet-guided, and AR2VR immersive teaching. The research instruments included a wetland knowledge test, an environmental attitude scale, and a learning motivation scale, supplemented with qualitative interview transcripts and classroom observation notes for analysis. The

results of the ANCOVA showed significant improvements in knowledge acquisition, environmental attitudes, and learning motivation in all three groups in the post-test. The traditional lecture group showed the most significant improvement in wetland knowledge, while the tablet and VR groups demonstrated greater improvement in environmental attitudes and learning motivation. Further analysis of the qualitative interview data indicated that students generally held positive attitudes toward the immersive interactive experience, but operational familiarity and equipment suitability remained potential factors influencing learning performance. The findings of this study support the use of immersive technology as a supplementary teaching tool to enhance the sense of context and engagement in environmental education. A blended learning strategy that combines lecture-based and digital media is also recommended to optimize students' overall learning effectiveness.

---

109 Active storytelling for agency and empowerment: Exploring the 'Buzzing about Bees' project

Rosamund Portus[1], Sara-Jayne Williams[1], Erika Peklanska[1], Ruby Portus[2], Tom Walmsley[3]
[1]University of the West of England - UWE Bristol, Bristol, United Kingdom. [2]Independent Dancer and Choreographer, London, United Kingdom. [3]Nature Connection CIC, Bristol, United Kingdom

Project Background and Aim: This talk will share the process and findings of the 'Buzzing about Bees' project. This project was inspired by research in neuroscience and psychology showing that we need to transform environmental storytelling, moving away from stories focused on awareness raising, to ones which develop people's capacity for action. Our aim was to explore how this knowledge might be applied in an environmental education context. We therefore partnered with creative and environmental education professionals to develop a model for action-based storytelling in the classroom, with the view of examining how this supports children's engagement in and sense of agency over environmental issues.

Method: To examine this, we ran nine action-based storytelling workshops in primary schools. These workshops drew on inclusive teaching practices combined with action-based storytelling activities to engage children with the issues facing bee populations. Drawing on conversations and surveys conducted with participating children, we will show how children expressed enthusiasm for further environmental learning, and reported increased levels of agency and intentions to engage with pro-environmental actions.

Findings and Implications: Through sharing this research, we will advocate that environmental education needs to centre stories which move beyond an 'issue focus', and which support children to engage with relevant actions. Linked to this, we share an adaptable model for action-based storytelling combined with insights about the wider environmental topics children discussed as important to them. We will also share our linked children's book, which examples an action-based story format.

---

391 Friends, not pests: Does anthropomorphising insects increase moral concern for their conservation via decreasing disgust?

Sinead Cleary[1], Matti Wilks[2]
[1]University of Oxford, Oxford, United Kingdom. [2]University of Edinburgh, Edinburgh, United Kingdom

Insect biodiversity loss is accelerating, threatening ecosystem stability and food security. Despite their ecological importance, insects receive little moral consideration and are often perceived as disgusting, which contributes to their neglect in conservation efforts. Since anthropomorphism has been shown to enhance moral concern for non-humans (animals, AI) in both adults and children, we investigated its role in increasing moral concern via reducing disgust toward insects. In Study 1, adults (n = 113) read either an anthropomorphic or non-anthropomorphic newsletter about a praying mantis. Participants then rated their moral concern and disgust toward a range of insects and completed a poster-drawing task, which was coded for anthropomorphic content. In Study 2, children (n = 94) viewed illustrated story slides adapted from the adult materials and provided similar ratings of moral concern and disgust.

Against predictions, anthropomorphic messaging did not increase moral concern or reduce disgust toward insects in either adults or children. These findings challenge the assumption that anthropomorphism is a broadly effective tool for promoting moral concern for animals. This work contributes novel evidence that strategies successful for charismatic animals may not generalize to negatively evaluated animals like insects, with important implications for the design of environmental education and communication interventions.

---

716 Healthy Soundscapes: Developing educator resources to help children connect with nature via sound

Sarah Payne, Sinead Garcia Kelly, Abigail Oscroft
University of Surrey, Guildford, United Kingdom

Healthy Soundscapes is a project designed to help educators of children (7- to 11-year-olds) understand and teach about the role of sounds in people's experiences of natural and built environments. In particular, resources under development aim to enable children to explore sounds in their local environment, discover the positive and negative impact of sound on wellbeing, and importance of designing environments supporting biodiversity and its creation of positive soundscapes for human and planetary health and wellbeing.

Healthy Soundscapes emerges from an award-winning project that delivered engaging activities by an academic and science education charity to a school in a deprived community. The project aims to enable educators themselves to run evidence-based informed lessons. But how can you convert expert-led activities, academic methods and knowledge into resources for educators to independently use? How do we ensure resources are informative and engaging whilst providing evidence-based means of increasing nature connectedness and soundscape design knowledge? How can we ensure that an academic 'impact' output has real value rather than just meeting funders' requirements? To answer these questions, as well as critique and improve our developing resources, a series of four focus groups with educators (n=20) of different expertise are planned. These include acoustic educators, nature educators, school and outreach educators, and those working with neurodiverse children. Participants will review the first of four developing resource packs, provide feedback, and discuss their needs and experiences of environmental education resources. Resources will be refined and piloted by a school to assess their real *impact* potential.

Chair: Ricardo García Mira
University of A Coruña, A Coruña, Spain

---

479 From community capacity to residents' wellbeing: A structural equation model of sustainable tourism development in Tainan, Taiwan

Heng Zhang, Chu-Yao Peng
National Cheng Kung University, Tainan, Taiwan

While communities are foundational to sustainability, tourism-led regeneration often risks creating uneven benefits, challenging the ideal of equitable and healthy living environments. This study examines how community-based tourism influences residents' support for development through the lens of "Sustainability as Wellbeing." Specifically, it investigates whether strengthening community capacity can transform tourism impacts into pathways for enhanced resident satisfaction and collective wellbeing.

Focusing on seven tourism-active communities in Tainan, Taiwan (including historic districts like Anping), we conducted a questionnaire survey yielding 324 valid responses. A structural equation modeling (SEM) approach was employed to test a hypothesized model linking community capacity, perceived impacts, resident satisfaction, and support for tourism.

Findings reveal that community capacity acts as a pivotal upstream determinant, significantly influencing attitudes both directly and indirectly by shaping perceptions of impact and satisfaction. The results suggest that sustainable tourism is inseparable from residents' well-being: robust collective capabilities buffer negative perceptions and foster equitable participation. Crucially, the study identifies that prioritizing capacity-building—governance, local skills, and resource mobilization—is essential for sustaining tourism as a wellbeing-oriented strategy.

This research offers an empirically tested model that reframes tourism not merely as an economic tool but as a catalyst for socially healthy communities. It provides policymakers with actionable leverage points to ensure green and equitable outcomes by placing resident capacity at the heart of sustainability planning.

---

473 Measuring societal demand towards nature's contributions to people

Martina Spörri, Marcel Hunziker
Swiss Federal Institute for Forest, Snow and Landscape Research WSL, Birmensdorf, Switzerland

A societal demand is often declared in the evaluation of nature's contribution to people (NCP) yet often none or simplified measures of this demand are provided. Measuring societal demand, however, is essential for several reasons: it can help to identify mismatches between the supply and demand of landscape services, to balance competing interests, and to support and justify protection measures and public expenditure.

This contribution aims to address this gap by proposing a conceptual framework for systematically assessing and operationalizing societal demand for NCP. The framework is guided by the research

question of how societal demand can be measured in a way that reflects plurality, interdependencies, and power relations within socio-ecological systems.

Building on recent advances in NCP research, relational valuation, and environmental governance literature, we develop a framework for societal demand indicators that integrates three key dimensions: (1) relational values and differentiated priorities across societal groups, (2) interdependencies such as synergies and trade-offs among landscape functions and contributions, and (3) power relations among different societal groups, shaping governance, stewardship, and decision-making processes. Methodologically, the framework combines stakeholder identification, analysis of expectations and claims, assessment of power asymmetries, and mapping of multifunctional NCP relationships within defined geographic or thematic boundaries.

Our framework leads to a set of context-sensitive indicators capable of capturing societal demand beyond merely aggregated preferences or monetary proxies. The framework offers implications for research by advancing demand-side operationalization in NCP studies, and for practice by supporting more just, transparent, and informed landscape planning and policy design.

---

620 When biodiversity becomes business: Business owners' motivations and experiences to create change as part of the just transition with biodiversity

Francesca Boyd, Steffen Böhm, Aoife Maher, Marcus Winter
University of Exeter, Exeter, United Kingdom

This research examined the motivation of business owners to engage with opportunities to enhance biodiversity within their operations and premises. Small and medium business enterprises (SMEs) account for 99.8% of the business population in the UK, with 5.45 million small businesses (0-49 employees). The proportion and role of SMEs in the economy is similarly reflected globally. Despite this, support mechanisms and practical tools to integrate biodiversity considerations into business decision-making remain limited.

Drawing on semi-structured interviews with nine SME case studies, this research explores participants' responses to, and experiences of, a government-supported biodiversity initiative in Cornwall. The presentation investigates both personal and business-case motivations for change across a range of sectors. It highlights the importance of personal connections to landscapes, the role of emotion in nature restoration, and the opportunity to advance policy discussion around a just transition. Thematic analysis revealed that the majority of business were motivated by their business' ethos, alongside the need to reconfigure resources to address knowledge or skill gaps, and/or enable continued learning in aspects of personal and professional value. These findings offer novel insights into how sustainable biodiversity approaches can more effectively connect people, businesses, and the wider environment.

---

357 Just transitions for industrial decarbonisation: Understanding power and collective action among UK industrial communities

Lisa Zhang, Christina Demski, Lorraine Whitmarsh
University of Bath, Bath, United Kingdom

UK policy seeks to decarbonise six industrial clusters, transforming them into 'SuperPlaces'. The speed and scale of change will have significant impacts on local communities living within industrial settlements. It is well-documented that such communities disproportionately bear the burden of technological hazards yet have limited power in decision-making. There lacks research unpacking the psychological mechanisms that motivate the powerless in participating in collective action to shape a socially just transition to net zero. Drawing on the Social Identity Model of Collective Action and

System Justification Theory, this study aimed to examine factors that motivate or dampen collective action in driving a just transition for industrial decarbonisation, including how communities make sense of their power and agency. A quantitative cross-sectional survey was conducted with people living and working in UK industrial clusters. The aforementioned theories were tested, which included measures of the following variables: perceived injustice,

social identity, group efficacy, collective action, and system dependence. Data collection is underway and results available before the conference. It is expected that perceived injustice, group efficacy, and identity are positively associated with collective action. Further, it is anticipated that the effect of perceived injustice on collective action is weaker for those with higher system dependence. This study takes an interdisciplinary approach by integrating concepts from several social science disciplines. It focuses on the views of those 'left behind' and seldom heard, a population that has lacked dedicated focus. It has implications for policy/practice in terms of meaningfully involving communities that considers fair outcomes.

---

407 Decarbonisation and psychological de-territorialisation: An environmental psychology perspective of just transition

Ricardo Garcia Mira[1,2], Nachatter Singh[1]
[1]University of A Coruna, A Coruna, Spain. [2]University of Bath, Bath, United Kingdom

Background: Decarbonisation has become a central pillar of European climate policy in response to the emission reduction established in the Paris Agreement. The phase-out of carbon-intensive industries generates profound socio-psychological disruptions in regions whose identities, livelihoods, and collective histories are intertwined with fossil-based economies. From the perspective of environmental psychology, these processes not only affect material conditions but also challenge place attachment, place identity, and the psychosocial bonds that anchor individuals to their territories, thereby intensifying processes of psychological de-territorialisation.

Objective: Drawing on frameworks from energy justice and place-based transition theory, this paper conceptualises a just energy transition as one that extends beyond distributive and procedural justice to include recognition of territorial identities, and emotional bonds to place. We argue that neglecting these psychosocial dimensions risks reproducing spatial inequalities and undermining social sustainability.

Method: Using quantitative survey (n = 2,892) from 13 regions across 9 European countries, we analyse how perceived decarbonisation-related stress and financial threat interact with place attachment to shape life satisfaction and intentions to migrate. SEM is employed to examine the role of socio-demographic factors.

Results: Strong place attachment plays a central mediating role, enhancing life satisfaction and significantly reducing relocation intentions, while perceived stress and financial threat exert de-territorialising effects. These results underscore the importance of integrating environmental-psychological insights into energy justice and place-based policy frameworks.

Implications: A just transition requires not only economic restructuring but also deliberate efforts to sustain and strengthen psychosocial connections to place, ensuring that decarbonisation pathways remain socially just, and human-centred.

INDIVIDUAL ORAL PRESENTATIONS:
Sustainability as wellbeing

Thurs 2 July, 14:15 – 15:45, 03 MS 01

Chair: Thomas Kühn
IPU Berlin, Berlin, Germany

---

223 Well-being and engagement with sustainable behaviour: Scale development and validation to control for capability.

Tina Venema[1,2], Laura Weiss[1], Karin Fikkers[1]
[1]Utrecht University, Utrecht, Netherlands. [2]Copernicus Institute of Sustainable Development, Utrecht, Netherlands

The last couple of years has produced many new theoretical and practical conceptualizations of what pro-environmental and sustainable behaviour encompasses, e.g., circular economy, sustainable banking, conservation efforts etc. This was spurred on amongst others, by new technological developments that have become available to a larger consumer group and an increase in time spend in online environments. These new developments are currently not well reflected in survey's that measure engagement with pro-environmental behaviours. In order to continue to draw meaningful conclusions about factors that promote, hinder and coincide with the engagement of sustainable behaviour we developed a new scale. In this talk we discuss the theoretical and statistical components of the newly developed Engagement with Sustainable Behaviour scale. This scale has been validated in a representative sample of the Dutch population (n = 800) and a UK prolific sample (n = 963). Besides an updated representation of the theoretical understanding of engagement with pro-environmental behaviour, this scale statistically weighs people' (in)ability to engage with pro-environmental behaviours, such as financial and skill based constraints. Such that engagement with pro-environmental behaviours a more accurate reflection of a willingness than of capability. We present the relation between engagement with sustainable behaviour and well-being for the two samples.

---

581 People-plant relationships in urban greenspaces

Aline von Atzigen
Swiss Federal Research Institute WSL, Zürich, Switzerland

Urban areas face converging pressures from densification, biodiversity loss, and climate change, driving calls to transform cities in ways that restore biodiversity, regulate microclimates, and enhance quality of life. Urban greenspaces are increasingly recognized as key sites for addressing these interconnected challenges.

The interdisciplinary PAPPUS research project investigates people-plant relationships across three Swiss cities (Lugano, Geneva, and Zürich) and five distinct urban greenspace typologies: public parks, residential greenspaces, allotment gardens, private gardens, and ruderal sites. The research aims to make urban greenspaces fit for future challenges by understanding plant-related preferences held by the Swiss population and identifying factors that influence these preferences.

Drawing on a representative panel survey of the Swiss population (N=3000), this presentation examines patterns in plant-related preferences and their determinants across the Swiss populuation. The analysis explores how these plant-related preferences connect to psychological well-being and

restorative experiences, and compares perspectives between greenspace decision-makers and visitors.

This research offers a novel approach by focusing on people-plant relationships through a trait-based framework, moving beyond broad aesthetic preferences to understand specific plant characteristics that resonate with urban populations. This perspective advances theoretical understanding of people-plant relationships while providing practical guidance for designing climate-resilient urban greenspaces. The findings will support more informed decision-making in urban greening initiatives, helping to align plant selection with both future climate scenarios and the preferences and well-being needs of the Swiss population.

---

240 Positive sustainability in daily activities: Key influencing factors for design

Michael Kowalski
Syracuse University, Syracuse NY, United States

Background: This study examines the intersection of subjective well-being and sustainable behaviour in the context of routine daily activities. These two high-level concerns have often been researched individually, but their interaction appears important in working toward achieving increased positive outcomes.

Research Question: The research question guiding this study is, What psychological, social, and contextual factors most influence subjective well-being and sustainable behaviour simultaneously in routine daily activities of young adults?

Method: Twenty-two Gen-Z-aged individuals engaged in an experience sampling method study. Experiences were documented daily for one week, yielding 142 total survey responses. Multilevel modelling examined the relative importance of key influencing factors, while controlling for baseline levels of subjective well-being and pro-environmental values orientation.

Findings: Statistical analysis revealed the importance of the enabling capabilities of physical products and the local environment, and the ability for individuals to address their personal preferences relative to their own well-being and sustainable behaviour. Baseline values for subjective well-being and pro-environmental values orientation were not found to be statistically significant when including these contextual factors and personal preferences.

Novelty and implications for research and practice: The findings highlight the role of the design of products and the built environment as enablers of activity in supporting more positive sustainable behavior beyond the role of pro-environmental values. Benefiting from positive experiential outcomes, increased possibilities for more intrinsically satisfying and reinforcing sustainable behaviour for a wider population of individuals are illuminated.

---

293 Sustainability as lived cultural well-being: A people–environment perspective

Genell W. Ebbini
Purdue University, West Lafayette, United States

Sustainability discourse increasingly invokes well-being, yet people–environment frameworks continue to privilege environmental performance and individual health over the cultural and relational dimensions through which well-being is lived. This study examines cultural well-being as a people–environment construct, asking how sustainability transitions shape experiences of belonging, identity, and place within communities. Drawing on mixed-method survey research conducted in Oman, developed through a Fulbright-supported collaboration, the inquiry investigates residents' perceptions

of socio-cultural sustainability, spirit of place, and well-being across built environments. The instrument was developed to operationalize culturally grounded dimensions of lived meaning that are largely absent from prevailing sustainability assessment models, integrating scaled measures with open-ended experiential responses. Rather than treating culture as contextual, the research approaches it as constitutive of people–place relations and collective human–environment experience. Findings indicate disjunctions between environmental modernization and lived experience. Participants report weakened place meaning, tensions between cultural continuity and spatial expression, and uneven links between perceived environmental quality and belonging, safety, and collective well-being. These experiential patterns reveal forms of cultural dislocation that conventional sustainability metrics rarely register, with implications for long-term community resilience, social cohesion, and culturally responsive sustainability planning. This research advances cultural well-being as a necessary conceptual lens for sustainability scholarship concerned with people–environment relations, foregrounding how well-being is produced through memory, identity, and socio-spatial processes. By situating sustainability as a lived cultural condition rather than a technical achievement, the contribution engages debates on sustainability-as-wellbeing by illuminating the connections between lived experience, community well-being, and socio-ecological change.

---

654 Negotiating planetary wellbeing: Limits and possibilities of transformative leadership at COP30

Thomas Kühn[1], Thomas Bruhn[2], Jeremy Dommnich[3], Minh Thu Nguyen[4]
[1]IPU Berlin, Berlin, Germany. [2]Research Institute for Sustainability, Potsdam, Germany. [3]The Hague University of Applied Sciences, The Hague, Netherlands. [4]ISCTE, Lisbon, Portugal

Global climate conferences such as the UN Climate Conference (COP) are widely framed as key arenas for advancing planetary wellbeing and environmental justice. This paper examines under which conditions transformative leadership can be articulated in such settings—and where structural limits constrain its emergence.

Drawing on 21 semi-structured qualitative interviews conducted during COP30 in Belém, Brazil, with delegates from different countries and hierarchical levels as well as representatives of NGOs, Indigenous groups, and other involved actors, the analysis adopts a social psychological perspective that is in dialogue with social identity approaches to leadership, conceptualising transformative leadership as a form of normative identity work. In this view, leadership involves the ongoing negotiation of agency, belonging, and coherence under conditions of high institutional constraint, where role expectations and procedural routines often absorb or limit possibilities for transformative action.

The findings reveal three recurring tensions: between formal consensus-based decision-making and actual possibilities for influence; between unequal access, visibility, and representation across conference spaces; and between strong normative commitments to planetary wellbeing and limited opportunities for collective identity formation. Although participants frequently expressed high levels of engagement and responsibility, leadership processes oriented towards transformation proved difficult to stabilise or sustain.

The paper argues that understanding planetary wellbeing requires closer attention to the social psychological dynamics through which agency, belonging, and a sense of orientation are negotiated. It concludes by discussing implications for environmental justice and for rethinking leadership not as an individual capacity, but as an identity-based and context-dependent process.

SYMPOSIUM 34:
Lived experiences of nature immersion and nature-based interventions: Harnessing interdisciplinary approaches and methodological innovation to engage underserved and minoritised groups

Thurs 2 July, 14:15 – 15:45, AP 1

Chairs: Craig Donnachie[1] and Sarah Golding[2]
[1]University of Strathclyde, Glasgow, United Kingdom
[2]University of Surrey, Guildford, United Kingdom

Access to nature, including participation in nature-based interventions (NBIs), remains deeply unequal. This symposium brings together five interdisciplinary researchers at different career stages to advance research and practice in NBIs. The presenters work at the intersection of wellbeing, social justice and nature connectedness, using complementary methodological and critical approaches to engage underserved and minoritised populations across the devolved UK nations. We will demonstrate how tools from public health, landscape architecture, criminology and behavioural science can be integrated to design, evaluate and implement robust, evidence-based NBIs that are equitable, inclusive and responsive to population-specific contexts. Yarden Woolf will open by discussing how creative qualitative methods, such as photo-elicitation and walking interviews, can be utilised to understand greenspace use, nature connectedness and pro-environmental attitudes among young adults. Bethany Harries then discusses findings from mixed-methods research within 'Generation Wild', demonstrating how child-centred nature activities can support nature-connectedness and environmental concern in socio-economically disadvantaged children. Next, Sarah Golding will share findings, informed by health psychology frameworks, about barriers and facilitators to countryside walking and walk leadership training amongst people from the d/Deaf community and ethnically minoritised groups. Craig Donnachie then demonstrates how complex public health intervention frameworks and behaviour change theory can strengthen NBI development, drawing on research with a charity supporting people experiencing mental health and substance use challenges. Finally, Wendy Masterton will share research findings and co-produced guidance manuals linked to realist-informed intervention development focused on using NBIs to reduce health inequalities for people with experience of substance dependence.

Speakers: Craig Donnachie, Sarah Golding, Wendy Masterton, Bethany Harries, Yarden Woolf

---

45 Unlocking the relationship between students' experience in greenspace, nature connectedness and pro-environmental orientation – a qualitative UK study

Yarden Woolf
University of the West of England - UWE Bristol, Bristol, United Kingdom

Spending time in greenspace is positively associated with nature connectedness and pro-environmental orientation, an important relationship in the context of ongoing climate and biodiversity crises. University represents a key life transition in which behaviours and identities continue to form; students are therefore an important group for understanding how everyday interactions with nature may shape environmental responsibility. This study explores the relationship between greenspace use and experience, nature connectedness, and pro-environmental orientation among university students, a population often overlooked in nature-based intervention research.

Using creative qualitative methods, observation, photo-elicitation, and walking interviews, I identified three mechanisms underpinning students' experiences of nature: contact, noticing, and nostalgia. Interviews highlighted how natural elements such as water, vegetation, and wildlife foster a sense of connection to nature while encouraging pro-environmental orientations through their visual and

sensory appeal. Observation sessions supported these findings: students tended to sit on grass, near trees, and close to water features, and their use of greenspace was strongly shaped by weather conditions. Students also showed a preference for flexible seating amenities (e.g., movable tables and chairs) that enabled adaptable use of space.

These findings have practical implications for universities and municipal authorities seeking to design healthier, more sustainable, and equitable campus environments. By integrating insights about students' lived experiences into greenspace planning, institutions can better support nature connectedness and pro-environmental behaviours, thereby contributing to the wider aims of planetary wellbeing. Harnessing both theory and practice, this research highlights how everyday landscapes can promote the wellbeing of people and the environment.

---

125 How nature-based activities build environmental concern in children from disadvantaged communities

Bethany Harries[1,2], Johnathan Reeves[1], Mark Stead[1], Hiba Hussein[1], Merideth Gattis[2]
[1]WWT, Slimbridge, United Kingdom. [2]Cardiff University, Cardiff, United Kingdom

Background: Children from disadvantaged communities often face barriers to accessing nature. Nature-based interventions are increasingly promoted to support child wellbeing and environmental engagement, yet there is limited large-scale evidence explaining how different forms of nature engagement cultivate concern for nature. The WWT Generation Wild programme was designed to address this equity gap through accessible, activity-based engagement with nature. This study aimed to identify which types of nature-based activities most effectively support enjoyment and care for nature.

Method: We employed a large-scale mixed-methods design using data logged by children via the WWT Generation Wild website following completion of activities. After each activity, children rated (1) how much they

would recommend the activity (used as an indicator of enjoyment), (2) the extent to which it made them care about nature, and (3) optionally described what they enjoyed. Quantitative analyses drew on 340,244 recommendation ratings and 332,254 care ratings across 54 activities. Qualitative analysis was conducted on a subsample of children's comments.

Findings: Quantitative analyses identified activities associated with the highest recommendation and care for nature scores which was used to generate six experiential themes: caring for animals and helping wildlife, sensory immersion, creative nature-making, exploration and discovery, observation and appreciation of beauty, and playful movement. Qualitative analysis of children's comments contextualised these patterns, revealing how emotional connection, sensory engagement, and meaningful action underpin these outcomes. This study provides a framework for equitable nature-based intervention design, demonstrating how combining sensory engagement with opportunities for care can support child wellbeing and care for nature.

---

319 Barriers and facilitators to countryside walking and outdoor leadership training in minoritised groups: A mixed-methods study

Sarah Golding[1], Chris Johnson[2], Birgitta Gatersleben[1], Abbi Oscroft[1]
[1]University of Surrey, Guildford, United Kingdom. [2]North of England Activities and Training, Bradford, United Kingdom

While 'outdoor leadership training' exists to increase access to nature and countryside walking, by increasing skills and confidence, such training is not equitably available. Adapting training course

structure and delivery can engage more people who are typically under-represented on existing courses. This study examined barriers and facilitators to countryside walking amongst trainees on UK-based 'adapted' training, which enrolled trainees from the d/Deaf community, people with lived experience of mental health challenges, and women from ethnic minority communities.

Forty-seven trainees completed an online mixed-methods survey. Participants completed a 'barriers and facilitators' scale, informed by the Theoretical Domains Framework (TDF) and Capability-Opportunity-Motivation model of behaviour (COM-B). Free-text responses were analysed deductively using TDF and COM-B.

Both quantitative (mean scores) and qualitative analyses indicated that engagement in countryside walking was facilitated by higher *physical* and *psychological capability* (e.g., sufficient stamina and knowledge) and *automatic* and *reflective motivation* (e.g., positive emotions and beliefs; *"it helps keep you fit and also clears your mind of worries"*). Greater barriers lay in the domains of *physical* and *social opportunity* (e.g., lack of time, money, equipment or transport, greater family/caring responsibilities).

Understanding barriers and facilitators to countryside walking is vital for developing more equitable nature-based interventions (NBIs) and supporting engagement with existing services. Findings can be mapped to wider intervention frameworks (e.g., Behaviour Change Wheel) to identify priorities for evidence-based NBIs. Utilising behavioural frameworks can help reduce health inequalities, by enabling more people to access natural environments and associated benefits for physical, mental and social wellbeing.

---

279 Applying logic models and complex intervention frameworks to strengthen nature-based interventions with underserved and minoritised populations

Craig Donnachie, Samantha Philp, Paul Flowers
University of Strathclyde, Glasgow, United Kingdom

Nature-based interventions (NBI) are increasingly harnessed by mental health services. However, limited evidence exists to explain how and why such programmes influence health improvement. Additionally, little is known about how NBIs are experienced by those who deliver and receive them, especially those from underrepresented and minoritised populations.

This study explores the perspectives of facilitators (n = 8) and participants (n = 15) involved in 'Fire and Peace Recovery', an immersive, residential NBI targeting individuals living with mental health and substance use challenges in Scotland, UK. Guided by the UK Medical Research Council (MRC) guidance and the Behaviour Change Wheel (BCW), this study presents intervention logic model development, incorporating focus group and semi-structured interview data.

Data were analysed thematically, with findings inductively embedded in participant accounts and deductively synthesised onto intervention logic model concepts: 'Context' (e.g. climate and mental health crisis, increasing inequalities); 'Problem' (e.g. limited NBIs targeting underserved groups); 'Intervention Content' (e.g. immersive natural environment (UK's largest national park), group-based 'campfire' delivery, including primitive fire making skills); 'Mechanisms' (e.g. enhanced psychological safety, social and nature connectedness); Short-term Outcomes' (e.g. improved wellbeing, engagement in self-care activities); Long-term Outcomes (e.g. sustained improvements in wellbeing, pro-environmental ethos, reduced substance use).

These findings demonstrate the value of articulating a theory-driven logic model to illustrate how an immersive, residential NBI generates change, including in mental health, behaviour and recovery outcomes. This study advances understanding of mechanisms underpinning NBIs and offers

guidance for the future design, optimisation, evaluation and scale-up of NBIs, specifically targeting underserved populations.

---

140 Exploring the potential of nature-based interventions for people with substance use challenges.

Wendy Masterton[1], Danilo Falzon[1,2], Tessa Parkes[1], Hannah Carver[1], Eddie Duncan[1], Sandra Engstrom[1], Kirsty Park[1], Trish Gorely[3], Rebecca Lovell[4], Joshua Dumbrell[1], Morgan Torrance[1]
[1]University of Stirling, Stirling, United Kingdom. [2]Edinburgh Napier University, Edinburgh, United Kingdom. [3]University of the Highlands and Islands, Inverness, United Kingdom. [4]University of Exeter, Exeter, United Kingdom

Nature-based interventions (NBIs) are being increasingly embedded in UK health policy. Emerging evidence suggests NBIs benefit socially marginalised and stigmatised groups, including people experiencing drug/alcohol dependence. However, there is limited understanding around why existing NBIs work for this population, and there is a dearth of guidance around how to design and implement new interventions. Consequently, barriers to NBI development persist, limiting equitable access for those who may benefit most. To address this knowledge gap, we used a realist approach to uncover the causal mechanisms through which NBIs produce health outcomes.

We conducted 80 semi-structured interviews and four focus groups (n=5 each) with participants, including individuals with lived experience of substance dependence who were and were not attending NBIs. Realist methodology produced programme theories showing that NBIs contribute to positive health outcomes through mechanisms related to the natural environment (e.g. feelings of escape and space for reflection), individual changes (e.g. improved confidence and sense of purpose), and social changes (e.g. reduced isolation and enhanced social skills).

These findings were then used to co-produce practical guidance manuals with nature-based groups. Designed for health and social care practitioners, the manuals simplify NBI development and improve transparency in intervention design and delivery. They include guidance for buy-in conversations, service delivery, and evaluation. With drug- and alcohol-related harms rising in Scotland, innovative approaches such as NBIs are needed. These findings and associated guidance manuals could inform policy and practice by reducing access barriers for people excluded from NBIs, yet likely to benefit from them.

SYMPOSIUM 39:
Fields of gold: Experiencing, valuing, and governing sustainability in changing environments

Thurs 2 July, 14:15 – 15:45, AP 2

Chairs: Oriana Mosca[1] and Alessandro Milani[2]
[1]University of Cagliari, Cagliari, Italy
[2]University of Rome "Sapienza", Rome, Italy

Background: Environmental sustainability transitions are grounded in experiential and meaning-based relationships with nature. Environmental psychology provides valuable tools for understanding how sensory experiences, emotions, values, and shared meanings influence support for sustainable environments, materials, and practices. However, more integrative and applied approaches are needed to link lived experience with beliefs, stakeholder engagement, and governance processes

across diverse sustainability domains.
Aims: This symposium brings together five complementary studies that examine how individuals and groups experience, interpret, and engage with sustainability-oriented environments and innovations, from urban public spaces and soundscapes to nature-based initiatives and bio-based material technologies.
Method/Approach: The contributions employ mixed, participatory, and multi-level methods. These include pre- and post-occupancy evaluations of sustainable urban transformations using physiological and self-report measures; participatory soundwalking and citizen-science sound mapping to assess environmental quality and well-being; large-scale survey research grounded in value–belief and social identity frameworks to investigate support for sustainability initiatives across multiple European countries; stakeholder mapping and belief-based qualitative analyses in the context of sustainable bio-based material innovation; and survey-based studies on connectedness, responsibility, and stewardship in community-managed natural resources.
Findings: Across studies, results highlight how experiential qualities, multisensory engagement, and psychosocial factors—such as values, beliefs, identity, and perceived institutional support—shape human-nature relationships and acceptance, participation, and commitment in contexts of environmental change.
Implications and Originality: The symposium advances an integrative sustainability-focused perspective that connects experience, values, and governance, offering actionable insights for designing, communicating, and managing socially accepted pathways toward sustainable environmental and collective engagement with nature.

Speakers: Nicola Rainisio, Oriana Mosca, Raynae Dumpfrey, Ferdinando Fornara, Alessandro Milani

---

614 Urban morphometrics and psychological restoration: An integrative analysis across three UK cities

Nicola Rainisio[1], Barbara Piga[2], Alessandro Venerandi[3,4], Gabriele Stancato[2], Hal Mellen[4], Ombretta Romice[3], Sergio Porta[3], Marco Boffi[1]
[1]University of Milan, Milan, Italy. [2]Politecnico di Milano, Milan, Italy. [3]University of Strathclyde, Glasgow, United Kingdom. [4]Place Logic, Winchester and London, United Kingdom

Research shows that restorative environments aid recovery from mental fatigue and support emotional wellbeing. Previous studies identified physical attributes that can enhance the restorative potential of urban contexts, including both natural and built elements (e.g., wood materials, curved junctions). Yet, in cities it is still unclear which measurable features of urban form contribute to perceived restoration. This study explores links between such features and psychological restoration across three UK cities of different sizes. Urban form was described with the Urban MorphoMetrics approach through 74 descriptors. We selected 201 panoramic street-views covering diverse urban fabrics. In total, 182 participants provided 2,206 evaluations through a 4-item restoration scale. A sequential machine-learning workflow was used: first, a random forest regression was used to control restoration scores for key sociodemographic and cultural variables; second, the residuals from this first regression were used as the dependent variable in a second random forest regression, with the most influential morphometric variables as predictors; third, SHapley Additive exPlanations (SHAP) were used to interpret feature effects and trends. Results indicate higher restorative potential in fine-grained, dense urban fabrics featuring relatively low street-canyon height with variable widths and street edges shaped by buildings organised around multiple, large courtyards. SHAP patterns suggest restoration emerges from combinations of enclosure, permeability and courtyard-related descriptors rather than any single feature in isolation. By integrating morphology with subjective data, this work supports evidence-based design and policy guidelines for urban design that enhance everyday restorative experiences.

---

456 Soundwalking in nature: A participatory method for the co-construction of a sound map

Oriana Mosca[1], Giulia Zucca[1], Loris Ferreri[1], Himansu Mishra[2], Ferdinando Fornara[1]
[1]University of Cagliari, Cagliari, Italy. [2]Luke, Natural Resources Insitute, Helsinki, Finland

The term soundwalking refers to engaging in walks through sound, that is, focusing on the exploration and auditory experience of the soundscape. The environment, the soundscape, and walking in nature jointly contribute to individual well-being. Through immersive listening in selected natural contexts, this project aims to activate (I) processes of awareness of one's internal states in relation to the environment, fostering improved well-being, and (II) a deeper and more conscious relationship with the environment itself. The project involves the co-construction of sound maps through the sharing of audio recordings synchronously acquired via smartphones at different points within a single natural environment. The sound maps aim to indicate the presence of natural micro-environments in which participants have experienced comfort and acoustic restorativeness within urban spaces. Following sound capture, an evaluation questionnaire is administered to support participants in reconstructing a perceptual analysis of the explored acoustic environment. Audio recordings are collected by researchers simultaneously with participants' evaluations and subsequently processed to determine the descriptors of the corresponding acoustic environment. According to the Citizen Science paradigm, the explorers-listeners can immerse themselves in a constantly evolving reality and experience themselves as citizens-scientists, thereby personally contributing to the body of research in salutogenic psychoacoustics. Collective acoustic maps represent an integrative tool compared to objective and non-participatory maps, namely those based on simulation, as well as fixed monitoring stations. Localized sound events acquire a social meaning that intertwines with contemplation, imagination, and individual mood.

---

540 Nature-based solutions as community-owned woodlands: Leveraging nature connectedness and stewardship intentions to inform governance models

Raynae Dumpfrey, Sharon Flanigan, Leanne Townsend, Claire Hardy
James Hutton Institute, Aberdeen, United Kingdom

Murray Park, a community-owned woodland in the northeast of Scotland, is a living lab in the COEVOLVERS project, where we promote a process of co-creation to develop governance models that can be explored and widened to serve the needs of both humans and more-than-humans. Community-owned woodlands play an important role in the health and well-being of individuals and communities, while also contributing to the enhancement of affordances for more-than-humans. It is valuable to encourage natural community spaces to thrive and become resilient. Currently, Murray Park's Trustees consist mostly of retirees with little involvement from younger generations – a concern is whether younger people are interested in becoming stewards of natural spaces. Through an online survey using a representative sample (n = 512), we gathered rich data from across Scotland. Participants indicated their intentions to support various environmental causes (e.g., safeguarding wildlife), and in various ways (e.g., donating, volunteering, protesting). Our data helps us to paint the picture of "who" may get involved in stewarding natural spaces by using several indicators such as interactions in nature, biospheric values and nature connectedness. A comparison between rural and urban responses is discussed in conjunction with possible ways to align these findings back to the governance model of Murray Park. Our data contributes to the growing nature connectedness research and highlights the strong relationship between nature connectedness and stewardship behaviours, as is seen in the literature. Trends in connectedness stratified by demographic variables, which isn't often explicitly discussed are identified.

---

618 Responses to Nature-Based Solutions: Differences across socio-demographic and place-related variables in a large EU sample

Ferdinando Fornara[1], Alessandro Lorenzo Mura[2], Silvana Mula[1], Oriana Mosca[1], Tatiana Kluvánková[3], Claire Hardy[4], Ann Ojala[5], Himansu Sekhar Mishra[6]
[1]University of Cagliari, Cagliari, Italy. [2]KORE University, Enna, Italy. [3]Institute of Forest Ecology (Slovak Academy of Sciences), Bratislava, Slovakia. [4]James Hutton Institute, Aberdeen, United Kingdom. [5]LUKE (Natural Resources Institute, Finland), Helsinki, Finland. [6]LUKE (Natural Resources Institute, Finland), Turku, Finland

This survey study is part of the Coevolvers project, funded by the Horizon Europe program. It aimed to verify differences across socio-demographic and place-related dimensions in responses to a) nature in general (i.e., values, beliefs, identification, emotions, personal and social norms), b) protection of non-human living species (attitude and intention), and c) specific strategies of Nature-Based Solutions (NBS) - their appraisal, perceived effectiveness and feasibility, acceptability, and intention to support them.

The study conceptualisation and the selection of variables were also informed by a review of the most recent Eurobarometer surveys on environmental attitudes, biodiversity, and perceptions of NBS, in order to provide an empirical foundation for identifying the most salient socio-psychological dimensions of citizens' views of nature and related issues.

3570 participants, balanced for country, gender, age, and town/city size, were recruited in eight EU countries - Catalunya (Spain), Czechia, Estonia, Finland, Hungary, Italy, Scotland (UK), Slovakia - for filling in an online questionnaire including the measures of the selected constructs. Data were collected in June and July 2025.

Results confirm that women, older people, more educated individuals, and those having more contact with nature are the groups which express higher pro-nature and pro-NBS responses. A country-level cluster analysis showed interesting cross-national aggregations partially based on geo-political closeness. These outcomes should be considered for the promotion of individual and community action supporting nature experiences and the incrementation of green spaces.

---

492 Exploring stakeholder beliefs and engagement pathways in bio-based material innovation

Alessandro Milani[1,2], Nuccio Ludovico[3], Silvia Cataldi[1,2], Alessandra Talamo[1,2], Marino Bonaiuto[1,2]
[1]Department of Psychology of Developmental and Socialization Processes, Sapienza University of Rome, Rome, Italy. [2]CIRPA–Interuniversity Research Centre in Environmental Psychology, Sapienza University of Rome, Rome, Italy. [3]Department of Engineering "Enzo Ferrari", University of Modena and Reggio Emilia, Modena, Italy

Background: The transition toward sustainable bio-based materials plays a key role in addressing Europe's environmental, social, and economic challenges. In this context, the EC Horizon NEXT-STEP project (No. 101157081) aims to develop bio-based chemical platforms and polymers that are both socially accepted and economically viable.

Aims: This study seeks to identify and engage relevant stakeholders and to explore the key factors influencing the social acceptance of NEXT-STEP's bio-based products.

Method/Approach: A mixed-methods design was adopted. The first study mapped and assessed 431 stakeholders using ex-ante methods, including desk research and expert workshops, supported by ad-hoc evaluations from 22 internal experts. These actors initiated a web-based snowball sampling

procedure that traced hyperlink connections, leading to the identification of additional stakeholders (*N* = 4,161). All actors were classified according to the Quintuple Helix model and positioned within a Power–Interest Matrix. The second study consisted of semi-structured interviews with a subset of mapped stakeholders, guided by the i-SETA model.

Findings: The large-scale hyperlink network revealed distinct clusters of highly interconnected stakeholders, offering strategic insights for targeted engagement. Qualitative results identified beliefs shaping social acceptance across three domains: technological features, contextual features, and adopters' social-psychological characteristics.

Implications: The findings support the development of tailored stakeholder engagement strategies that address specific concerns and leverage key motivational drivers.

Importance/Originality: By integrating web-based stakeholder mapping with belief-driven qualitative analysis, this research provides an inclusive and evidence-based framework for enhancing the social acceptance of sustainable bio-based technologies.

SYMPOSIUM 40:

Urban commons initiatives: Bridging individual well-being and societal transformation

Thurs 2 July, 14:15 – 15:45, 39 MS 02

Chairs: Sabina Pedrazzini and Vincent Aggrey
University of Bern, Bern, Switzerland

Commons initiatives (i.e. groups that self-organize around a resource) represent an alternative for social provisioning potentially more sustainable than the options provided by the mainstream economic organization. This potential originates by these initiatives allowing their members to self-organize around their shared needs in a more ecological way, thus facilitating the fulfilment of individual needs while concurrently considering ecological aspects. Commons have therefore the potential to contribute to achieve the "safe and just space for humanity" proposed by the doughnut economy framework (Raworth, 2012). By showing commons initiatives' impact at the societal and individual levels, this symposium provides empirical insights into how commons live up to their potential for sustainability. At the societal level, we first explore commons' contribution to sustainability and their potential to foster systemic change, with results collected through surveys and interviews with board members of several initiatives. At the individual level, we present results on the impact of participation in commons' activities on members' well-being, focusing on the long-term effects and the underlying psychological mechanisms. Finally, we bridge the societal and the individual levels by showing how commons initiatives can shape individuals' perceptions about their connection with nature. The results presented come from research conducted with and on urban commons initiatives in Ghana and Switzerland. In conclusion, this symposium will present different results collected and analysed with various methodologies, thus offering a comprehensive overview of urban commons initiatives' impact on different social levels (societal vs individual) and in different cultural contexts (Global South vs Global North).

Speakers: Norman Kearney, Lilla Gurtner, Vincent Aggrey, Sabina Pedrazzini, Amelia Browne

---

105 Systematic (self-)assessment of sustainability performance in urban commons initiatives

Norman Kearney[1], Samuel Agyekum[2], Vincent Aggrey[1], Lilla Gurtner[1], Nadja Kollbrunner[1], Stephanie Moser[1], Sabina Pedrazzini[1]
[1]Centre for Development and Environment, University of Bern, Bern, Switzerland. [2]Institute of Geography, University of Bern, Bern, Switzerland

Commons initiatives are becoming more prevalent in cities throughout the world, but systematic assessments of their sustainability are lacking. To address this knowledge gap, we conducted semi-structured interviews with representatives of urban commons initiatives in Switzerland (n=9) and in Ghana (n=9). In the first part of the interviews, we asked the representatives to specify the goals of their initiatives, eliciting the goals through an adaptation of the DEAL Doughnut Unrolled tool. Then, for each goal, we asked the representatives to assess the status (achieved, partially achieved, not achieved) and the trend (improving, neutral, worsening). In the second part of the interviews, we asked the representatives to identify factors that have, or that could, help to promote or to hinder progress towards their goals. Using Formal Concept Analysis (FCA), we link patterns in sustainability performance to explanatory factors and propose theoretical explanations. Our study contributes to understanding the sustainability performance of urban commons initiatives and offers suggestions on how such initiatives might improve their performance.

---

731 Systems-change by the grassroots: Commons' appetite for pursuing their own amplification potential

Lilla Gurtner[1], Tianzhu Liu[2], Stephanie Moser[1]
[1]Centre for Development and Environment, University of Berne, Berne, Switzerland. [2]Institute of Geography, University of Berne, Berne, Switzerland

Commons are bottom-up initiatives in which citizens organize themselves around a shared resource, for example a building, a shared green space, or food production. These initiatives are argued to contribute to societal transformation. They have the potential to amplify their impact by stabilizing or speeding up their internal processes, by growing or creating similar initiatives, and finally, by changing rules or values and mindsets. Thus, such initiatives have potential change agency. To better understand which of these potential avenues are the most likely to result in tangible changes towards degrowth, it is crucial to understand, how commons initiatives themselves frame their amplification potential. We report the results of an online survey of commons from Switzerland from the housing, food and green-space sectors, in which we asked how the initiatives themselves perceive their amplification priorities. In addition, we report the analysis of semi-structured interviews with representatives of commons initiatives. Preliminary analysis suggest that food commons show more consistent appetite for all amplification processes, compared to housing commons. The latter show more heterogeneous

distributions of amplification appetite. Interestingly, both types of commons report aiming to change values and mindsets, but both aim to a far lesser degree at changing laws and regulations. The analysis of the interviews complements this understanding. We discuss how the results of the survey and interviews relate to commons' potential change agency, and how their appetite for driving change might be supported.

---

376 A longitudinal analysis of the impact of collective sustainable practices on individual wellbeing

Vincent Aggrey, Sabina Pedrazzini, Lila Gurtner, Stephanie Moser
University of Bern, Bern, Switzerland

The over-exploitation of natural resources and environmental pollution drive the call for sustainable, and specifically sufficiency-oriented living practices and provisioning of needs, promoting voluntary simplicity and collective organisation of sustainable consumption. These debates are often framed as a relinquishment that might negatively impact well-being. But do people who engage in collective action aimed at sustainable practices only make a potential contribution to lower environmental burden, or can they also provide higher well-being? Our study examines how collective self-organisation around a resource, impacts individual well-being in the Global South. We investigate whether collective self-organisation in Ghana can foster subjective well-being. We conducted a face-to-face survey using validated scales on Subjective well-being, psychological well-being Health, and Physical Health, together with questions about collective engagement derived from the SIMPEA model for two time points.

Our analyses from the first wave of data collection showed that members of commons initiatives significantly differ in their socioeconomic characteristics from non-members. Members are older, have less formal education, and have lower income sufficiency. The analysis also revealed that being a member of the commons buffers the negative effects of low income on three subjective well-being measures (satisfaction with life, Material Affluence Scale, Time Affluence Scale).

This paper extends the analyses by adopting a longitudinal perspective. In doing so, the current study examines stability and change in wellbeing scores occurring at the within-person (i.e., whether specific individuals remain associated with the same wellbeing over time) and within-sample (i.e., whether the wellbeing itself remains unchanged over time) levels.

---

326 Membership in commons initiatives' impact on subjective well-being: Exploring underlying psychological mechanisms

Sabina Pedrazzini, Vincent Aggrey, Lilla Gurtner, Stephanie Moser
University of Bern, Centre for Development and Environment, Bern, Switzerland

Urban commons initiatives such as housing cooperatives or community-supported agriculture are increasingly popular in Switzerland. These initiatives represent an alternative to mainstream economic organization, because their members can directly address their needs in a self-organized way, thus gaining easier and cheaper access to resources such as housing or food. Beyond these material benefits, urban commons initiatives also provide their members with more control over their environment, the possibility of living according to their values, and social support. These aspects are related to individual well-being, but further investigations are needed to determine why and how being part of such an initiative impacts well-being. To address this gap, we build on the Self-Determination Theory (Deci & Ryan, 2000). We argue that the characteristics of initiatives like housing cooperatives or community-supported agriculture help to satisfy the three basic psychological needs postulated by SDT, namely autonomy, competence, and relatedness, and that this fosters subjective well-being. We will test our assumption with a longitudinal design; we will send two online surveys to members of different initiatives, as well as a control group (i.e. Swiss residents who are not members of any cooperative), and quantitatively analyze the relationships between membership, basic psychological needs, and subjective well-being. During the presentation we will present the preliminary results from the first survey and discuss their implications.

---

493 Perspectives on nature, health and wellbeing in Accra's urban commons

Amelia Browne[1], Steven Sait[1], Jennifer Hodbod[1], Gerald Yiran[2], Martin Dallimer[3]
[1]University of Leeds, Leeds, United Kingdom. [2]University of Ghana, Accra, Ghana. [3]Imperial College London, London, United Kingdom

Urban commons initiatives (UCIs) such as community gardens and agrifood collectives are increasingly recognised as spaces where sustainability and wellbeing intersect. In rapidly urbanising contexts, these initiatives not only support ecological stewardship but also create opportunities for community participation, shared decision-making, and everyday engagement with nature. Yet little is known about how people involved in such initiatives perceive the pathways linking biodiversity, health, and wellbeing. This study addresses that gap by examining how residents in Accra, Ghana – both UCI members and non-members – understand and prioritise nature's contributions to wellbeing.

Using Q-methodology, we combined image-based Q-sorts with qualitative interviews to capture subjective viewpoints. Sixty participants sorted 27 bilingual image cards and discussed their perceptions in interviews conducted in English or Twi. Participants were recruited from high-, middle- and low-income neighbourhoods to capture diverse lived experiences of urban nature. Factor analysis revealed four distinct viewpoints, each reflecting different perspectives on urban nature and relating it to health and everyday life.

Across groups, participants expressed strong appreciation for medicinal plants and private gardens as culturally meaningful forms of nature, while consistently rejecting species perceived as threatening. UCI members emphasised collective benefits – shared greenspaces, knowledge exchange, and community cohesion – whereas non-members emphasised more individualised preferences and concerns.

By situating biodiversity-health perceptions within the context of the urban commons, this study bridges individual and societal dimensions of sustainability. It highlights how community-based initiatives can foster wellbeing while reflecting diverse cultural values and lived experiences, offering insights for designing inclusive, community-driven approaches to sustainable urban environments.

SYMPOSIUM 42:
Active mobility in urban environments: Integrating multiple perspectives on urban design for vulnerable user groups

Thurs 2 July, 14:15 – 15:45, 72 MS 03

Chair: Johan Rahm
Lund University, Lund, Sweden

Active modes of transport, such as walking and cycling, are recognized as sustainable, healthy, and inclusive, aligning with the United Nations' Sustainable Development Goal 11 to promote socially sustainable cities. However, research on active mobility remains fragmented, often addressing specific modes (e.g., walkability or bikeability), lighting conditions (daylight or artificial lighting), or user groups (such as commuters, children, and older adults) across diverse disciplines. Since urban infrastructure should support mobility for everyone, there is a pressing need to connect these perspectives to develop a more holistic understanding of how urban environments can be designed to meet the needs of vulnerable populations.

Carlotta Colonna presents a virtual reality-based experiment focusing on the psychological outcomes of an immersive walk in a simulated Milanese street, before and after a traffic intervention. Helene Landin presents a multiple case study of older adults' experiences of outdoor environments located along an urban–rural gradient in Sweden. Anna Litsmark presents a qualitative focus group study with children and parents during walking interviews in three Swedish cities at different latitudes. Johan Rahm (on behalf of Andrea Manunza) presents an experimental study utilizing a virtual representation of a pedestrian path comparing how pedestrian experiences vary across weather and light

conditions. Johan Rahm presents field studies of pedestrian and cyclist experiences of an urban path during daylight and after dark conditions. The presenters have diverse disciplinary (landscape architecture, engineering, health sciences, environmental psychology) and geographic background and will provide their expertise and different perspectives to the discussion about inclusive urban design.

Speakers: Marco Boffi, Helene Landin**,** Anna Litsmark, Johan Rahm

---

672 Enhancing pedestrian safety in urban environments: Temporal–spatial dynamics of psychological responses to an intersection redesign in immersive VR

Marco Boffi[1], Barbara Piga[2], Carlotta Colonna[1], Nicola Rainisio[1], Lorenzo Mussone[2], Simone Piersigilli[2], Andrea Picardi[2], Giandomenico Caruso[2]
[1]University of Milan, Milan, Italy. [2]Politecnico di Milano, Milan, Italy

Active mobility supports health, wellbeing and urban sustainability, and is shaped by both objective factors (e.g., services and infrastructure) and subjective ones (e.g., environment-related psychological states). Prior research shows that pedestrians' route choices and experiences are strongly influenced by safety, particularly in interactions with vehicles. Our goal is to investigate the dynamic evolution of subjective appraisals during a simulated walk and assess the psychological impact of an intersection redesign. In a high-realism immersive VR simulation of the Città Studi university district in Milan, including pedestrian and vehicular flows, 100 participants completed two counterbalanced within-subject walks: a current condition and a design condition introducing safety improvements at a key intersection. At six points along the route, participants provided ratings of perceived safety, state anxiety and environmental preference through Likert scales presented in the VR environment. The redesign increased perceived safety and reduced state anxiety at the intersection, consistent with a more positive walking experience. Effects were not confined to the redesigned intersection, indicating spillover effects along the route: environmental preference in the design condition was also higher at a subsequent evaluation point in unmodified sidewalk segments. These findings highlight the importance of considering the temporal and spatial dynamics of subjective appraisals when investigating mobility, even in laboratory settings. The study is presented as part of a broader tools ecosystem to support decision-makers and designers with an evidence-based and people-centred approach to design more inclusive urban environments.

---

585 The role of geographical location: Exploring outdoor environments of residential care facilities for older adults along an urban–rural gradient in Sweden

Helene Landin
Swedish University of Agricultural Sciences (SLU), Alnarp, Sweden

Population ageing and urbanisation challenge how urban environments support active mobility, inclusion and well-being in later life. For older adults living in residential care facilities (RCFs), particularly those with mobility impairments, opportunities for everyday outdoor mobility are often limited by both design and location. In Sweden, national user surveys show substantial variation between municipalities in access to outdoor environments, indicating unequal conditions for health promotion depending on geographical location.

Existing research has largely focused on the design and use of RCF gardens, while the broader urban context, including proximity to services, green spaces, walkable routes and social destinations, remains underexplored. This study examines how geographical location and urban form, shape everyday outdoor mobility in RCFs. A multiple case study was conducted at three RCFs located along an urban–rural gradient in Sweden, combining interviews with residents and staff, site observations and map-based spatial analyses. Data were analysed using reflexive thematic analysis.

The findings show that both macro-scale location and micro-scale design, strongly influence the feasibility and meaning of outdoor mobility. Proximity to walkable destinations, visible street life and familiar landscapes supported residents' motivation to go outdoors, while barriers such as stairs, thresholds, gradients and poor surface quality restricted mobility across all settings. Direct, barrier-free access and single-storey layouts enabled more frequent and spontaneous outdoor stays and facilitated staff support for outdoor activities.

The study highlights the need to integrate vulnerable older adults' mobility needs into urban design and planning to promote equitable access to outdoor environments and inclusive urban spaces.

---

699 Children's active mobility during dark hours: A study of children's and parents' experiences in Swedish urban settings

Anna Litsmark, Johan Rahm, Pimkamol Mattsson, Maria Johansson
Lund University, Lund, Sweden

To overcome the trend of children's decreasing independent mobility, research proposes that urban environments need to be better tailored to accommodate children's and parents' perspectives and needs. However, limited attention has been given to the environmental prerequisites for children's independent active mobility during dark hours. This is remarkable in a Nordic context, where darkness is prevalent during large parts of the day during winter season.

In this qualitative study, 22 children (mean age = 11.6; *SD* = 0.9, 50% girls) and 21 parents (71% mothers) from three Swedish cities at different latitudes participated in walking interviews with the aim to deepen the understanding of children's and parents' experiences of urban environments after dark. Three types of public urban settings were visited with groups of children and parents: walking and cycle paths, playgrounds and green areas. Preliminary results indicate that children's and parents' experiences of active independent mobility during darkness is contextual - both physical and social dimensions of the settings as well as type of activity and individual attributes can play a role.

The findings raise questions about which settings should be made accessible for children during dark hours, as green settings and playgrounds might be considered less important by children and parents. The study sheds light on the importance of creating urban environments that are experienced as attractive and safe during the winter season with its harsher weather and darkness to sustain active independent mobility over the year.

---

709 Snow and light in urban forest paths: Effects on environmental appraisals and pedestrian mobility

Andrea Manunza[1], Maria Johansson[2], Johan Rahm[2]
[1]University of Cagliari, Cagliari, Italy. [2]Lund University, Lund, Sweden

Background: Snow substantially alters the visual, perceptual, and mobility-related characteristics of outdoor environments, yet its psychological implications for pedestrian experience remain underexplored, particularly in urban forest settings and under different lighting conditions. Existing research has primarily addressed restorative outcomes, leaving gaps regarding perceived safety, comfort, and walking intentions, as well as methodological challenges in studying winter conditions.

Aims/Objectives: This study examines how snow presence and lighting conditions (daylight vs. electric light) jointly influence environmental appraisals and walking-related intentions along an urban forest path.

Method: A within-subjects experimental design (2 × 2: lighting × snow) was employed. Participants evaluated four video-based simulations of a pedestrian path depicting daytime and electric lighting conditions, with and without snow. Measures included visual accessibility, prospect, escape, perceived safety, lighting comfort, restorative potential, and intentions to choose or avoid the path.

Confirmed or Anticipated Findings: Preliminary analyses indicate significant effects of both lighting and snow on perceptual and behavioral appraisals. Daylight conditions generally yield more positive evaluations, while snow appears to improve visual accessibility, perceived safety, and walking intentions under electric lighting.

Novelty and Implications: The study contributes to the field by systematically examining snow as a contextual modifier of pedestrian experience in winter conditions. Findings are expected to inform urban design and lighting strategies that support walkability and perceived safety in winter cities.

---

715 The environmental experiences of pedestrians and cyclists during daylight and dark conditions

Johan Rahm, Maria Johansson
Dept. of Architecture and Built Environment. Lund University, Lund, Sweden

Background: Active modes of transport, such as walking and cycling, are recognized as sustainable, healthy, and inclusive, and are often promoted as effective means to reduce car traffic. However, for a genuine modal shift to occur, urban environments need to support both walking and cycling under varying diurnal and seasonal conditions of daylight and darkness. Departing from a framework based on Brunswik's lens model of environmental perception this study aimed to enhance understanding of how experiences of environmental features may vary depending on mode of transport and light conditions.

Method: A field study using a between-subject design was conducted. The study compared a pedestrian/cycle path located in a mid-sized Swedish city during daylight (DL) and electric lighting (EL) conditions, across three stages: A) Baseline, B) after refurbishment of the path, and C) after replacement of the lighting installations. Pedestrians (n_{DL}= 65;n_{EL} = 67) and cyclists (n_{DL} = 62; n_{EL} = 61) responded to questionnaires assessing environmental parameters of importance for walking and cycling.

Results: T-tests indicated differences in perceived urban design qualities between conditions A and B, and in perceived lighting quality and pedestrians' intention to choose the path between conditions B and C.

Implications: The conceptual framework and associated methodological developments evaluated in this study successfully identified expected differences in the environmental experience, offering a valuable tool for in parallel assessing pedestrians' and cyclists' experiences of shared paths.

INDIVIDUAL ORAL PRESENTATIONS:
Biodiversity and land management

Thurs 2 July, 14:15 – 15:45, 32 MS 03

Chair: Maria Garcia-Martin
[1]Swiss Federal Institute for Forests, Snow and Landscape Research WSL, Birmensdorf, Switzerland

---

390 Ability to envision a sustainable future and biodiversity conservation practices in French private green spaces: The ECOSpil project

Marie Chevrier[1], Aurore Grandin[2], Lucia Bosone[1]
[1]Laboratoire de Psychologie et d'Ergonomie Appliquées, Université Gustave Eiffel, Université de Paris, Versailles, France. [2]Centre de formation sur l'environnement et la société, Ecole normale supérieure, Université PSL, Paris, France

Background: As urbanization expands globally, the importance of urban green spaces for biodiversity grows. The adoption of conservation practices in private gardens and balconies can thus become essential for biodiversity conservation.

Objectives: The ECOSpil project investigates the determinants of pro-biodiversity behaviours among French urban and peri-urban residents. Our main goal is to test whether socio-cognitive mechanisms such as environmental identity and vision of a sustainable future explain positive spillovers from pro-biodiversity to other pro-environmental behaviours.

Methods: ECOSpil is a longitudinal study conducted in four waves (July 2024–July 2025) via online questionnaires. In July 2024, participants were invited to engage in a citizen science protocol (SPIPOLL), which involves observing and documenting pollinators (N=2,054). Subsequent waves monitored the evolution of socio-cognitive mechanisms and pro-environmental behaviours, examining potential spillover effects of SPIPOLL participation. The final questionnaire was completed by 582 participants. We conducted cross-sectional analyses on the first wave, followed by longitudinal analyses based on all four waves of data.

Findings: cross-sectional analyses showed that ability to envision a sustainable future was positively associated with gardening and purchasing behaviours, as well as collective behaviours. Additionally, the desirability of a sustainable future emerged as a key predictor of support for biodiversity conservation policies. Longitudinal analyses of subsequent waves are currently underway and will clarify potential spillovers, the impact of SPIPOLL, and the mediating role of various socio-cognitive factors.

Implications: ECOSpil highlights the potential of envisioning a sustainable future to promote pro-biodiversity and other pro-environmental behaviours.

---

236 Public perception of close-to-nature forest management: The effects of communication framing

Jakub Jehlicka
Charles University, Prague, Czechia

This preregistered study examines how information framing influences public perception of forest environments shaped by close-to-nature management practices in the Czech Republic – coppicing, forest grazing, and deadwood

management. These practices, recently being introduced in support of biodiversity, sustainability and climate resilience, may lead to changes to forest landscapes that can be viewed as less preferred that the typical commercial forests in terms of visual attractiveness and recreational preference.

We investigate whether contextual information can mitigate the negative effects by framing practices in terms of ecological benefits and historical-cultural continuity. In an experiment with a representative sample of the Czech population (n = 2,200), participants evaluated digitally manipulated forest scenes under different management regimes, paired with short texts adapted from real-world information

signs in protected areas. The study further explores how environmental and cultural identity, regional background, and information complexity mediate these effects.

Findings from a pilot (n = 142) suggest that coppice forests are least preferred, but perceptions improve significantly when ecological benefits are highlighted. The full-scale study extends this analysis, offering insights into how communication strategies can influence public acceptance of sustainable management. The results have implications for designing communication strategies to support positive human-nature relationships in changing landscapes, aimed at specific target groups.

---

311 Trust and the potential for bottom-up change in forest management

Louise Eriksson
Umeå University, Umeå, Sweden

Environmental challenges (e.g., climate change, biodiversity loss) have initiated discussions on the need to change forest management. In many European countries and the United States, private forest owners play a key role in how the forest is managed. To learn about the potential for bottom-up management change, this study examines the role of trust in the forest sector, i.e., internal trust, and trust in news media, a form of external trust, for interest in alternative management measures among private forest owners in Sweden – where more than 300 000 owners own almost half of the productive forest. Interest was assessed in terms of the extent to which alternative management methods (close-to-nature and intensive forestry practices) are believed to fulfil management goals and intention to engage in collaborative forest planning to integrate a landscape perspective. A survey of a random sample of forest owners in Sweden (n = 1763) revealed partial support for hypotheses while controlling for covariates. Higher internal trust was found to be associated with beliefs that intensive forestry can fulfil management goals but a higher trust in news media was also associated with such beliefs. The interaction between internal trust and news media trust was significant in relation to close-to-nature beliefs and intention to engage in collaborative planning. For example, low internal trust and higher news media trust were associated with stronger close-to-nature beliefs. This study highlights the importance of external ties for facilitating management change and contributes to research into the role of trust in management transitions.

---

531 Wellbeing versus wood? How recreational demands challenge production-oriented forest management

Joanna Mędrzecka-Stefańska[1], Anna Wieczorek[1], Wojciech Hłopaś[2]
[1]Think Tank Miasto Foundation, Warszawa, Poland. [2]Dyrekcja Generalna Lasów Państwowych, Warszawa, Poland

Urban-adjacent forests are shaped by structural tensions between timber-oriented forest management and the expanding wellbeing-related demands of urban populations. Poland constitutes an instructive case: over 7 million hectares of forests are managed by a single state institution whose mandate prioritizes long-term timber production while increasingly accommodating social and ecosystem functions.

This study addresses these tensions through a policy-oriented, mixed-methods research framework grounded in environmental psychology and institutional analysis. Drawing on concepts of wellbeing, place attachment and perceived environmental attractiveness, the research examines how different actors attribute meaning and value to the same forest spaces.

Empirically, the study focuses on three intensively used forests located near major cities. Data were collected through a combination of (1) a planning-oriented assessment completed by professional foresters, (2) systematic field observations of spatial characteristics, infrastructure and user behavior,

and (3) structured on-site interviews with recreational users, capturing visit motivations, perceived wellbeing outcomes, and experiential evaluations of forest attributes. These data streams were integrated using a dual-card tool designed to make divergences and overlaps between managerial intentions and lived use explicit.

Results demonstrate trade-offs between recreational accessibility, perceived comfort and safety, and silvicultural or ecological constraints required for long-term forest sustainability. The findings further show that "wellbeing" and "attractiveness" are not shared or universal qualities but are socially differentiated and temporally structured: recreational users emphasize short-term restorative and health-related benefits, while forest managers operate within long-term production and risk-management logics. These mismatches generate recurring conflicts but also identify critical leverage points for strategic forest governance.

---

565 More than recreation: Occupational human–landscape relationships and wellbeing

Maria Garcia-Martin[1], Jennifer Jane Roe[2], Fagerholm Nora[3], Julia Schaupp[1], Thomas Beery[4], Claudia Bieling[5], Nicole Bauer[1]

[1]Swiss Federal Institute for Forests, Snow and Landscape Research WSL, Birmensdorf, Switzerland. [2]University of Virginia, Virginia, United States. [3]University of Turku, Turku, Finland. [4]Kristianstad University, Kristianstad, Sweden. [5]University of Hohenheim, Stuttgart, Germany

Landscapes function as dynamic spaces where physical, social, and psychological elements interact, offering opportunities for restoration, recreation, and social engagement that influence mental wellbeing. While landscape research has largely focused on recreational and aesthetic values, little attention has been paid to how occupational relationships with landscapes—such as those of farmers and foresters—shape wellbeing. For these actors, landscapes are not sites of escape but spaces of continuous engagement, characterised by work demands, environmental pressures, and social dynamics. This gap is particularly evident in peri-urban landscapes, where productive and recreational uses coexist daily, potentially creating both synergies and conflicts in wellbeing benefits.

This study explores how different forms of landscape engagement in peri-urban landscapes influence psychological wellbeing and how trade-offs between occupational and recreational usage may emerge. To this aim it uses an exploratory qualitative content analysis based on in-depth interviews with individuals occupationally engaged with landscapes in three municipalities of the Zürich's metropolitan area.

The findings are intended to inform landscape policy, research, and practice, contributing to more inclusive planning and environmental strategies that recognise diverse landscape relationships and enhance mental wellbeing through everyday environments.

---

32 Developmental and cultural variabilities of nature representations: A comparative study between Colombia and France

Marie Le Duff[1,2], Solène Hemet[3], Gladys Barragan-Jason[1,4,5]
[1]CNRS, Moulis, France. [2]Université de Toulouse, Toulouse, France. [3]Memoria Viva, Saint Girons, France. [4]CERCO, Toulouse, France. [5]IAST, Toulouse, France

The human-nature connectedness (HNC) is a lever for action to achieve the sustainability of our societies, since it allows us to act simultaneously on the health of ecosystems and the health of human populations. This HNC varies according to the living environment of individuals, including physical, social, political, and cultural environments, and also according to sociodemographic factors, such as age. Thus, inhabitants of Global North countries have a lower HNC than those of the Global South; individuals from Indigenous peoples have a higher HNC than those of urban or Global North peoples; and children have a high HNC that decreases sharply from adolescence. To explain these disconnections, we came to study through qualitative analysis the representations of nature from two different populations: French and Colombian, including Indigenous peoples of Colombia. The French have a naturalistic representation of nature opposed to humans (nature-culture distinction) that appears in adolescence, while Colombians have a more sacred representation, with reciprocity relationship. Thus, it appears important, in order to limit this disconnection in Western countries, to reinforce experiences of living in nature during childhood and adolescence, and to contribute to creating imaginaries in which humans and non-humans are not in opposition.

---

53 Dynamic experiences of loneliness in older adults: The influence of daily activity locations in neighborhoods

Yongchen Zou[1], Pauline van den Berg[2], Melvin Wong[1], Astrid Kemperman[1]
[1]Eindhoven University of Technology, Eindhoven, Netherlands. [2]Fontys University of Applied Sciences, Eindhoven, Netherlands

Loneliness poses a serious threat to older adults' well-being. While the built environment has been linked to loneliness, little is known about how momentary experiences of loneliness vary across daily activity settings. This study investigates how daily activity locations influence momentary loneliness among older adults, integrating environmental and individual factors within a constructed framework. Using Ecological Momentary Assessment combined with a baseline questionnaire, 202 participants aged 50 and above in Xi'an, China, reported their real-time experiences twice daily over seven consecutive days. Each EMA prompt captured the current location, activity type, company types, and momentary loneliness. Multilevel ordered logistic regression was applied to estimate the effects of activity locations on loneliness, controlling for socio-demographics and neighborhood environments based on 2634 observations. The results show that being at home, on the street, or in other unspecified places was associated with higher momentary loneliness, whereas being in someone else's home, visiting a community center, or staying in a park was linked to lower loneliness. Parks and community centers emerged as key locations fostering social interaction and emotional well-being. Furthermore, enhancing neighborhood social cohesion and the quality of the physical environment can help reduce momentary loneliness. The findings highlight the importance of place-based interventions and age-friendly urban design that promote social engagement through accessible parks and community spaces, offering valuable insights for urban planners and

policymakers seeking to reduce loneliness, thereby supporting the well-being of older adults.

---

66 Using attribution science to improve people's understanding of changing extreme weather events

Jonathan Ulrich, Astrid Kause
Leuphana University Lüneburg, Lüneburg, Germany

People need to understand changing extreme weather events to effectively protect themselves and to adapt to further climatic changes. Extreme event attribution (EEA) science has been claimed to support this. It studies how climate change affects the likelihood, severity and impacts of specific extreme weather events. First, drawing on the 'science of science communication', we use a correlational survey to study the accuracy of peoples' estimates of the probability that three extreme weather events in Germany in 2024 and 2025 had with and without climate change. We also assess whether these estimates vary inter-individually by climate change risk perceptions, disaster experience, political orientation and numeracy. Second, EEA results often come with different uncertainty types, such as probability ranges, conflicting outcomes or no robust findings at all. We therefore test in a follow-up survey experiment how different uncertainty types in EEA results affect people's estimates of how the probability of extreme weather events changed due to climate change and their perceptions of such EEA results. We will present initial findings from both studies. These are relevant for climate scientists and climate change communicators who want to support people to better understand change in extreme events, while staying true to the underlying science.

---

88 Building a healthy home: A comparative life-cycle analysis of energy-efficient and low-VOC retrofits

Giulianna Rivera, Jennifer Senick
Rutgers University, New Brunswick, United States

Building-level Life Cycle Assessments (LCA) address environmental and economic impacts while largely overlooking social impacts (human health), undermining the sector's increasing emphasis on "healthy buildings". Efforts to address this gap often focus on material selection; incorporating health data into building LCAs proves challenging due to design variability and material combinations in factory assemblies. Mechanical equipment, while prioritized for energy/environmental benefits, offers opportunities to improve occupant health with fewer variables and more standardized data. This work (a recent master's thesis) quantified health impacts of decarbonization equipment alongside commonly assessed materials, hypothesizing that cleaner-fueled choices benefit environment and occupant health. Research focuses specifically on retrofits, where owners can make health-conscious decisions.

This comparative LCA used SimaPro software to model a 1970s New Jersey home across two retrofit scenarios: (1) Low-VOC Model (materials) and (2) Energy-Efficient Model (air-source heat pump). Impacts were quantified in disability-adjusted life years (DALYs) using Ecoinvent, USLCI, and US-EI data and ReCiPe 2016 endpoint methodology. Sensitivity analyses evaluated alternative low-VOC flooring and a hybrid retrofit package (scenarios 1 and 2). Monte Carlo analysis confirmed findings across scenarios.

Results indicate the Energy-Efficient Model yields the largest health improvement (12% DALYs reduction versus conventional baseline), primarily via reduced combustion emissions, which proved robust across 400+ scenarios. Applying DALYs to residential retrofits provides evidence-based methodology for health assessment within LCA frameworks, enabling understanding of environmental performance and occupant well-being relationships. While green building programs emphasize material-health connections (despite modeling difficulties), practice implications suggests an equal

focus on mechanical equipment and health.

---

175 Bridging native plant conservation and landscape practice: Implications for nature-based solutions in human-managed environments

Pei-Chun Chen[1], Shen-Yong Wang[1], Gene-Sheng Tung[2], Ying-Ling Luo[3]
[1]National Chiayi University, Chiayi City, Taiwan. [2]Taiwan Forestry Reserch Institute, Taipei, Taiwan. [3]Freeway Bureau, MOTC, Taipei, Taiwan

Native plant conservation surveys have traditionally remained confined to the level of species protection and red-list assessment, with limited translation into landscape practice and the implementation of nature-based solutions (NbS). This study develops an analytical and decision-making framework that transforms conservation survey data into actionable guidance for landscape and NbS applications in human-managed environments.

Using the northern highway district of Taiwan as a case study, five seasonal vegetation surveys were conducted, yielding 6,917 observation records and 673 plant species, including 493 native species, 23 endemic species, and 16 threatened species. Through functional trait classification and management-compatibility analysis, the study identifies native plant functional groups suitable for roadside green spaces and meadow restoration. Species richness varied markedly among plots suggesting that ramp and edge habitats provide greater microhabitat heterogeneity. Native species remain numerically dominant, yet the alien species is non-trivial, with 22-28% alien species per plot, indicating substantial risks of alien species ingress and persistence in road-managed environments. Several low-growing herbaceous species and ferns show clear adaptation to mowing regimes, and management intensity and timing emerge as key determinants of community composition and the feasibility of NbS-oriented planting introductions.

The results demonstrate that conservation surveys can serve as a rigorous scientific foundation for landscape ecological design. By translating systematic plant resource inventories into functionally informed planting schemes, highway verges and other engineered environments can simultaneously support ecological restoration, landscape aesthetics and disaster risk reduction, and offering a transferable model for NbS planning and design in Taiwan.

---

176 Assessing inclusive mobility through field-based universal design and AI visualisation for spatial improvements: A case study of Hongik University Station

Yi Jin, Youngchae Kim, Soyeon Lee, Jin-Kook Lee, Sieun Kim
Yonsei University, Seoul, Korea, Republic of

As urban mobility intensifies, underground stations challenge users' mobility, accessibility, and cognitive comfort due to high passenger density and complex circulation systems. Hongik University Station in Seoul is a major multimodal station connecting urban metro, airport rail, and regional rail services, and has experienced growing congestion from increased international tourism and anticipated future rail expansion. These conditions highlight the need for preventive, people-centred evaluation of transport environments.

This study assesses the physical environment of Hongik University Station from a universal design perspective and examines how assessment outcomes can inform spatial improvement strategies for inclusive mobility. A universal design evaluation framework was developed by synthesising 3 prior urban rail studies and 4 government guidelines, and reviewed by 10 interior architecture specialists. The final framework comprised 8 spatial categories and 98 assessment items. Field-based on-site surveys were conducted to evaluate universal design application across station spaces, and spatial

improvement strategies derived from the assessment results were visualised using a Vision–Language Model (VLM) through text-to-image and image-to-image methods.

Results show high compliance in elevators (93%), train interior spaces (86%), and stairs (81%), largely rated as excellent. In contrast, restrooms recorded the highest proportion of insufficient ratings (19%), mainly due to the absence of family restrooms and childcare facilities. Wayfinding and signage showed a high share of moderate ratings (41%), indicating limitations in information clarity and visual legibility. By integrating field-based assessment with AI-visualisation, this study demonstrates an applied approach for translating accessibility evaluations into communicable spatial improvement scenarios for inclusive transport environments.

---

180 Herzog & de Meuron's CaixaForum Madrid communicating a sustainable urban message through perceptual simultaneity

Jiae Han
Hongik University, Seoul, Korea, Republic of

Originally an industrial power station, the CaixaForum Madrid was transformed into a cultural institution through a radical architectural intervention that suspends the building mass above the ground, creating a public void beneath. Rather than resolving differences between past and present, or industry and culture, the project allows these conditions to be perceived concurrently. Heavy masonry and apparent weightlessness, enclosure and openness, continuity and interruption are not sequentially experienced but coexist within the perceptual field of the visitor.

This paper examines how architecture can communicate urban sustainability not through technical performance, but through perceptual experience. Focusing on Herzog & de Meuron's CaixaForum Madrid, the study explores how sustainable values are conveyed as an urban message through perceptual simultaneity—the simultaneous experience of contrasting spatial conditions within a single architectural encounter.

The paper adopts a qualitative, interpretive approach based on spatial observation, architectural analysis, and on-site experience. It argues that sustainability in this context is not primarily communicated through environmental technologies, but through the way urban space is perceived, inhabited, and remembered. Perceptual simultaneity enables users to experience urban continuity without erasure, offering a form of experiential wellbeing grounded in coexistence rather than replacement.

By framing sustainability as a perceptual and experiential message, this study aligns with people–environment research that emphasises human experience, wellbeing, and meaning-making in the built environment. The findings suggest that architectural strategies fostering perceptual simultaneity can contribute to sustainable urban cultures by supporting inclusive, reflective, and psychologically resonant people–environment relationships.

---

194 Nature Nurture: Using participatory Ripple Effects Mapping to capture change in people and place from a community conservation and wellbeing programme

Amy Isham[1], Megan Cumming[1], Stephanie Hill[2]
[1]Swansea University, Swansea, United Kingdom. [2]Happy Headwork CIC, Swansea, United Kingdom

Background: Nature-based interventions are increasingly promoted for human wellbeing and biodiversity outcomes. However, many programmes struggle to evidence how psychological change, learning, and ecological action interact to support sustained pro-environmental behaviour. There is a

need for evaluation approaches that capture these complex, relational impacts beyond narrow, predefined metrics.

Aims: This project is a collaboration between Swansea University academics and practitioners from Happy Headwork CIC. It examines how an integrated, psychologically informed conservation programme influences participants' wellbeing, connection to place, ecological understanding, and pro-environmental action, and tests participatory Ripple Effects Mapping as an inclusive method for evidencing multi-level outcomes.

Method: 'Nature Nurture' was a 10-week community programme delivered across two woodland sites in Swansea, South Wales, combining trauma-informed wellbeing practices, ecological learning, and hands-on habitat restoration. Twenty-five participants took part. Evaluation used Ripple Effects Mapping, overlaid with the Inner Development Goals framework, to capture both anticipated and unexpected effects of the programme.

Findings: Initial analysis indicates strengthened emotional wellbeing, deeper connection with nature, increased ecological literacy, and enhanced confidence and agency as environmental stewards. Ripple effects extended from individual psychological change to community engagement and ongoing conservation behaviours, alongside measurable habitat restoration outcomes. The method highlighted the pathways through which these outcomes emerged.

Novelty and implications for research and practice: The study demonstrates how integrating inner development with conservation practice can support sustained pro-environmental action. Methodologically, it shows how Ripple Effects Mapping offers a robust participatory approach for capturing complex people–place dynamics relevant to both research and applied practice.

---

232 Where humans meet nature: Biodiversity and crowding effects on psychological restoration in natural environments

Charlotte Emig[1,2], Ana Stritih[3], Manuel Ebner[1,2], Daniela Becker[4], Rupert Seidl[1,2], Bettina Spernbauer[2], Michael Maroschek[1,2], Kilian Frühholz[1,2]

[1]Technical University Munich, Munich, Germany. [2]Berchtesgaden National Park, Berchtesgaden, Germany. [3]Freiburg University, Freiburg, Germany. [4]Radboud University, Nijmegen, Germany

Protected nature areas face the challenge of conserving biodiversity while also providing restorative environments for a growing number of visitors. Understanding how ecological characteristics influence visitor restoration is crucial for sustainable management that aims to balance nature protection with the delivery of health and recreational benefits. This study investigated how biodiversity and crowding influence psychological restoration in nature. We surveyed visitors (*N*=742) in Berchtesgaden National Park, Germany, collecting data on perceived biodiversity (species richness of birds, plants, and insects), crowding perception, and psychological restoration using the Restoration Outcome Scale, combined with participatory mapping of visitors' routes. This mapping allowed us to combine information on routes with spaceborne remote sensing data and ground-based species richness measurements, enabling comparison between perceived and actual biodiversity exposure. We hypothesized that perceived biodiversity would positively predict psychological restoration, while crowding would negatively affect restoration. We further expected that actual biodiversity would align with perceived biodiversity, particularly among visitors that expressed an intention to experience biodiversity in nature. Linear mixed effects models revealed that perceived biodiversity and the intention to experience biodiversity were robust positive predictors of psychological restoration. For exploratory purposes we disaggregated perceived biodiversity by taxonomic groups and found that perceived bird richness emerged as the strongest individual predictor. Perceived crowding was not significantly related to psychological restoration. Our findings suggest that perceived biodiversity enhances psychological restoration, while crowding does not seem to diminish restorative benefits in

nature. This supports management approaches that prioritize biodiversity perception to maximize nature's healing capacity.

---

290 Neurodivergence and the physical environment: Co-developing a scale to assess the neurodiversity-inclusiveness of campus spaces

Danqing Xie, Nancy Wells, Timothy Mateer, Florencia Ardon, Rebecca McCabe
Cornell University, Ithaca, United States

As awareness of the sensory and cognitive needs of neurodivergent individuals grows, there is a need to create more inclusive spaces that accommodate diverse experiences. Although 10–30% of university students identify as neurodivergent, there is currently no standardized tool for evaluating how well physical campus environments support neurodiversity. This project aims to co-develop a tool that assess the neurodiversity-inclusivity of physical spaces on campus with neurodivergent community at Cornell University. The study asks: How do neurodivergent individuals perceive the accessibility, sensory qualities, and cognitive demands of campus environments? What environmental features make these spaces more or less supportive?

This study employs participatory design grounded in co-creation with neurodivergent partners. Neurodivergent students and employees at Cornell University are recruited to examine campus meeting spaces (e.g., classrooms and conference rooms). Data collection includes a Photo-Voice Activity, in which participants document supportive and challenging environmental features through photographs or short videos accompanied by reflective descriptions; Focus Groups exploring shared experiences, environmental challenges, and design needs; and follow-up Interviews to clarify and deepen emerging themes. Qualitative data are synthesized with literature review to generate candidate scale items.

Subsequent phases involve pilot testing and psychometric evaluation of the Neurodiversity-Inclusive Physical Spaces (NIPS) scale. We identify key dimensions of neurodivergent-supportive environments, including sensory quality, spatial layout, and flexibility, which will be operationalized into the scale.

This work advances environmental design research by translating co-created qualitative insights into a practical measurement tool, offering actionable guidance for campus planners, designers, and educators seeking to foster neurodiversity-inclusive environments.

---

343 Effort investment for personal vs. environmental outcomes in decision-making: Evidence from the WEPT task

Shiwei Yang, Ruth Krebs
Ghent University, Ghent, Belgium

This study examined whether effort for pro-environmental outcomes leads to stronger discounting of outcome value than the same effort for personal outcomes. Previous research shows people display lower motivation for pro-environmental compared to personal outcomes when tasks require cognitive effort. While this preference for self-interested rewards is well-established, the underlying mechanism remains unclear. We tested whether reduced motivation for environmental outcomes results from steeper effort discounting, where subjective value of environmental rewards decreases more rapidly as effort increases or rewards decrease. The study employed a within-subjects experimental design using the Work for Environmental Protection Task (WEPT). Using a preliminary sample of 289 (recruited through university recruitment system), we compared two outcome conditions: personal rewards versus environmental donations to established organizations. The outcome measure was participants' binary choice to engage or decline each trial based on effort-reward-outcome

combinations. Questionnaires were added to explore individual characteristic effects. We examined how monetary reward levels (10/20/30 cents), task difficulty (40/80/120/160/200 digits), and outcome beneficiary (personal vs. environmental organization) influence task completion decisions using GEE. Participants preferred trials with higher reward, lower difficulty, and those benefiting them personally vs. an environmental organization. Additionally, reward level has a larger impact in personal reward trials. These data show that decisions for pro-environmental outcomes largely underly similar effort-discounting principles, while being overall inferior to personal benefits.

---

365 Bringing people together: Linking urban blue-space availability to social capital

Min-Hsuan Yen, Yen-Cheng Chiang
National Chiayi University, Chiayi City, Taiwan

While the ecological and health benefits of urban green spaces are well-documented, research on urban blue spaces (UBS) remains comparatively nascent. This study investigates how the availability and quality of UBS influence residents' social capital. Focusing on 50 neighborhoods in Taichung City, Taiwan, UBS availability was evaluated using the BlueHealth Environmental Assessment Tool (BEAT). A structured questionnaire was administered to long-term residents (minimum three-year tenure), yielding 650 valid responses collected between November 2023 and February 2024. The survey assessed usage behaviors—including frequency and duration—and five dimensions of social capital: social networks, trust, solidarity, participation, and cohesion. The results demonstrate that high-quality barrier-free facilities promote inclusive access, thereby strengthening multi-group interactions. Furthermore, water-based recreational amenities were found to facilitate communication and enhance social cohesion. Additionally, superior visual quality and natural aesthetics significantly bolster social networks. This research underscores the vital role of UBS in fostering community resilience and social integration. The findings suggest that urban planning and policy should prioritize both the diversity and quality of UBS infrastructure to maximize their social value.

---

369 Exploring form and style preferences in indoor environments using an interactive 3D living room

Kira Pohlmann[1,2], Noah Lichtlein[3], Fariba Mostajeran[3], Nour Tawil[1], Simone Kühn[1,4]
[1]Max Planck Institute for Human Development, Berlin, Germany. [2]Humboldt-Universität zu Berlin, Berlin, Germany. [3]Universität Hamburg, Hamburg, Germany. [4]University Medical Center Hamburg-Eppendorf, Hamburg, Germany

As people spend a substantial part of their lives indoors, understanding how aesthetic decisions are made in interior environments is essential for psychological well-being and can offer implications for practical applications. Previous studies typically report a preference for curved over angular forms, but often rely on predefined, static stimuli that limit ecological validity. This study aimed to examine furniture form and style preferences in a more realistic, interactive setting, and to test whether commonly reported curvature preferences emerge under conditions of active user choice. In an online experiment, 196 participants furnished a virtual living room using a web-based interactive 3D application. Furniture items systematically varied in form (angular vs. curved) and style (modern vs. classic), allowing controlled assessment of design choices. Contrary to prior research, participants showed a small but significant overall preference for angular furniture. This effect was mainly driven by male participants, who selected more angular than curved items, whereas female participants showed no reliable form preference. No general preference for furniture style was observed. The findings suggest that aesthetic preferences observed in highly controlled static paradigms may not fully generalise to more realistic, modifiable environments. This study demonstrates the value of interactive 3D methods as a novel approach for investigating how people actively shape their everyday indoor environments, providing a more ecologically valid tool for future research in people-

environment studies.

---

411 The psychological consequences of attachment to dark places: A scoping review

David Martin
University of Sunderland, Sunderland, United Kingdom

Research routinely demonstrates that a deep psychological connection with, meaningful places can promote an array of benefits (Yeo et al., 2020). This includes improved quality of life (Friesinger et al., 2022), greater life satisfaction (Zhang et al., 2022), and decreased levels of stress and anxiety (Scannell & Gifford, 2017a). A strong place attachment has also been shown to reduce levels of death anxiety (Chen et al., 2024). This highlights the importance of further understanding person-place bonds and their influence on psychological well-being. Yet research has primarily focused on places considered "positive" and aesthetically pleasing (Gibbeson, 2020; Manzo, 2014). This focus limits our understanding of person-place bonds and the development of place attachment because places that are not considered traditionally pleasant, such as places linked to events that are viewed negatively and may evoke negative emotions (i.e. dark tourism: Lennon & Foley, 1996), are overlooked. In the first study of my PhD thesis, I have conducted a scoping review to explore the breadth of existing literature assessing the psychological consequences associated with these dark places. The aim being to assess how place attachment helps to mediate these outcomes, thus potentially expanding our understanding of person-place bonds. While the review identified similar consequences (e.g. enhanced well-being) to the typical place attachment research, and such concepts were seen to mediate some benefits and repercussions, the application of these frameworks was fleeting and needs to be applied more consistently in future research.

---

414 Built environment quality of leisure facilities and subjective well-being among middle-aged and older adults

Sungeun Yoo[1], Hyesun Park[2]
[1]Kunsan National University, Gunsan, Korea, Republic of. [2]Baekseok University, Cheonan, Korea, Republic of

Background: As populations age rapidly, attention has been directed toward the role of everyday environments in supporting well-being and sustainable communities. Leisure facilities constitute important settings where built environments shape daily experiences, social participation, and quality of life among older adults. However, existing human–environment research has paid limited attention to how multiple dimensions of built environment quality relate to subjective well-being through experiential processes.

Aims: This study explores the relationship between the built environment quality of leisure facilities and subjective well-being among middle-aged and older adults. It considers the role of leisure satisfaction as an intervening experience and examines whether these relationships differ across age groups.

Method: Survey data were obtained from adults aged 50 years and older residing in a metropolitan city and a mid-sized city in South Korea. Built environment quality was approached as a multidimensional concept including physical, accessibility-related, and program-related aspects. Regression-based analytical procedures were applied to examine indirect associations and age-related variations.

Anticipated Findings: Initial analyses suggest that experiential evaluations of leisure activities are closely linked to perceived well-being. The findings also point to the possibility that certain

environmental aspects may be experienced differently across age groups, indicating that environmental sensitivity may vary within the older population.

Novelty and Implications: By adopting a life-stage-sensitive perspective, this study contributes to human–environment research on well-being in aging societies. The results underscore the relevance of age-aware approaches to leisure facility planning and management, supporting sustainability as an everyday condition of healthy and equitable communities.

---

446 How different exploratory task contexts shape visual attention in library spaces

Natsuho Hanawa, Yasuaki Onoda
Department of Architecture and Building Science, Graduate School of Engineering, Tohoku University, Sendai, Japan

Architectural quality often relies on implicit design knowledge, making objective evaluation difficult. To provide a scientific basis for such tacit judgments, this study examines spatial cognition in libraries—environments where information is externalized and users browse to comprehend space. Even within identical architectural settings, the significance of spatial elements is expected to shift with task context. This research examines how exploratory tasks shape visual attention.

A mobile eye-tracking experiment was conducted in four public libraries with 4–5 participants each. Participants performed two book-search tasks—genre-based and author-based—followed by a place-search task (searching for a place to sit). Gaze behavior was analyzed by classifying targets into semantic information (e.g., book spines, signage) and spatial information (e.g., shelves, furniture), and by examining gaze distance.

The results revealed a difference between book-search and place-search behavior. Place-search was characterized by predominant attention to spatial information and longer gaze distances, indicating environmental scanning. In contrast, book-search behavior was dominated by fixations on books at near to medium distances. Within book-search tasks, differences related to search criteria were observed: genre-based search involved slightly more attention to spatial elements and shelf signage, whereas author-based search elicited increased fixation on book spines and textual information.

By revealing how visual attention is selectively organized across semantic and spatial information and distance ranges, this study demonstrates that spatial cognition is dynamically structured by task context, even within identical architectural environments. It contributes to environmental psychology research and offers implications for designing spaces that support exploration and cognitive comfort.

---

489 Effects of sign size on the evaluation of perceived brightness and comfort: An experimental investigation using scale models

Kiwamu Maki[1], Kazuto Takase[2]
[1]Jissen Women's University, Hino, Japan. [2]Tokyo University of Science, Noda, Japan

In an on-site survey conducted on nighttime streets, participants were asked to identify areas they perceived as dazzling, and many of the signs cited were small in area. However, there are no glare indices that indicate glare is more strongly perceived as the luminous area becomes smaller. Therefore, an experiment was conducted to investigate the relationship between sign size and evaluations of perceived brightness and visual comfort. A gray 1/10-scale building model abstracting a three-story building was installed inside a booth enclosed with blackout curtains. On the second-floor wall of the model, a total of nine types of signs in three sizes—large (H: 90 × W: 210), medium (H: 60 × W: 140), and small (H: 30 × W: 70)—were illuminated at eight different brightness levels. Participants observed the signs from a distance of 1,200 mm and rated perceived brightness and

visual comfort using seven-point rating scales. Twenty-one participants took part in the experiment. Overall, perceived brightness ratings tended to increase with increasing luminance; however, differences depending on sign type were also observed. For (1) white background with black text and (2) black background with white text, the difference in ratings was small for small signs, ratings were higher for condition (2) for medium signs, and higher for condition (1) for large signs. These results suggest that sign size changes the visual elements involved in brightness evaluation. Visual comfort ratings were high when the luminance of the white areas ranged from 5 to 40 cd/m².

---

496 Investigating (dynamic) social norms and the shift toward plant-based meat substitutes

Lara Trimborn, Andreas Homburg, Daniel Hanß
Darmstadt, University of Applied Sciences, Darmstadt, Germany

Research suggests that (dynamic) social norms can promote sustainable food choices, such as the consumption of plant-based meat substitutes instead of meat. To examine their effectiveness, we conducted two online experiments in

Germany, measuring the effects of static and dynamic social norm interventions on the consumption of plant-based meat substitutes and meat, as well as on the political acceptability of policies that incentivize plant-based meat substitute consumption. We further assumed that group identification moderates social norm effects and included personal norms as predictors.

Study 1 (N = 501) showed that both static and dynamic norm interventions raised the consumption of meat substitutes and political acceptability, but not affected meat consumption. Group identification showed only a marginally significant interaction effect with dynamic norms on meat substitute and meat consumption. Personal norms predicted meat substitute consumption and political acceptability.

In a conceptually replicated study (N = 1,676), we additionally assessed voucher choice between a plant-based and a meat butchery. Norm interventions did not affect the consumption of meat substitutes or meat, nor voucher choice. However, dynamic norm messages raised political acceptability. Group identification partially moderated norm effects: surprisingly, social norms were more effective at low levels of group identification. Again, personal norms predicted meat substitute, and meat consumption, political acceptability, and voucher choice.

In conclusion, dynamic social norm interventions hold potential to shape political acceptability, whereas personal norms predicted the outcomes more consistently. However, further research is needed to clarify the conditions under which social norms can effectively contribute to dietary change.

---

500 Relationship between neighborhood attachment and gazing behavior: A comparative study of traditional post-towns and disaster reconstruction public housing in Fukushima

Yiwei Yin, Yuji Matsuda, Yurika Yokoyama
University of Tokyo, Tokyo, Japan

Background: Previous studies have shown that place attachment is formed through continuous interactions with public facilities and people's activities. However, how the physical environment contributes to place attachment through visual experience has not been sufficiently examined.

Objectives: This study aims to clarify how environmental components influence place attachment by jointly analyzing subjective evaluations and objective indicators derived from eye-tracking, focusing on the mediating role of gaze behavior.

Method: 28 university students with no prior residential experience in the study areas participated in an eye-tracking experiment followed by a questionnaire survey. The walk-through videos of traditional post towns and newly developed disaster-recovery public housing areas in Fukushima were shown to the participants. Visual data were classified using computer vision models, and gaze frequency was normalized by the area ratio of environmental components. Relationships with neighborhood attachment (NA) and perceived residential environment quality (PREQ) were examined using factor analysis, regression analysis, and non-parametric tests.

Results: Gaze frequency was associated with the area ratio of environmental components, indicating that raw gaze counts alone cannot adequately explain place attachment. In contrast, analyses using normalized gaze frequency revealed significant positive relationships between NA scores and visual attention to walls, hedges, and greens. This study highlights the importance of adjusting gaze data by spatial composition in place attachment research. It suggests that selective visual attention to specific physical environmental elements contributes to place attachment and provides practical implications for urban and landscape design aimed at enhancing emotional bonds with places.

---

501 Virtual walks through varying urban green spaces for people with depression

Michel Rinderhagen[1], Claudia Hornberg[1], Kristina Hennig-Fast[2], Gernot Horstmann[3], Tim Mc Call[1]

[1]Sustainable Environmental Health Sciences, Medical School OWL, Bielefeld University, Bielefeld, Germany. [2]Section of Social Neuroscience and Mental Disorders, Department of Psychiatry and Psychotherapy, Universitätsklinikum OWL, Bielefeld University, Bielefeld, Germany. [3]Neurocognitive Psychology, Department of Psychology, Faculty of Psychology and Sports Science, Bielefeld University, Bielefeld, Germany

Background: Public green spaces are often mentioned as a shield against the growing mental health issues linked to urbanization. However, the distinction between urban and natural spaces are often unclear, and potential well-being sources are not well differentiated.

Aims: We aim to determine whether and how four different urban natural spaces – a tree-lined city street, a city park, a botanical garden, and a zoological park – can serve as restorative environments for people with depression, using virtual walks that guide participants through the real-life locations.

Method: We plan to recruit participants for randomized virtual walks in spring 2026. Immediately before and after the virtual walks, participants will be asked about their current psychological well-being (positive and negative affect, perceived stress, happiness, and well-being). Participants are also asked to rate various walk site characteristics (e.g., perceived restorativeness, familiarity, and naturalness). We will use inferential statistics to analyze both pre-post-walk and walk site differences and to predict pre-post-walk changes and the perceived restorativeness.

Anticipated Findings: We expect participants' well-being outcomes to improve from pre- to post-walk for all conditions, but we anticipate the improvements to differ between walk sites. We also expect these improvements to be related to the perceived restorativeness of the study sites, which we expect to be associated with the walk site characteristics.

Novelty and Implications: We intend to shed light on the relatively unexplored differences among similar yet varying urban green spaces in terms of their perception, their well-being impacts, and their implications for people with depression.

---

511 More than food consumption? Psychological impacts of engaging in community-supported agriculture

Armin-Laszlo Halbach[1], Justus Schmidt[1], Katharina Beyerl[2,1]
[1]Research Institute for Sustainability (RIFS) at GFZ Helmholtz Centre for Geosciences, Potsdam, Germany. [2]Institute of Vocational Education and Work Studies at Technische Universität Berlin, Berlin, Germany

In community-supported agriculture (CSA), a group of consumers pays a fixed membership fee to cover the costs of a local farm business and occasionally volunteers to help with farm work. In return, members receive a weekly share of seasonal harvest. This participatory approach to food production has the potential to be ecologically, economically, and socially sustainable (Egli et al., 2023). CSA membership has been shown to improve diet quality (e.g., Cohen et al., 2012), but members may experience behavioral, cognitive, or affective co-benefits, too (e.g., Glinska-Newes et al., 2025). The question arises as to what extent these psychological impacts are related to members' interaction with a) the CSA farm as a physical environment and b) the CSA community as a social environment. We address this question in a current study. Based on literature research and focus groups with CSA members, we selected seven standardized questionnaires to measure potential impacts including sustainability consciousness, nature relatedness, and mental wellbeing. We also adapted instruments for place attachment, perceived restorativeness, social attachment, and perceived social cohesion to the CSA context. We then conducted an online survey with n = 210 members of 14 CSA initiatives in rural regions of eastern Germany. Using quantitative data analysis, we expect to specify psychological impacts of engaging in CSA and examine the moderating role of members' perception of the physical and social environment. Our results will contribute to understanding the potential of restorative environments (Kaplan, 1995; Ulrich, 1983) in the context of participatory, sustainable food production (Burke, 2022).

---

524 Restoration outcome, perceived environmental quality, and greenspace characteristics: A mediation analysis

Birgit Probst[1,2], Stefanie Burger[1], Sophie Arzberger[1], Peter Annighöfer[1], Michael Suda[1], Stephan Goerigk[2,3], Monika Egerer[1]
[1]Technical University of Munich, Munich, Germany. [2]Charlotte Fresenius Hochschule, Munich, Germany. [3]Ludwig-Maximilians-University, LMU University Hospital, Munich, Germany

Background & Aim: Urban life involves exposure to stressors that have been recognized as risk factors for mental health. Research has indicated positive effects of human-nature interaction on psychological restoration. However, limited research has investigated links between restoration and greenspace characteristics, such as the biodiversity or structural complexity of a green space. This study investigated relationships between restoration outcome and exposure to objectively measured greenspace characteristics with perceived environmental quality as a potential mediating factor.

Method: Forty-eight plots within 31 greenspaces in the inner-city of Munich, Germany were selected along a gradient of size and vegetation structure. Both objective greenspace data and survey data on human-nature interaction (N = 728) were collected in each plot. Methods to describe the greenspace included terrestrial laser scanning and expert ratings. The survey included the NR-6 (nature connectedness) and the ROS (restoration outcome). Path models tested relationships between greenspace characteristics as independent variables, perceived beauty, diversity, and naturalness as mediators, and restoration outcome as the dependent variable.

Preliminary findings: Preliminary results indicate partial mediation of the relationship between restoration outcome and greenspace size by perceived beauty and perceived diversity, respectively. Vegetation density of the subcanopy was positively associated with restoration outcome, but no

mediation was apparent. All indicators of perceived environmental quality, duration of the greenspace visit, and nature connectedness were positively related to restoration outcome.

Implications/Importance: Results of this interdisciplinary in-situ study may inform nature-based health interventions and urban planning decisions, thereby supporting the mental health of urban residents.

---

538 Nature engagement and connectedness: Associations with quality of life and wellbeing in dementia

Lorna Smith[1], Nicolas Farina[1], Kayleigh Wyles[1], Hannah Wheat[1], Ben Hicks[2]
[1]University of Plymouth, Plymouth, United Kingdom. [2]University of Nottingham, Nottingham, United Kingdom

Background: Engaging with nature is increasingly recognised as beneficial for wellbeing, yet quantitative evidence among people living with dementia remains limited. Understanding whether nature experiences relate to wellbeing and quality of life (QoL) outcomes can inform dementia-friendly policy and practice.

Objectives: (1) describe patterns of nature engagement and connectedness, (2) examine associations between dementia-related characteristics, and (3) assess relationships between nature engagement, nature connectedness, and wellbeing/QoL.

Methods: Secondary cross-sectional analysis of 360 participants from the DETERMIND cohort, a large observational study of people recently diagnosed with dementia in England. Measures included frequency and type of nature visited, time spent alone outdoors, and nature connectedness (INS), alongside QoL and wellbeing outcomes (DEMQOL, EQ-5D, ONS4). Hierarchical regression models adjusted for sociodemographic and dementia-related covariates.

Results: Most participants engaged with nature regularly: 66% reported daily/weekly visits, primarily to urban green spaces (69%). Engagement varied by residential status: community-dwelling participants spent more time outdoors (70% daily/weekly vs. 34% in care homes; $\chi^2(4) = 22.67$, $p < .001$). However, nature engagement showed limited associations with wellbeing or QoL. In contrast, stronger nature connectedness was consistently associated with higher subjective wellbeing (ONS4; $\beta = .16–.22$, $p < .01$) and better proxy-rated QoL (EQ-5D VAS; $\beta = .22$, $p < .01$), independent of confounders.

Conclusions: How connected people feel to nature may be more important for wellbeing and QoL than frequency of nature exposure alone. Supporting meaningful, accessible nature experiences may enhance the lives of people living with dementia across community and care contexts.

---

542 Integrating crime prevention apps into everyday life: Design and usability insights from user evaluations

Mieko Saito, Mankichi Yamashita, Yukari Sato
Okayama Prefectural University, Soja, Japan

In Japan, prefectural police departments have increasingly introduced crime prevention mobile applications to support residents' everyday safety by providing timely information on crime incidents and suspicious activities. These applications typically include map-based crime visualization, push notifications, and emergency safety features. However, many prioritize functional completeness over everyday usability. As a result, differences in interface design, information presentation, and interaction flow may hinder user understanding, continuous use, and effective engagement.

In response to the development of a new crime prevention application by the Okayama Prefectural Police Headquarters, this study aims to derive practical design and implementation insights that support the creation of a more usable and widely adopted public safety application. Rather than replicating existing designs, the project adopts a user-centered design approach grounded in empirical evaluation.

Several crime prevention applications operated by other prefectures were examined through user testing and interview-based evaluations. The study focused on design aspects relevant to implementation, including visibility and prioritization of information, clarity of interaction steps, consistency of iconography and terminology, notification behavior, and perceived ease of use in everyday contexts. The evaluations revealed recurring usability issues, such as cognitive overload from dense map displays, unclear functional hierarchies, and insufficient feedback during critical interactions.

This poster reports key design challenges identified across existing applications and translates user feedback into concrete design considerations. The findings highlight the importance of aligning public safety application design with users' daily routines and perceptual capabilities, and demonstrate how usability evaluation can inform practical design decisions for crime prevention applications.

---

550 Changes in social interactions among elderly disaster victims during the transition period from temporary housing to disaster public housing

Mitoko Nakashima
Kagawa University, Takamatsu, Japan

Existing research has examined social isolation and solitary deaths of the disaster victims at each housing stage of disaster recovery processes such as Temporary Housing (TH), Disaster Public Housing (DPH), and explored for rebuilding social interactions and community at each stage. However, it is during the transitional periods between these housing stages that disaster victims become separated from communities and lose their social interactions. Therefore, this paper focuses specifically on the transition period from TH to DPH. It clarifies concretely how disaster victims lose, maintain, or build their social interactions during the transition period, particularly focusing on the elderly, who are vulnerable to disasters.

According to the results of the in-depth interviews conducted in 2014 with 24 elderly residents at five DPHs in Ofunato City, Japan, this paper clarifies patterns of change in their social interactions before and after moving from TH to DPH.

The findings indicate that changes in social interactions of the interviewees can be broadly categorized into the following four patterns, A: continuation of original territorial ties (6 cases), B: re-establishment of original territorial ties (3), C: re-establishment of original territorial and selected ties (1), and D: diminished original territorial ties and re-establishment of new territorial and selected ties (14).

Twelve out of the total 24 interviewees continued to visit the TH assembly hall even after moving into DPH, gradually rebuilding new territorial ties and selected ties. Thus, maintaining the connection between TH and DPH through assembly hall use during this transitional period appears crucial for residents.

---

613 Sparking tenant engagement: Effective communication strategies for promoting biodiversity through residential conservation activities

Svea Hörberg, Lennart Stangenberg, Ann-Kathrin Koessler
Environmental Behaviour and Planning Working Group, Institute for Environmental Planning, Leibniz University Hannover, Hannover, Germany

Global biodiversity loss requires citizen engagement additionally to structural changes. Urban areas can act as havens for diverse species, and small-scale behaviours such as balcony greening can create habitats while mitigating the 'extinction of experience' with nature (Soga & Gaston, 2016).

This field experiment examines which communication strategies effectively motivate renters to engage in small-scale habitat creation when material barriers are removed. Drawing on identified conservation behaviour barriers (Gregg et al. 2025), we test a novel "Habitat Network Messaging" approach that reduces psychological distance (emphasizing local, immediate biodiversity), establishing social relevance through collective framing (being part of a habitat network), and building self-efficacy by emphasizing that small contributions create meaningful habitat connectivity. This is compared to educational messaging and a control condition.

Approximately 10.000 households with balconies/terraces will be contacted and given the opportunity of receiving a native plant, as well as a flowering pot and peat-free soil free of charge. Treatment conditions differ in how the offer is described. Outcome measures include plant acceptance, maintenance and self-reported engagement. Pre- and post-intervention surveys measure nature connectedness, place attachment and pro-nature conservation behaviours.

We hypothesize that Habitat Network Messaging will outperform both educational messaging and control. We expect interventions to increase nature connectedness and place attachment, with baseline levels moderating effectiveness and changes mediating spillover to other conservation behaviours.

This study addresses critical gaps by examining place-based, small-scale conservation while testing a novel communication approach when structural barriers are eliminated. The presentation will share initial findings from the study.

---

616 A conjoint-analysis of the acceptance of combined push and pull strategies to decrease car traffic on a local level

Emma Löfgren, Daniel Lindvall
Uppsala University, Uppsala, Sweden

To both decrease climate change and increase livability in cities, a reduction in private car use is necessary. There are different policy strategies to limit car use and many of these policy interventions can be implemented at local level by municipalities. Some of the most effective approaches to decrease private car use in cities, according to reviews of the existing literature, are congestion charges, mobility service, limited traffic zone and reduced space for cars and increased infrastructure for active travel. However, for these policies to be successfully implemented and complied with, they need to be accepted by the people.

Research on acceptance of climate change policies, such as carbon taxes, suggests that perceived fairness is a strong predictor for acceptance, besides perceived effectiveness, environmental concern, and personal values. However, most studies explore acceptance of national level policies, and less research attention is devoted to local urban interventions.

This paper examines acceptance for urban mobility policies, drawing results from a survey in the municipality of Uppsala in Sweden. Acceptance to local interventions (push strategy combined with pull strategies) are explored using a conjoint analysis. Moreover, we explore if fairness and effectiveness influence acceptability.

We also look at how these factors relate to behavior change intentions. The paper thereby addresses questions whether there are combinations of strategies that are perceived more acceptable than others and if perceived fairness and effectiveness increase the acceptability of mobility policies. And finally, is there any correlation between policy acceptance and behavior change intentions?

---

626 Why darkness matters: Non-material values of darkness in the urban nighttime

Kathrin Ehlert, Antal Haans, Yvonne de Kort
Eindhoven University of Technology, Eindhoven, Netherlands

Light pollution is a global phenomenon that diminishes opportunities to experience natural darkness. Although the adverse effects of light pollution on human health and ecosystems are well researched, large-scale strategies to preserve darkness are missing. As calls to reduce light pollution increase, questions arise about darkness's contributions to our quality of life and whether darkness is worth preserving. Aiming to contribute to this discussion, this empirical study identifies the non-material values that people derive from darkness and explores nighttime experiences in urban spaces. Nighttime walking interviews (n=20) were conducted in the Dutch city of Eindhoven over the course of one year (May-June, November-January). A thematic analysis is conducted to map out urban nighttime experiences, alongside a qualitative content analysis to classify non-material values according to the IPBES' Nature's Contribution to People's (NCP) framework. Data collection has been completed, and the qualitative content analysis is being carried out by two independent coders. We anticipate that this study will provide a comprehensive understanding of human-darkness relations in an urban context. First impressions from the analysis process indicate that darkness contributes both positively and negatively to people's lives. Perceived relaxation, related to the NCP category of physical and psychological experiences, is exemplary of this duality, with positive values being connected to calmness and negative values to feelings of unsafety. We aim to contribute to discussions on light pollution through a novel darkness-focused perspective and contribute to the conceptual exploration of negative human-nature relations, which are not explicitly addressed within the current IPBES categorisation.

---

650 From visual representation to social meaning: Eye-tracking circulation spaces in the early design phase

Regien Stolp, Frank Suurenbroek
Amsterdam University of Applied Sciences, Amsterdam, Netherlands

In response to the European housing crisis, large-scale and high-density residential complexes are increasingly being developed. As spatial characteristics become fixed once built, it is essential that these environments support wellbeing, particularly within communal circulation spaces that mediate everyday encounters between residents. This study explores how different circulation typologies impact users' visual and affective responses using early design visualizations. These responses are examined in relation to perceived opportunities for social interaction.

An exploratory experiment combined eye-tracking and self-report measures to examine user experience across three circulation typologies: internal corridor, elevator hallway, and external walkway. For each typology, design variants were developed varying in width, transparency, ceiling height, threshold zones, and the presence of vertical open spaces. Fifty-eight participants viewed a subset of visual stimuli depicting the circulation typologies and their variations. Eye-tracking metrics

were analysed alongside survey measures of valence, arousal, perceived safety, avoidance tendency, and invitation to social interaction.

The initial results indicate that increased width and transparency enhance valence and perceived safety across typologies. Eye-tracking data reveal that widened spaces and vertical connections evoke more active visual exploration, indicating higher perceptual engagement. Corridor variations overall produced more constrained visual patterns and lower valence ratings. Only variations within the elevator hallway typology evoked significant differences in perceived invitingness to social interaction.

This study demonstrates that users can meaningfully interpret social and affective qualities of circulation spaces at an early design stage. Combining neuroarchitecture methods with subjective evaluations provides valuable insights for designing socially sustainable residential environments.

---

727 Can increasing biodiversity and directing attention to nature improve creative thinking?

Jordan Harold
School of Psychology and Tyndall Centre for Climate Change Research, University of East Anglia, Norwich, United Kingdom

Experiencing nature can have positive psychological effects, with recent evidence suggesting viewing nature can improve creativity. Biodiversity is associated with perceived restorativeness of nature, but it is not yet known if increasing biodiversity has a causal effect on creative thinking. Furthermore, prompting people to notice nature might be an effective way to enhance creativity, given such prompts can enhance other psychological effects of nature.

This study aims to understand whether increasing biodiversity in urban settings (e.g. university campuses) improves verbal divergent creative thinking, and whether prompts to notice nature enhances this effect.

Using an online experiment (Prolific), participants will be randomised to view a video of an urban green space containing low, medium or high biodiversity, and receive either no prompt, a prompt to notice built features or a prompt to notice nature. Participants will then complete the verbal creativity divergent association task. Perceived restorativeness (fascination, being away, coherence, scope), perceived beauty, nature connectedness, and emotions will be measured as moderators/covariates.

It is hypothesised that: a) increasing biodiversity will increase creativity; b) prompts to notice nature will increase creativity (compared to no prompt and prompts to notice built features); c) creativity will be greatest when high biodiversity and nature prompts are combined; d) greater nature connectedness and perceived fascination may moderate these effects.

Findings will inform the role of biodiversity on creativity, and identify potential mechanisms in relation to theory. These insights are important to understand potential benefits of enhancing biodiversity, and interventions in settings where creativity is valued.

Friday 3 July 2026

Schedule at a glance

Time	Room	Session
08:00-09:00	*06 AP 01*	*IAPS Thematic Networks - Convenors' breakfast meeting*
09:00-10:00	03 MS 01	Keynote Discussion Panel
10:00-10:15		*Movement break*
10:15-11:30	03 MS 01	Environmental policy
	AP 1	Environments for children
	AP 2	Climate change perceptions
	39 MS 02	Co-existence of wider housing and energy inequities
	72 MS 03	Place and sustainability
	32 MS 03	Development and urban design
11:30-12:00	*AP 3/4*	*Tea and coffee*
12:00-13:15	03 MS 01	Sustainable and pro-environmental behaviour 3
	AP 1	Nature and wellbeing 2
	AP 2	Sustainable living
	39 MS 02	Building and construction
	72 MS 03	Housing in social contexts
	32 MS 03	Inclusive design
13:15-14:15	*AP 3/4*	*Lunch*
14:15-15:15	03 MS 01	Closing Ceremony and Awards

INDIVIDUAL ORAL PRESENTATIONS:
Environmental Policy

Fri 3 July, 10:15 – 11:30, 03 MS 01

Chair: Lorraine Whitmarsh
University of Bath, Bath, United Kingdom

---

703 How psychology engages with environmental Sustainable Development Goals

Valentina Rizzoli[1], Zeno Mutton[2], Paula Castro[2]
[1]Sapienza University of Rome, Rome, Italy. [2]ISCTE - University Institute of Lisbon, Lisbon, Portugal

Background: Since 2015 scholars are called to inform on how their research contribute to the Sustainable Development Goals (SDGs) by associating – branding - their publications with them. However, little is known about how research in psychology intersects with the different SDGs. So far, SDGs branding has been studied only for *social* psychology, suggesting that environmental SDGs are underrepresented, although it is known that social psychological approaches to environmental topics are well-established.

Aim: To investigate this gap, this work mapped environmental psychological research in general in relation to the 7 environmental SDGs (6, 7, 11-15).

Method: We compiled the environmental SDGs related keywords and employed them for searching Scopus and construct a corpus of papers (n=16,568) across psychological disciplines, regardless their SDG branding. Keywords co-occurrence was analysed with VOSviewer to extract thematic clusters.

Findings: Climate change and consumer behaviour emerged as closely linked in the central cluster for environmental studies in psychology, followed by sustainable energy and mental health, including here eco-anxiety. This suggests an overrepresentation of the individual-level of analysis. The clusters linking studies tackling the societal level - addressing urban and community development and health - moreover intersect poorly with the first, suggesting they are treated separately. Moreover, political topics regarding environmental issues -e.g., collective action, environmental justice- are highly underrepresented, and process-oriented approaches are too.

Novelty-Implications: In psychology, environmental studies express a focus on topic rather than process, and on individual-level approaches rather than on approaches cutting across all levels of analysis and their interactions.

---

242 Can involvement build support for restrictive transport policies? A workplace field experiment

Lucia Catalina Burtnik Urueta
University of Bath, Bath, United Kingdom

Reducing transport emissions requires changes in behaviour that people find uncomfortable. When governments hesitate to mandate change, large employers could act as alternative agents—yet face parallel challenges. Restrictive policies like parking management effectively reduce emissions but provoke resistance. Employers typically use "decide-announce-defend" strategies that trigger opposition, halting or reversing implementation despite organizational sustainability commitments. This creates a dilemma: the most effective policies are precisely those employees resist most strongly.

Most research examines policies after implementation. A critical gap remains: can employee involvement during policy development influence both acceptance and compliance? This study tests whether civic participation mechanisms transfer to organizational contexts, where power dynamics and employment relationships differ fundamentally from government-citizen interactions.

A quasi-experimental field study embedded within commuting policy change at a UK university (20,000 commuters) compared traditional travel survey and deliberative workshops where employees discussed restrictions and co-created recommendations. Longitudinal measurement across three timepoints tracked policy acceptance, procedural fairness, trust in employer, knowledge gain, and behavioural compliance.

Two complementary analyses examine: (1) how participation format builds acceptance through procedural fairness and knowledge gain, with trust moderating effects, and (2) whether acceptance translates to behavioural compliance. Findings test if deliberation proves most effective for initial sceptics—those anticipating high personal costs—and whether workshop participation adds value beyond standard surveys.

Results provide practical guidance for implementing necessary but unpopular sustainability policies. This represents the first rigorous field experiment testing deliberative democracy in workplace sustainability, measuring both psychological mechanisms and behavioural outcomes for policies requiring behaviour change.

---

229 What drives voluntary adoption of workplace travel plans among small and medium-sized organisations?

Jesse Wise, Lorraine Whitmarsh, Sam Hampton
University of Bath, Bath, United Kingdom

The success of transport demand management strategies for decarbonisation depends on "the willingness of employers to support them". In the UK, SMEs employ 61% of the private sector but are not included in the planning permission laws that are used to secure WTPs. SMEs can play a pivotal role in shaping the commuting practices of those they employ, but their adoption of WTPs is entirely voluntary. Researchers and policymakers need a greater understanding of the determinants of implementation in order to encourage the implementation of these initiatives at the scale and speed required to reach climate targets. This study uses an online survey and vignette experiment to explore the determinants of adoption, including, for the first time, the effects of peer adoption. We test the first explanatory and falsifiable model of adoption, informed by COM-B. Results suggest higher capability and motivation is associated with a higher likelihood of WTP adoption. The effect of opportunity varied depending on the level of adoption, enabling non-adopters but inhibiting firms from moving from an ineffective to an effective WTP. A randomised vignette study suggests that increasing perceptions of peer adoption can increase reported intention to adopt or expand sustainable travel measures. In combination with a cluster analysis, our results provide a roadmap for how policymakers could possibly trigger a positive feedback loop of adoption.

---

222 Which policy packages increase public support for climate measures?

Yu Shuang Gan[1], Lorraine Whitmarsh[1], Alice Moseley[2], Lois Player[1], Yasmin Sachdev[1]
[1]University of Bath, Bath, United Kingdom. [2]University of Exeter, Exeter, United Kingdom

Mitigating climate change requires significant behaviour change, supported by economic, regulatory and other policies. However, policy measures that are most effective ('push' measures, which constrain choice, e.g. congestion charges) are often least supported by the public. One way of aligning policy effectiveness and acceptability may be to package 'pull' measures (which improve alternatives)

together with push ones. Existing studies of policy packages do not explore how support varies by policy type, sector, or voter segment. Addressing these evidence gaps, we present a two-study investigation of climate policy package acceptance amongst the UK public. Study 1 (N=393) compared how support for clean air zones varies with additional pull policies (e.g. discounted transit) and is predicted by policy perceptions and ideology. Regression analyses show no significant effect of policy package or ideology; but did show perceived policy attributes (e.g. fairness) predicted support. Study 2 (N=2,965) expanded the scope to include energy (increased fossil fuel tax), food (red meat tax), as well as transport (increased parking charges) policies. Support was lower for food than transport or energy policies. For transport and food, support was significantly higher for push-pull policy packages than for push-only policies. There was also a main effect of voting intention (lower Conservative support). Results show the public's dislike of push policies can be somewhat mitigated, in some sectors, by combining them with push measures. In conclusion, packaging pull with push policies is no guarantee of support; future work should explore what other policy features improve perceived fairness, effectiveness and costliness.

INDIVIDUAL ORAL PRESENTATIONS:
Environments for children

Fri 3 July, 10:15 – 11:30, AP 1

Chair: Matluba Khan
Cardiff University, Cardiff, United Kingdom

---

693 Nature-based art and animation for children and young wellbeing in hospital waiting rooms

Ana Loureiro[1], Beato Ana[1], Isabel Santos[1], Bernardo Cruz[1], Lea Vidakovic[2], Natalie Woolf[2], Pedro Serrazina[2]
[1]HEI-Lab, Lusófona University, Lisbon, Portugal. [2]CICANT, Lusófona University, Lisbon, Portugal

Research on the impact of animation on the well-being of children and young people in healthcare settings remains limited, particularly regarding the use of animated moving images in hospital waiting rooms. Previous studies have shown that the physical qualities of healthcare environments influence patient satisfaction and well-being, and that art—especially depictions of natural elements—can reduce stress and provide psychological and emotional support to patients and their families. However, most existing evidence is based on static imagery, revealing a significant gap in the evaluation of animated installations and their psychological effects. The two projects presented address this gap through an interdisciplinary and participatory approach that combines animation and psychology. They implement and test the use of moving image installations in paediatric hospital waiting spaces, integrating still and moving images of discoverable animation elements inspired by nature. The projects aim to explore the perceptions, preferences, and psychological responses of children, adolescents, and their families to nature-based animated content in paediatric hospital waiting rooms. The research is conducted in two phases, involving pre- and post-installation evaluations of the psychological impact of the animation following a defined period of exposure in paediatric waiting spaces. Outcomes include assessments of quality of life, anxiety, stress, and emotional states using validated instruments, alongside parental perspectives. By providing empirical evidence on the benefits of nature-based animated installations in healthcare environments, these interventions contribute to advancing knowledge in psychology, animation, and healthcare design, supporting the creation of more humanised and emotionally supportive hospital spaces.

---

454 Strengthening the parent–child relationship through urban nature

Eun Yeong Choe
The Chinese University of Hong Kong, Shenzhen, Shenzhen, China

According to the 2020 Poverty Situation Report by the government, 274,900 children under the age of 18 in Hong Kong were found to be living in poverty. These families typically live in confined spaces, and with parents working long hours and unable to afford extracurricular activities, their children are often homebound. Chronic stress of both parents and children thus become a common issue among low-income families. In partnership with the social enterprise Nature Bathing, we launched a community health program focused on guided nature play and ecological healing practices that serve as preventive mental health support, fostering resilience, connection, and well-being.

This study uses a randomized controlled trial to measure how nature-based activities affect the parent-child relationship and children's ability to regulate their emotions. The study arm of the program involves 120 low-income families who were randomized into three groups: an intervention group (n=37) participating in structured nature immersion sessions, including practices such as barefoot grounding and mindful relaxation in natural settings; an active control group (n=39) engaged in art-based creative workshops to account for the effects of structured group activity; and a passive control group (n=40) continuing with their usual routines to establish a baseline. Before and after the intervention, all parents are asked to complete a questionnaire containing four validated scales i.e. NCI, SWEMWBS, CPRS, CEMS.

We aim to harness the healing power of nature as a preventive support for community mental health and well-being, while also encouraging the effective use of urban natural resources.

---

174 Children's conceptions and preferences for nature in the city

Jianjiao Liu, Raymond Green
University of Melbourne, Melbourne, Australia

Rapid urbanization has increasingly disconnected children growing up in cities from having direct contact with the natural world, raising concerns about their well-being and the long-term sustainability of human-nature relationships. This study sought to understand how children conceptualize, perceive, and prefer nature in urban contexts, using central Beijing, China, as the study site.

A mixed-methods approach was employed, including semi-structured interviews with 81 children aged 8-12 years to explore their conceptual understandings of nature, followed by a subsample of 54 children participating in two photo Q-sort tasks, in which they sorted 33 stimulus photographs depicting a range of urban environments according to their preferences and perceived naturalness. Interview data were content analyzed, and the Q-sort data were subjected to various statistical procedures, including multidimensional scaling and principal component analysis.

The results reveal that children’s understanding of nature can be analyzed using a binary framework: conceptual and accessible nature, reflecting ecological, emotional, and visual values shaped by personal experiences, education, media, and innate predispositions. Analyses of the preference data identified five key factors: aesthetics, affordances, naturalness, messiness, and challenges. Ratings of naturalness were related to objective attributes (natural versus artificial) and affective responses (harmonious versus disharmonious). Most children’s preferences were positively associated with perceived naturalness; however, a subgroup prioritized environments that afforded play opportunities, regardless of the presence of natural elements. These findings reflect the complexity of children’s relationships with urban nature and highlight the need to better align urban environments with children’s diverse conceptions and preferences of nature in cities.

---

404 Designing for children's wellbeing in unequal cities: Insights from the Global South and North

Matluba Khan
Cardiff University, Cardiff, United Kingdom

Child-friendly city frameworks have been largely shaped by Global North research and policy contexts, where formal public spaces, institutionalised participation, and regulated urban environments dominate children's everyday experiences. In contrast, children's lives in cities of the Global South are shaped by markedly different conditions, including pervasive informality in public space, limited access to play and social spaces, contested politics of access, and deep socio-spatial inequalities. These factors fundamentally shape children's wellbeing and environmental encounters, yet remain under-theorised in mainstream child-friendly city discourse.

This paper draws on empirical evidence from child-centred co-design projects in Global South cities (Dhaka, Bangladesh and Campo Grande, Brazil) and Global North cities (Cardiff, Wales and Poznań, Poland), placing these contexts in critical dialogue. Using creative participatory methods—mapping, walk-along interviews, drawing, and model-making—the research foregrounds children's perceptions and everyday spatial practices. Findings show how children in the Global South engage with informal streets, threshold spaces, and shared infrastructures as key sites of play, care, and social life, while facing heightened exposure to unsafe conditions, exclusion, and climate-related risks including heat, flooding, and pollution.

The paper argues for a context-sensitive, relational and justice-oriented approach to child-friendly urbanism that moves beyond universalised Global North models to recognise informality, inequality, and climate vulnerability as central to children's lived realities. By bringing Global South and Global North experiences into dialogue, it rethinks child-friendly cities as a pathway to supporting children's wellbeing in rapidly urbanising and climate-vulnerable contexts.

INDIVIDUAL ORAL PRESENTATIONS:
Climate change perceptions

Fri 3 July, 10:15 – 11:30, AP 2

Chair: Annalisa Setti
University College Cork, Cork, Ireland
Sustainability Institute, Cork, Ireland

---

230 Public perceptions of climate activism: Brave youth or unemployed criminals?

Thea Gregersen, Mari Skåra Helliesen
NORCE, Bergen, Norway

School strikes, roadblocks, and throwing soup at art – over the last few years, climate activists have often succeeded in reaching the front pages. But how is climate activism perceived by the public? The current study, conducted in November-December 2025, investigates people's unprompted associations with climate activism. Using an open-ended survey question, a nationally representative sample of the Norwegian population (N = 2,024) was asked what they think about when they hear or read about climate activism. Of these, 1,616 respondents provided a written response, with an average length of 14.6 words. In this talk, I will present a categorization of these responses and show how they are linked to relevant socio-demographic and attitudinal variables, such as age, gender, risk perception, and activism support. A first look at the data reveals varied associations, including

references to specific individuals and organizations (e.g., Greta Thunberg and Extinction Rebellion), evaluation of the activism act (e.g., important, admirable, illegal, extreme) and its effects (e.g., awareness building, irrelevant, pestering, polarizing), as well as activist characteristics and traits (e.g., young, brave, unemployed, naïve). Our findings will be discussed in light of previous research and recent media coverage. The study reveals common (mis)understandings and stereotypes, contributes insights into why or when the public supports or opposes climate activism, and identifies sub-group differences. This can be of relevance to activists, journalists, politicians, and researchers aiming to enact or discuss collective climate action.

---

349 Delay means death: Measuring public support or rejection of climate delay discourses

Adrian Wójcik[1], Taciano Milfont[2], Michal Glowczewski[1]
[1]Nicolaus Copernicus University, Torun, Poland. [2]University of Waikato / School of Psychology, Tauranga, New Zealand

Addressing the climate crisis requires understanding beliefs that undermine individual and collective action. Here, we focus on less-studied beliefs that undermine climate action: climate delayism beliefs. These beliefs do not negate anthropogenic climate change, but rather negate the need for urgent and decisive action. Climate delayism beliefs focus on shifting responsibility for climate action, pursuing non-transformative solutions, emphasizing the flaws of climate policies, and downplaying the negative impacts of climate change. Climate delayism beliefs have been studied primarily in the context of rhetorical strategies used by corporate and governmental leaders to avoid transformative solutions. However, more attention must be paid to researching the extent to which the general public denies the need for immediate climate action. Based on representative samples of citizens in Poland, the US, and the UK (N_{total} = 1,988), we examined the prevalence of climate delayism and its associations with climate anxiety and denial. Our results show that: (1) the overall factor structure of climate delayism beliefs is similar in all countries; (2) greater levels of climate delayism beliefs are associated with lower climate anxiety and higher climate denial; but (3) some delay beliefs are held by respondents who believe in climate change and are concerned about it. Delayist beliefs uniquely predict support for pro-environmental policies and behaviours, even when controlling for political attitudes (SDO, RWA, and political orientation), as well as for climate denial. We discuss these results and propose explanations for why delay discourses, which undermine individual and collective action, are so prevalent.

---

74 Mental imagery of climate and ecological change: Applying an experimental psychopathology framework to understand acute emotional responses

Muskan Mehmi[1], Caterina Vannucci[2], Olivia Siegfried[1], Christian Chan[3], Charles Ogunbode[4], Stephanie Burnett Heyes[1]
[1]University of Birmingham, Birmingham, United Kingdom. [2]IMT School for Advanced Studies Lucca, Lucca, Italy. [3]International Christian University, Tokyo, Japan. [4]University of Nottingham, Nottingham, United Kingdom

Climate change poses not only environmental and societal risks, but also psychological challenges. This includes the growing prevalence of climate change anxiety (CCA), often linked to eco-emotions such as guilt, anxiety, and grief. These emotions may be triggered or intensified by mental imagery generated in response to climate change information. While mental imagery has been studied extensively in clinical mood disorders, its role in CCA remains underexplored.

We developed a computerized picture-word cue mental imagery generation task (cf. Holmes et al. 2008) with two within-subject conditions (CCA, benign) and in-task measures of self-rated affect. Participants (N=66 university students) completed screening and baseline measures online. Eligible

participants (n=19, aged 20-31) underwent mental imagery training followed by randomisation to complete the CCA or benign imagery condition first (60 trials/condition). We administered post-task questionnaires and prompts to assess responses to participation, followed by debriefing, support signposting and evening follow-up.

Results show increased negative affect and state anxiety and decreased positive affect in the CCA vs. benign condition, followed by return to baseline. Effects were significant, with medium to large effect sizes. Participants reported their participation as valuable and not notably negative, offering varied reflections.

Our novel paradigm provides an experimental model to induce acute eco-distress and explore the role of mental imagery in emotional responses to climate change information. Furthermore, it provides an experimental tool to manipulate the framing of climate change information to promote coping and adaptation, with potential to inform development of intervention strategies to safeguard mental health.

---

687 Ageing in a climate crisis: A qualitative analysis of psychological resilience-building factors from different experts perspective

Stitzel Andrea[1], MacCarthy Niamh[2], Tracey Skillington[3], Annalisa Setti[4,5]
[1]Carinthia University of Applied Sciences, Villach, Austria. [2]Centre for Gerontology and Rehabilitation, University College Cork, Cork, Ireland. [3]Department of Sociology, University College Cork, Cork, Ireland. [4]School of Applied Psychology, University College Cork, Cork, Ireland. [5]Sustainability Institute, Cork, Ireland

Background: The relationship between people and their environments plays a central role in the ageing process and is increasingly challenged by climate change. At the same time, contact with nature and supportive environments can act as important sources of resilience in later life.

Aims: This study aimed to identify factors that shape psychological resilience to climate change in older adults.

Method: We conducted interviews with 12 experts in healthy ageing, climate psychology, sociology, public realm design, and older climate activists using an interview schedule informed by a systematic review of the existing literature.

Findings: Thematic analysis revealed that psychological climate resilience in ageing is best understood through a dynamic, person–environment perspective, consistent with theories of environmental gerontology. Experts highlighted the importance of active participation and agency, as well as the need to move beyond ageing stereotypes, and deficit-based views of ageing. Nature connectedness, family and community relationships, and the broader societal and infrastructural systems in which individuals are embedded emerged as key contributors to resilience.

Novelty/Implications: These findings highlight that psychological climate resilience in ageing is not solely an individual attribute but an outcome of the interactions between older adults and their social, natural, and built environments. This perspective challenges deficit-based framings of older adults in the climate change resilience discourse and underscores the need for multi-level, relational approaches to climate adaptation policy, public realm design, and ageing-well initiatives in the context of a dynamic view of ageing.

SYMPOSIUM 41:
Co-existence of wider housing and energy inequities

Fri 3 July, 10:15 – 11:30, 39 MS 02

Chairs: Gesche Huebner and George Warren
University of Exeter, Penryn, United Kingdom

Despite the pace of environmental and energy transitions, inequities continue to exist and be created. As such, highlighting their existence and examining ways these can be addressed is crucial to ensure a just, people-centred transition that supports improved human health and wellbeing, economic outcomes and inclusion.

This symposium presents conceptualisations, evidence of inequities and potential solutions across a range of interdisciplinary topic areas, including housing and health, energy demand, supply and mobility. Symposium speakers will present a novel definition and measurement of energy equity, an examination of the conditions that create inequities, evidence of wider housing inequalities and energy inequities, and an investigation of vulnerability risks from overheating across Europe.

Contributions examining the co-existence of wider housing and energy inequities will be both theoretical and practical in nature, delivered from a range of differing disciplinary perspectives, methods, and epistemological backgrounds focused on a variety of national and international contexts. We aim to additionally spark discussion about concepts, range of methods and solutions raised in the symposium to foster greater connections between environment, energy, health, and social science researchers.

Speakers: George Warren**,** Aritra Chakrabarty**,** Gesche Huebner**,** Anna Conzatti

---

515 UK expert definitions, frameworks and measurements of energy equity: Findings from a Delphi study

George Warren, Gesche Huebner
University of Exeter, Penryn, United Kingdom

The UK continues to make progress on its energy transition towards net zero by 2050 (Climate Change Committee, 2025). Proponents of net zero transitions underline that they must be fair, just and equitable (Carley and Konisky, 2020). Despite this, and much research discussion about energy justice, no consistent and agreed-upon definition and set of measures of energy equity exist (Alarcon Garavito et al. 2026), despite its use in other disciplines including public health (Marmot, 2010; Whitehead, 1993).

This study aims to create a consensus definition of energy equity among UK-based energy experts, alongside identifying potential impacts and measurements of energy inequity in the UK system. We will undertake a Delphi study, a robust mixed methods form of iterative anonymous expert elicitation aimed at creating consensus about knowledge, imaginaries and futures that is underused in energy and environment research, following DELPHISTAR criteria (Barrett and Heale, 2020; Niederberger et al., 2024). The study will run between January and April 2026, over three rounds. The first round will ask open-ended qualitative questions, and the two following rounds quantitative questions eliciting extent of agreement with a series of statements.

Expected findings include a consensus definition of energy equity, a set of the most important UK energy inequities, their measurement, and potential equity interventions to address them. Alongside

the conceptual novelty of a consensus definition of energy equity, findings aim to inform energy systems modellers evaluating energy inequities and those conducting critical policy analysis to support an equitable transition to net zero.

---

536 What are the conditions driving household energy poverty in the UK? A framework for evaluation of capabilities derived from energy services

Aritra Chakrabarty
University of Exeter, Penryn, United Kingdom

As the UK advances towards a net-zero energy transition, questions of justice have come to the forefront of academic energy policy discourse. Without attention to justice principles, the transition to net-zero risks exacerbating existing inequalities. The negative impacts of decarbonization is likely to be disproportionately fall on lower-income and marginalized groups. This study identifies these impacts as deprivations of certain essential capabilities as a direct or indirect result of insufficient access to affordable, reliable and safe energy services (Day et al., 2016). These capabilities are real freedoms that individuals must have to achieve a decent standard of living. Capabilities like the ability to afford adequate warmth, fuel for cooking, heated water during cold weather conditions, lighting to carry out household functions, nutrition and health, hygiene and sanitation, access to greenspaces, ability to participate in the workforce are linked to energy services (Day et al., 2016; Gillard et al., 2017; Middlemiss & Gillard, 2015). Most of the existing approaches to energy poverty use income and/or expenditure based measurements which risk standardizing the lived experience of the deprivations of households. We use the capabilities approach framework to assess the conditions that create deprivation of capabilities at the household level. The objective is to understand the conditions that cause and are caused by insufficient access to energy services. The study advances the scholarship on energy poverty with focus on justice as a metric of evaluation. It also contributes to the policy scholarship by providing theoretical and methodological insights into place-based policy measures.

---

555 Wider housing and environmental inequalities: Evidence on intersecting disadvantages

Gesche Huebner, Anna Conzatti
University of Exeter, Penryn, United Kingdom

Housing-related disadvantage rarely manifests in isolation. Instead, multiple inequalities tend to co-exist, reinforcing cumulative disadvantage and shaping unequal health risk. Drawing on a mixed-method study combining a systemized literature review, bibliometric mapping, and cross-national household survey analysis, this study examines how housing inequalities intersect with wider environmental and infrastructural inequalities.

The literature review showed that comparatively few studies had studied multiple inequalities in conjunction. We analyzed survey data from over 7000 households across eight European countries, complemented by secondary EU-SILC data, to identify how energy insecurity intersects with poor housing quality, tenure insecurity, limited access to green space and infrastructure, and socio-demographic vulnerability. Cluster analysis reveals four distinct household profiles experiencing overlapping disadvantages. Households facing affordability constrains and inadequate dwelling conditions are also less likely to afford heating and cooling.

Thermal comfort emerges as a critical factor linking energy inequity to health outcomes. Households unable to maintain adequate indoor temperature report significantly poorer self-related health and wellbeing.

These findings demonstrate that housing inequalities co-occur with wider inequalities. Policy responses need to integrate housing, health, and energy domains and recognise cumulative disadvantage and prioritise those least able to adapt to climate and energy shocks.

---

545 Beyond temperature: Overheating and vulnerability risk in European dwellings

Anna Conzatti
University of Exeter, European Centre for Environment and Human Health, Penryn, United Kingdom

As climate change intensifies summer heat across Europe, the ability to maintain a healthy indoor environment is shaped by widening inequalities. Residential overheating is emerging as a people–environment challenge with direct implications for health, wellbeing, and social equity.

This study examines how future climate warming may interact with wider housing inequalities and socio-demographic vulnerabilities to shape unequal overheating risks across European households. A total of 15,876 dynamic building simulations are conducted using EnergyPlus for representative residential archetypes across five European countries: Belgium, the Czech Republic, Germany, Italy, and the United Kingdom. Dwelling archetypes are informed by data from the HouseInc multinational survey (7,000 responses) and the TABULA project. Simulations account for dwelling type, size variation, construction period, refurbishment state, and operating mode (natural ventilation and air conditioning) and are run under current climate conditions and a consistent future climate pathway (SSP2-4.5) for 2050 and 2080.

Simulation outputs are used to derive multiple overheating metrics, including overheating hours, weighted cooling degree hours, and average indoor air temperature during prolonged and short-term extreme heat periods. These metrics are combined to characterise overheating exposure at the dwelling level.

Overheating exposure is then integrated with indicators of sensitivity and adaptive capacity derived from socio-demographic characteristics in the HouseInc survey to construct a heat vulnerability index as the main outcome. By explicitly linking indoor thermal conditions, dwelling and socio-demographic characteristics, this study contributes to people–environment research on how sustainable housing transitions can support healthier and more equitable communities in a warming climate.

INDIVIDUAL ORAL PRESENTATIONS:
Place and sustainability

Fri 3 July, 10:15 – 11:30, 72 MS 03

Chair: Sabina Toruńczyk-Ruiz
University of Warsaw, Warsaw, Poland

---

558 Place attachment as a worlding practice: Political ontology and pluriversal resistances to environmental colonialism

José Vicencio Figueroa[1,2], Constanza Salas Sepúlveda[2], Andrés Di Masso[1]
[1]Universitat de Barcelona, Barcelona, Spain. [2]Universitat Autonoma de Barcelona, Barcelona, Spain

Background: Between 1984 and 1989, the Swedish mining company Boliden dumped more than 20,000 tons of toxic waste in Arica, Chile. The Chilean state later built social housing on contaminated land, exposing over 12,000 residents to severe health harms and triggering a socio-environmental

conflict that remains ongoing. In 2013, more than 700 affected people filed a lawsuit against Boliden in Sweden; the company's acquittal consolidated a regime of transnational impunity.

Aims: To examine how waste colonialism is legitimized from the Global North to the Global South, and how affected residents mobilize place attachment narratives as a resource for protest.

Method/Approach: Using a post-qualitative ethnographic approach, we co-produced thirteen life histories with people affected by toxic contamination in Arica, treating place attachment as a discursive practice and articulating it with political ontology.

Findings: The life histories show that place attachment operates as a worlding practice, enabling an ontological reading of the conflict and opening alternative futures against environmental colonization within the modern/colonial world. Even under displacement, place attachment persists at an epistemic level as mental emplacement and a resource for ontological resistance.

Implications: This approach encourages moving beyond legal outcomes toward making visible lived, world-making struggles through which communities resist dispossession and imagine remediation and environmental justice.

Importance/Originality: The article draws on environmental-psychological research on the everyday politics of place attachment (e.g. Batel & Devine-Wright, 2017; Di Masso et al., 2021; Dixon & Durrheim, 2004; Manzo, 2014), by connecting it with political ontology to understand resistance to environmental colonialism.

---

743 Place attachment after post disaster reconstruction in a low-density residential region: A case study in Fukushima

Yurika Yokoyama[1], Takeru Akahori[2], Yuji Matsuda[1], Ricardo Garcia Mira[3]
[1]University of Tokyo, Tokyo, Japan. [2]Obayashi Corporation, Tokyo, Japan. [3]University of A Coruna, A Coruna, Spain

Attachment to a town is said to increase with age and is also influenced by the length of residence (Hidalgo & Hernandez, 2001). However, achieving long-term stable residence in some areas is becoming more difficult in today's world, where disasters are becoming increasingly common and often cause evacuation and even subsequent migration. Research into how regional attachment manifests after disasters remains insufficient.

Following the nuclear power plant disaster that struck the coastal areas of Fukushima Prefecture in March 2011, most of the areas in Futaba region were temporarily abandoned due to evacuation orders. Subsequently, decontamination and the lifting of evacuation orders proceeded sequentially from towns farther from the plant. Consequently, Naraha Town experienced the first returns in the region in 2015.

Ten years later, this paper attempts to clarify the level of place attachment among local residents following the unprecedented events of total evacuation, town reconstruction and planned return, and how this attachment differs according to resident attributes. Questionnaires were distributed to approximately 427 households in central Naraha Town and 123 visitors to community facilities, and 132 data were analysed. The results indicate: 1. Scores for the question which directly ask attachment to one's own town are not particularly high. 2. However, these tended to be higher than those of neighbouring towns residents who utilise Naraha Town ($p<.07$). 3. Older residents tended to have higher attachment scores than younger residents ($p<.09$). Further findings and discussions will be presented.

---

432 Connecting place-based education and teacher place identity: A conceptual framework

Aysegul Akturk[1], Laura Zangori[2], Caiden Webb[2], Laura Cole[3]
[1]Gebze Technical University, Kocaeli, Turkey. [2]University of Missouri, Columbia, United States.
[3]Colorado State University, Fort Collins, United States

This qualitative study examines the relationship between rural teachers' place identity and their implementation of place-based education (PBE). PBE "emphasize[s] the connection between a learning process and the physical place in which teachers and students are located" (Yemini et al., 2023, p. 1). Yet, this scholarship is thinly connected with research on teacher place identity which illuminates relationships between people and places (Gross & Hochberg, 2016). This multi-year study focuses on teachers in rural Midwestern U.S. communities and explores whether and how teachers' place attachment relates to their enactment of a PBE unit that roots learning about energy systems within the classroom, school building, and to the community's energy infrastructure (Bennion et al., 2022). Our in-depth analysis of qualitative interview data with teachers (n=18) suggests that those who perceived alignment between their place identity, rural communities, and teaching approach tended to view PBE as authentic, sustainable, and meaningful. This presentation explicates a novel conceptual framework connecting place-conscious education (Gruenewald, 2003), resources used in PBE implementation (Bennion et al., 2022), and teacher place identity (Twigger-Ross and Uzzell, 1996). We argue that strong place identity enhances teachers' perceived capacity to navigate local contexts (self-efficacy) and strengthens feelings of belonging (self-esteem), which together act as psychological mechanisms that translate place identity into enacted PBE practices. Rich examples from our dataset are used to unpack the theoretical model. Presenting this framework offers a starting point for future studies and practical implications for supporting teachers in identifying and leveraging local affordances for PBE implementation.

---

589 Feeling at home or taking ownership: Two pathways to pro-environmental behaviors

Sabina Toruńczyk-Ruiz, Maria Mirucka
University of Warsaw, Warsaw, Poland

Despite rising awareness of environmental problems and their relation to human activities, encouraging pro-environmental behaviors remains a challenge – especially in urban settings. We examined two different types of bonds with local places as pathways to pro-environmental behaviors: place attachment (an affective bond with a place) and psychological ownership place (a sense that the place is 'mine' our 'ours'). We also tested two underlying mechanisms – perceived responsibility for the place and control of the place – and distinguished between private (individual) and civic (collective) pro-environmental behaviors.

Across two nation-wide studies among Polish adults – one focusing on the context of the town (N_1= 686) and one on the neighborhood (N_2 = 1017), we found that being attached to the place was related only to private pro-environmental behavior – via sense of responsibility for the place. In contrast, place ownership predicted only civic pro-environmental behavior, via a sense of control of the place. Furthermore, sense of responsibility was linked to both types of pro-environmental behaviors, whereas sense of control was specific to civic engagement. These findings suggest that place attachment and place ownership represent distinct pathways to promote environmental action that extend beyond local identity and socio-demographic factors: one is affective and motivates private, everyday actions, while the other is agentic and motivates collective, civic engagement.

---

455 Beyond economic benefits: How cultural identity and social capital shape Indigenous perceptions of Free Trade Port development

Qi Cao[1], Xiaotian Liu[2], ZiRan Zhou[3], Yun Chen[4], ZiXuan Xu[5], YiMo Han[6]
[1]Graduate School of International Studies, Department of East Asian Studies, Hanyang University, Seoul 04763, Korea, Republic of. [2]Department of Psychology of Development and Socialization Processes, Sapienza University of Rome, Rome 00185, Italy. [3]Department of Mathematics, Faculty of Science, National University of Singapore, Singapore 119077, Singapore. [4]New College of Interdisciplinary Arts and Sciences, Arizona State University, Phoenix AZ 85306, United States. [5]School of Business, Yangzhou University, Yangzhou 225009, China. [6]School of Creative Arts, Beijing University of Financial Technology, Beijing 101118, China

This study adopts a social psychological perspective to examine how Indigenous Li residents in Hainan perceive the impacts of Free Trade Port (FTP) development and the factors shaping these perceptions. Drawing on a conceptual framework integrating economic dependency, policy cognition, bridging social capital, attitudes toward the Free Trade Port, and perceived life impacts, with cultural identity as a moderating variable, this study analyzes survey data collected from 837 Indigenous residents using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results indicate that economic dependency, policy cognition, and bridging social capital significantly enhance residents' positive attitudes toward the Free Trade Port, which in turn exert a significant positive effect on perceived life impacts. Attitude also plays a mediating role between these antecedent factors and perceived life impacts. Furthermore, cultural identity strengthens the positive relationship between attitudes toward the Free Trade Port and perceived life impacts, suggesting that cultural attachment amplifies how residents interpret development outcomes. Overall, the findings reveal that Indigenous support for Free Trade Port development is shaped not only by economic benefits but also by policy understanding and cultural belonging. This study highlights the importance of culturally sensitive governance and inclusive social connectivity in promoting sustainable and socially inclusive regional development.

Keywords: Indigenous Wellbeing; Place Attachment; Cultural Identity; Social Capital; Perceived Life Impacts; Sustainable Development

307 A study on the conditions for the occurrence of serendipity in constructed urban spaces

Yuta Iguchi[1], Jun Munakata[2]
[1]Obayashi Corporation, Tokyo, Japan. [2]Chiba University, Chiba, Japan

In the post-COVID era, the value of physical urban spaces is being re-evaluated, specifically regarding "serendipity"—unexpected encounters that foster innovation and well-being. However, a gap likely exists between the "prepared happenstance" intended by urban stakeholders and the actual happenstance perceived by users. This study aims to theorize the conditions required for serendipity to occur, thereby assisting stakeholders in spatial design. It specifically investigates the discrepancies between developers' intentions in urban development and users' purposes in utilizing these spaces.

Defining chance as a mismatch between the "designed happenstance" provided by stakeholders and the specific purposes of users, the authors investigated planning strategies through a literature research and interviews with six professionals across five stakeholder categories (including local government, experts, developers, designers, and area management). The investigation revealed that each stakeholder type generates specific "room for serendipity" based on their roles and constraints. This study establishes that stakeholder attributes and hierarchical roles directly influence the nature of serendipity. By clarifying these generation mechanisms, the findings suggest that stakeholders can better leverage spatial design to foster positive urban interactions, laying the groundwork for future verification of user acceptance.

---

605 A nature-immersive information strategy to promote support for renewable energy and sustainable lifestyles among visitors of an Italian historical natural garden

Giuseppe Carrus, Federica Caffaro, Chiara Massullo, Stefano Mastandrea, Lorenza Tiberio
Roma Tre University, Rome, Italy

We present the results of a case study conducted in Italy, in the context of the EU-funded HORIZON 2020 research project titled “Energy Efficiency through behaviour change transition strategies - ENCHANT”. ENCHANT has reviewed and assessed previously available knowledge about behavioural interventions targeting energy consumption, and has designed, conducted and tested a wide range intervention strategies via RCT-like field experiments in six European countries (Norway, Austria, Italy, Germany, Romania, and Turkey). We present and discuss here the preliminary results of a field study testing the efficacy of an information-based behavioural intervention in Italy. The intervention was conducted through the active support of an Italian non-profit foundation devoted to the preservation of the natural, cultural and archaeological heritage in central Italy (the Roffredo Caetani Foundation, Fondazione Roffredo Caetani). The Caetani Foundation is responsible for the management and conservation of the Ninfa Gardens, one of the most known natural sites and gardens in the world, visited by more than 80.000 visitors every year, which is also designated as a natural monument by the Italian Republic. Results of our case study (N = 1114) showed that an intervention based on the provision of climate-related information, presented during the visit to such an aesthetically pleasant natural and historical setting increases individual willingness to donate money for renewable energy projects. Also, our results suggested that feelings of connectedness to nature predict beliefs in global warming, through the mediation of discrete emotions such as guilt and happiness.

---

481 Participatory design as community-based environmental learning in civil society–led urban practices

Ece Altinbasak Haklidir[1], Betul Orbey[2], Pinar Sahin[3], Esra Akbalik[1]
[1]Dogus University, Istanbul, Turkey. [2]Istanbul University, Istanbul, Turkey. [3]Bahcesehir University, Istanbul, Turkey

Addressing contemporary environmental and social challenges requires approaches that integrate environmental education, community participation, and inclusive knowledge production. Participatory design has emerged as a key framework through which civil society organisations and grassroots design collectives engage communities in shaping their built environments while fostering environmental awareness, collective learning, and civic capacity. Despite its growing presence in practice, there remains limited systematic research examining how such initiatives function as processes of environmental communication and informal education, and how they interface with broader policy and governance contexts.

This study examines participatory design–based architectural and urban initiatives carried out by civil society organisations and grassroots design collectives in Türkiye. The research adopts a qualitative,

case-based approach, centred on in-depth analysis of selected initiatives through project documentation, publicly available materials, and semi-structured interviews with designers and facilitators. Grounded in participatory design theory and social capital perspectives, the study focuses on how knowledge is produced, shared, and negotiated between designers, communities, and institutions throughout participatory processes.

The study aims to explore how these initiatives operate as forms of community-based environmental learning, how environmental and spatial knowledge is communicated, and how participatory practices support inclusive engagement and collective agency. The outcomes include a comparative understanding of design practices that strengthen community networks, enhance environmental awareness, and contribute to socially just and environmentally responsive urban interventions. By foregrounding civil society–led design practices, this research contributes to environmental studies by positioning participatory design as a critical interface between environmental education, community participation, and policy-relevant knowledge production.

INDIVIDUAL ORAL PRESENTATIONS:
Sustainable and pro-environmental behaviour 3

Fri 3 July, 12:00 – 13:15, 03 MS 01

Chair: Alexander Yuriev
HEC Montréal, Montréal, Canada

---

235 "Do I really need this?" - Promoting sufficiency through reflection in consumption

Paula Rosendahl[1,2], Andreas Ernst[1]
[1]University of Kassel, Kassel, Germany. [2]Scholarship Programme of the Deutsche Bundesstiftung Umwelt, Osnabrück, Germany

The increasing volume of newly produced consumer goods (e.g., clothing, electronic devices) is associated with various environmental and social impacts and threatens life within planetary boundaries. Sufficient consumer decisions (SCD) avoid purchasing new products, for example by extending the use of existing possessions. Thus, SCD contribute to reducing environmentally harmful resource use. To make an SCD, it may be essential to consider one's needs ("Do I need this product?") and consumption desires ("Do I want this product?"). Such considerations are captured by the newly developed Reflection In Consumption (RIC) scale. This study aims to further validate the RIC scale and to develop a shorter scale. An online survey was conducted with a sample representative of the German population in terms of income, age and gender. A factor analysis was performed to confirm the unidimensional factor structure. To evaluate the scale's criterion and construct validity, associations between RIC and (sufficient) consumption behaviour, as well as other reflection scales, were investigated. Furthermore, consciously reflecting on one's needs and desires may be positively associated with wellbeing. Hence, the association between RIC and self-reported wellbeing was explored. The findings will be presented at the conference and may inform the design of interventions fostering RIC. Investigating RIC provides insights into how SCD are made, thereby contributing to sufficiency research.

---

312 Wetsuits reimagined: Using psychological theory to understand consumer readiness for recycled neoprene

Kayleigh Wyles, Shelley Kotze, Greg Gorman
University of Plymouth, Plymouth, United Kingdom

Background: Neoprene, widely used in wetsuits and watersports equipment, presents significant environmental challenges, with over 380 tonnes of waste annually landfilled or incinerated in the UK. Addressing this issue requires a shift towards circular economy practices, particularly through the adoption of recycled neoprene products. This study examines consumers' willingness to buy recycled neoprene products through two approaches: 1) an in-depth qualitative approach to identify key opportunities and challenges, and 2) a large-scale survey to identify the strongest predictors of this behaviour (comparing the VBN theory, TPB, and the COM-B model).

Method: Two methods were used: 1) semi-structured interviews with 14 consumers of watersports brands and 2) an online quantitative survey of a representative sample of 1,000 members of the UK general public.

Results: The interviews showed that consumers had little knowledge on what their clothing and accessories were made from but expressed willingness to support circular solutions. Emotional attachment to wetsuits emerged as a significant factor, shaping disposal behaviours, creating opportunities for meaningful take-back schemes, as well as interest in purchasing products known to be made from old wetsuits. For the survey, the COM-B model was found to be the best theory to predict recycled material adoption, with greater intention for those who have stronger attitudes, social norms, and personal norms.

Conclusions: By identifying key drivers of consumer acceptance, this research offers evidence-based recommendations to inform brands, policymakers, and manufacturers. These insights can help drive innovation and support a transition towards more sustainable material use in the watersports industry.

---

272 The prominent role of habit strength in predicting cigarette butt littering frequency

Natalie Smith[1,2], Mathew Cole[1], Gypsie Berry[3], Penelope Lindeque[1], Kayleigh Wyles[2]
[1]Plymouth Marine Laboratory, Plymouth, United Kingdom. [2]University of Plymouth, Plymouth, United Kingdom. [3]University of Surrey, Guildford, United Kingdom

Cigarette butts are one of the most prevalent anthropogenic litter items globally. Their disposal has previously been referred to as a habit, but there is minimal empirical evidence to support this in the literature. This study aims to investigate cigarette butt littering as a habit in two contexts: a city center and a recreational beach. Two self-report questionnaire surveys using the Self-Report Habit Index to assess habit strength, were conducted: Study One, in-person surveys of smokers in a city centre and a recreational beach (Devon, UK; *n*=202); and Study Two, an online survey to reach a larger sample of smokers (UK; *n*=892). In addition to demographic information, the survey included questions on cigarette butt littering frequency and the 12-item Self-Report Habit Index. In the in-person survey, 35% of smokers admitted littering cigarette butts, compared with 65% of smokers surveyed online. In the in-person surveys, participants surveyed in the city centre showed a higher habit strength compared to those surveyed in the beach context. Both studies identified habit strength as a significant predictor of cigarette butt littering frequency, with 94-99% of littering behaviour influenced by habit. This study validates the use of the Self-Report Habit Index for cigarette butt littering and provides clear evidence of the influence of habit in cigarette butt littering. These findings highlight the need for habit driven interventions for behaviour change around cigarette butt littering and can further help target interventions to different demographic groups.

---

199 Exploring moral licensing and cleansing effects in studies on pro-environmental behaviors

Alexander Yuriev[1], Victoria Cantillo[2]
[1]HEC Montréal, Montréal, Canada. [2]Université Laval, Québec, Canada

The moral licensing theory (MLT) can explain why pro-environmental behaviors sometimes lead to a decreased interest in sustainability (moral licensing), or how polluting actions might be followed by pro-environmental behaviors (moral cleansing). Since awareness of environmental degradation frequently fails to prevent polluting activities, the MLT has been increasingly applied by the researchers working on pro-environmental behaviors. To shed light on how the MLT was used in these studies, this article has the following three complementing objectives: 1) to identify green behaviors that were explored in the literature on pro-environmental behaviors; 2) to analyze behavioral impacts of the observed effects; 3) to formulate recommendations on the application of the MLT in studies on pro-environmental behaviors. The analysis of 49 publications demonstrated that over 80% of the studies successfully replicated the moral licensing effect, and the conducted experiments allowed scholars to propose concrete solutions to encourage pro-environmental behaviors. However, researchers tend to overlook the importance of considering specific paths through which moral licensing effect occurs which can undermine the interpretation of results. Furthermore, the development of measurement scales for moral licensing and cleansing effects is at its naissance. To help scholars benefit from applying the MLT while mitigating potential drawbacks, this article proposes a checklist of nine items that should be considered in future research.

INDIVIDUAL ORAL PRESENTATIONS:
Nature and wellbeing 2

Fri 3 July, 12:00 – 13:15, AP 1

Chair: Stephanie Wilkie
Northumbria University, Newcastle upon Tyne, United Kingdom

548 Ethnicity and experience of nature
Merideth Gattis[1], Peary Brug[2]
[1]Cardiff University, Cardiff, United Kingdom. [2]St Mary's University, London, United Kingdom

Nature offers numerous benefits to human health and wellbeing. Importantly, however, researchers and policymakers have limited understanding of how people of different ethnicities experience nature. We compared experiences of natural and built outdoor environments amongst ethnic minority (N=89) and white Uk adults (N=117). At time 1, ethnic minority adults reported less frequent visits to natural environments compared to white adults. The two groups did not differ in self-reported nature connection and wellbeing. Using random assignment, we asked people of all ethnicities to either explore a local street or a local park three times over a five-day period. At time 2, participants again self-reported nature connection and wellbeing and additionally rated the familiarity, beauty and safety of the places they had explored. Amongst ethnic minority adults, exploring a natural environment led to greater positive affect and lower negative affect compared to exploring a built environment. Nature connection did not differ across the two conditions. In addition, ethnic minority adults rated the places they explored as more beautiful in the natural environment condition, whereas ratings of familiarity and safety did not differ across the two conditions. For white adults, affect, nature connection, and environmental ratings did not differ across the two experimental conditions. Notably, ethnic minority participants rated the safety of the places they explored lower compared to white participants. These findings suggest that popular conceptions about disconnection from nature amongst ethnic minorities may have more to do with how they experience and perceive nature than a lack of interest in nature.

657 Beyond the green: The restorative power of urban naturalized ponds

Angela Castrechini[1], Isabel Pellicer[2], Sergi Valera[1], Aitor Larzabal[3], Daniel Von Schiller[1]
[1]University of Barcelona, Barcelona, Spain. [2]Autonomous University of Barcelona, Barcelona, Spain. [3]University of the Basque Country, Leioa, Spain

Background: As urban areas face growing environmental pressures, naturalized urban ponds (NUPs) emerge as a strategy to reintegrate nature into cities. While the benefits of green spaces are well-established, empirical evidence on the specific restorative potential of "blue spaces" like NUPs remains limited.

Aims/Objectives: This study compares the perceived restorativeness and environmental aesthetic quality of NUPs (blue zones) versus traditional green zones. It also examines how socio-demographic factors and gender influence these perceptions.

Method: A comparative study was conducted in four urban parks in Barcelona. Trained surveyors performed *in situ* interviews with 1,073 park users. Perceptions were measured using the Perceived Environmental Aesthetic Qualities Scale (PEAQS) and the Restoration Outcome Scale (ROS), accounting for variables such as visit frequency and socioeconomic context.

Confirmed Findings: Results indicate that blue zones with NUPs are significantly more restorative than green zones. NUPs achieved higher ratings in mystery, sublimity, and overall restoration. Socioeconomic context played a role, with parks in affluent areas receiving higher scores. While gender differences were small, women consistently rated aesthetic and restorative qualities higher than men.

Novelty and Implications: This research provides empirical evidence that naturalized water features offer superior psychological benefits compared to green spaces alone. The findings underscore the importance of integrating NUPs into urban planning not only for biodiversity and thermal regulation but as a high-value tool for public well-being. It suggests that urban green infrastructure should prioritize "blue" elements to maximize the restorative potential of city parks.

---

570 Exploring the potential of Agent-Based Modelling to operationalize Attention Restoration Theory in urban greenspaces

Scott Ogletree[1], Agnès Patuano[2], Arend Ligtenberg[2]
[1]University of Edinburgh, Edinburgh, United Kingdom. [2]Wageningen University & Research, Gelderland, Netherlands

Attention Restoration Theory (ART) argues that certain environments can reduce cognitive fatigue and support mental well-being (Kaplan & Kaplan, 1989). Its key constructs—“being away,” “extent,” “soft fascination,” and “compatibility”—describe qualities that help people mentally detach, sustain effortless attention, and feel comfortable in a setting. While these ideas are influential in urban design and greenspace planning, more work is needed to translate ART into actionable, testable design parameters for contemporary cities.

This study examines how ART can be operationalized through Agent-Based Modelling (ABM), a simulation approach that represents individuals (“agents”) interacting with environmental conditions. Although ABM is widely used in areas like land-use planning, it is less common in people-environment studies, particularly for modelling the psychophysiological benefits of urban greenspaces. To address this gap, our exploratory research develops an ABM framework that encodes ART’s constructs and tests how different greenspace configurations may influence mental restoration at both individual and community levels.

The model translates restorative qualities into measurable environmental attributes—such as naturalness, openness, visual complexity, and sensory stimulation—which agents perceive and respond to based on fatigue and restorative potential. The resulting framework enables evidence-informed evaluation of which spatial designs best promote restoration, while also raising questions about how to quantify and test design for well-being within practice.

---

124 Considering the influence of place identity and trait cheerfulness on effects of brief virtual doses of nature on basic emotions, fatigue, and environmental perception

Stephanie Wilkie[1], Tracey Ruch[2]
[1]Northumbria University, Newcastle upon Tyne, United Kingdom. [2]Liverpool John Moores University, Liverpool, United Kingdom

Background: Restoration theories (Ulrich, 1981; Kaplan, 1995) suggest individuals prefer nature over urban settings for its benefits to positive emotions, cognitive fatigue, and recognised potential for restorative benefits. Investigation of how individual differences impact person-environment-wellbeing relationships is less common. Place-related identity interacts with environments to impact emotion and perceived restorativeness (Wilkie, Platt and Trotter, 2023); trait cheerfulness/bad mood (Ruch, 1997) also impact them (Wilkie et al. 2023).

Aims: We investigated whether virtual environmental experiences affected fatigue/state cheerfulness/bad mood, basic emotions/perceived restorativeness; and whether place-related identity moderated these effects controlling for trait cheerfulness/bad mood

Method: Online participants indicated place identity (nature *N* = 130; urban *N* = 100), fatigue and state cheerfulness/bad mood, viewed one of four environments (nature/urban greenspace/green street/urban street) for 30 or 60 seconds, reported state emotions, rated the viewed environment's perceived restorativeness, post-stimulus fatigue and state cheerfulness/bad mood, and trait cheerfulness/bad mood.

Results: Urban streets elicited higher negative emotions. Nature/urban greenspaces elicited higher positive emotions than both street conditions. State cheerfulness/bad mood and fatigue was not affected. Place-related identity moderated environment effects; fear/anxiety, positive emotions, and perceived restorativeness were stronger with a self-reported nature place-related identity.

Conclusion: Place identity should be included as a moderator in future person-environment-wellbeing research, with consideration for all individuals, not only those connected with nature. Emotion - as an immediate response to the environment - should also be an outcome of interest. The efficacy of brief virtual exposure for interventions to enhance human well-being warrants continued investigated.

INDIVIDUAL ORAL PRESENTATIONS:
Sustainable living

Fri 3 July, 12:00 – 13:15, AP 2

Chair: Christy Hehir
University of Surrey, Guildford, United Kingdom

---

387 Sustainability lifestyles and wellbeing

Debora Frei, Bernadette Sütterlin
Zurich University of Applied Sciences, Winterthur, Switzerland

Lifestyles are increasingly recognized as an efficient tool for understanding behaviour change and enhancing wellbeing. This is because they enable a tailored approach that outperforms traditional one-size-fits-all strategies. Previous lifestyles segmentations have typically focused on only one behavioural domain, such as mobility or nutrition, thereby providing only a partial view of lifestyles and how they are reflected in behaviour. However, the development of effective measures for sustainability-behavior and fostering wellbeing requires a comprehensive understanding of the environmentally-relevant behaviour of different lifestyle groups and whether their behaviour is consistent across various domains and settings. To address these gaps, we adopted a comprehensive approach, assessing several environmentally-relevant behaviours that vary by type (e.g., sufficiency, efficiency), domain (e.g., housing, mobility, food), and context (e.g., private life, work, leisure, public sphere). We also considered overarching lifestyle preferences (e.g., voluntary simplicity, hedonism, openness) and different psychosocial behavioural drivers. Using cluster analysis on a representative Swiss sample of 1,533 individuals, we identified six distinct lifestyles types: the humble environmentalist, the budget-conscious pleasure-seeker, the indifferent hedonist, the socially connected techie, the frugal traditionalist, and the sustainable lifestyle optimizer. Each type demonstrates unique patterns of environmentally-relevant behaviour, driven by specific lifestyle preferences and psychosocial factors. These findings highlight the heterogeneity of environmental-related lifestyles and the importance of a comprehensive approach and they provide valuable insights into diverse entry points for targeted interventions. By leveraging this understanding, policymakers and practitioners can design more effective environmental strategies and maximize their impact on promoting sustainable living and increasing wellbeing.

---

183 Who engages and who follows through? Behavior-based segmentation and engagement with digital sustainability interventions

Byungdoo Kim[1,2], Johannes Reichl[3], Luca Farnia[4], Christian Klöckner[2], Stepan Vesely[2]
[1]King's College London, London, United Kingdom. [2]Norwegian University of Science and Technology, Trondheim, Norway. [3]Johannes Kepler University Linz, Linz, Austria. [4]Fondazione Eni Enrico Mattei, Milan, Italy

Mobile sustainability applications are increasingly used in public policy to translate pro-environmental intentions into everyday action, yet engagement remains uneven. This study explains engagement heterogeneity using behavior-based segmentation of sustainability app users. Using field data from a multi-country app (5,038 registrants; 92,513 user–Challenge observations), we identify four behavioral lifestyle profiles of app users via latent profile analysis: Low-Acquisition Non-Circular, New-Goods Intensive, Low-Acquisition Circular, and High-Consumption Compensatory. We then model two engagement stages: Challenge acceptance (mixed-effects logistic regression with user and Challenge random intercepts) and completion conditional on acceptance (beta-binomial regression). Profiles strongly

differentiated intervention entry: New-Goods Intensive and High-Consumption Compensatory users were more likely to accept Challenges than Low-Acquisition Non-Circular users, even after adjusting for sociodemographics. By contrast, profile differences in Challenge completion attenuated after accounting for demographic and material context; follow-through was higher among women and lower in larger dwellings. Across profiles, coin rewards increased acceptance while weekly mandated Challenges reduced uptake, indicating robust design effects alongside profile-specific contextual drivers. These results show that behavior-based segmentation helps diagnose who enters digital sustainability interventions and where post-entry frictions constrain persistence.

---

649 Caring Enough to Quit: Environmental Ethics and Departure from Antarctic Guiding

Zdenka Sokolickova[1], Elizabeth Cooper[1], Christy Hehir[2]
[1]University of Groningen, Groningen, Netherlands. [2]University of Surrey, Surrey, United Kingdom

What happens when the job you love begins to clash with your environmental values? This presentation explores that question through the experiences of 25 former Antarctic tour guides who made the difficult decision to leave the industry. Rather than focusing on tourists or consumer behaviour, we turn the lens to guides themselves—those who witness environmental change firsthand and are often deeply committed to protecting the places they work in.

Drawing on in-depth interviews, we show that quitting was rarely a sudden or simple choice. Instead, it emerged through a slow, emotionally charged process of reflection, doubt, and moral tension. Using theories of moral dilemmas, ethical negotiation, and environmental care, we unpack how guides moved from recognising environmental problems, to considering possible responses, to ultimately stepping away. In doing so, we break the familiar attitude–behaviour gap into a series of smaller gaps— that are navigated in a recursive, spiral-like way.

Our findings challenge the common assumption that caring for the environment always means staying involved or doing more. For these guides, withdrawing from Antarctic tourism was not a failure, but a meaningful act of care—for a fragile ecosystem and for their own ethical wellbeing. This research invites a rethinking of what pro-environmental action can look like in high-impact tourism settings.

INDIVIDUAL ORAL PRESENTATIONS:
Building and construction

Fri 3 July, 12:00 – 13:15, 39 MS 02

Chair: Monica Davis
Pratt Institute, New York, United States

---

568 Reclaimed wood use in construction: Comparative case of five European countries

Feng Tian-Davey, Angelina Korsunova, Anne Toppinen
University of Helsinki, Helsinki, Finland

Globally, construction sector generates significant material waste, with wood waste being the second largest after concrete. Using reclaimed wood prevents carbon from being released into the atmosphere, aligning with EU's goals of creating a sustainable circular economy. However, this has remained marginal so far. The aim of our study is to identify factors that have enabled the use of

reclaimed wood in construction by analyzing the already implemented projects from different EU countries.

Our study is a set of seven cases on the use of reclaimed wood in construction from five European countries: Finland, Norway, Denmark, Netherlands and Switzerland. Cases were identified through desktop search and selected based on the use extent of reclaimed wood. Cases are based on semi-structured interviewing of project managers, and other involved stakeholders (n=13).

Preliminary findings show that the use of reclaimed wood in construction is primarily driven by sustainability agendas and experimental initiatives of municipalities, research institutions, and specialized networks. As there are no standardized value chains for reclaimed wood, construction process is ad-hoc, necessitating strong commitment, flexibility and high tolerance for uncertainty. Sourcing of reclaimed wood takes place through network-based approach, and our data helps shedding light on ideas where and how reclaimed wood could be sourced, revealing creative applications of reclaimed wood in different types of buildings.

Our study is a unique compilation of built environment cases focusing on the use of reclaimed wood across different countries. Adopting a cross-national perspective enables identification of solutions that could be applied in different contexts.

---

155 Medium- and high-rise timber construction: The perspective of residents in south-western Europe

Aline Barlet, Régis Le Normand
ENSAP Bordeaux, Bordeaux, France

Faced with climate change and global environmental awareness, the construction sector has undergone significant transformations, including the increased use of timber to promote low-carbon buildings. Although the timber industry now has the knowledge and skills to develop medium- and high-rise timber structures, such buildings remain rare in south-western Europe (south-western France, Spain and Portugal). Beyond regulatory and technical obstacles, it is essential to better understand the perceptions of residents, as to date no studies have been conducted in this region, unlike in Northern European countries. This work aims to better understand the views of building users in order to dispel preconceived ideas that may lead to rejection of this type of housing.

The study, conducted by the GRECCAU Laboratory at ENSAP Bordeaux as part of the Eguralt project, funded by the European Regional Development Fund (ERDF) through the Interreg SudoE programme, aimed to identify the perceptions of the population in these different regions. A methodology based on two questionnaire surveys was proposed: the first targeting a representative sample of the population in each territory, and the second targeting residents of medium- and high-rise wooden buildings in France and Spain.

The results highlighted several key factors for promoting medium- and high-rise timber construction. It became clear that factors such as lifespan, sustainability/safety, resilience, etc. are essential. Finally, the results obtained make it possible to adapt the content and methods of disseminating information on timber construction, targeting both raising awareness among the general public and training professionals.

---

333 Coupling of building envelope-HVAC system and microclimate in cold regions of China: A neglected dimension in building energy performance analysis

Sinong Wu
Xi'an University of Architecture and Technology, Xi’an, China

While robust methods exist for independently analyzing building envelopes and HVAC systems in China's cold regions, a significant gap remains in understanding their integrated interaction with the microclimate. Current energy models typically treat climate as a static boundary, thereby overlooking the dynamic feedback loop inherent in the "Envelope-System-Microclimate" triad. This study aims to address this limitation by establishing and applying an interdisciplinary framework to elucidate this coupling mechanism. The methodology involves a critical synthesis of literature to define the framework, followed by its application through high-fidelity coupled simulations—integrating Computational Fluid Dynamics (CFD) for microclimate modeling with Building Energy Simulation (BES) for system performance—and validated against targeted field measurements in selected cold-region public buildings. This approach is designed to quantify the synergistic effects and the resultant feedback on energy loads. The research confirms that neglecting this loop leads to systematic predictive deviations. Furthermore, it is anticipated to yield specific, quantitative insights into how factors such as façade optical properties, HVAC operation schedules, and outdoor unit layout modulate the microclimate and, consequently, the overall energy performance. The principal novelty lies in consolidating this triad as a fundamental, interdependent unit of analysis and formalizing its operational pathways. This work challenges conventional siloed modeling paradigms, advocating for integrated performance assessment tools. For practice, it provides a critical evidence-based rationale for adopting holistic, climate-responsive design and operational strategies, ultimately contributing to more reliable, efficient, and sustainable building solutions in cold regions.

---

41 Reclaiming the shotgun house: Design education, entrepreneurial activation & economic revitalization in East Wilson, North Carolina, USA

Monica Davis[1], Asha Kutty[2]
[1]Pratt Institute, New York, USA. [2]University of North Carolina Greensboro, Durham, USA

Background: East Wilson's historic shotgun homes—iconic yet underutilized—sit at the nexus of cultural heritage and economic need in a predominantly Black and Hispanic neighborhood facing disinvestment.

Aims/Objectives/Research Questions: This project aims to: cultivate design literacy and career pathways for underrepresented youth; translate community heritage into viable, small-scale businesses for adults; and test whether an intergenerational, place-based model can convert vacant shotgun homes into community assets. Research questions: How do hands-on design studios affect youths' awareness of design careers? Can entrepreneurship workshops yield feasible business plans matched to shotgun typologies?

Method/Approach: A two-track program pairs a one-week student design studio (historic tours, drawing, adaptive-reuse proposals) with a 3–5-day adult entrepreneurship workshop (business modeling, zoning/code fit, financing, mentoring). Outputs include public exhibitions, pitch sessions, and selection of 1–2 candidate homes for preliminary cost estimating and rehabilitation planning, with materials compiled into a replicable toolkit.

Confirmed/Anticipated Findings: Pilot activity suggests strong student engagement and scalability to a pre-college design pipeline; anticipated outcomes include increased youth interest in design studies, 8–12 adult business plans tailored to shotgun forms, community attendance/feedback at exhibitions, and movement of selected homes toward rehabilitation, funding, and occupancy.

Novelty & Implications for Research and Practice: The project integrates preservation, interior architecture education, and micro-enterprise development within a single, place-anchored framework—linking studio learning to real market activation. The model offers measurable pathways to economic mobility and equitable preservation and is designed for adaptation in historic Black

neighborhoods across the Southeast.

INDIVIDUAL ORAL PRESENTATIONS:
Housing in social contexts

Fri 3 July, 12:00 – 13:15, 72 MS 03

Chair: Nichole (Nic) Campbell
Ohio University, Athens, United States

---

127 Efficient and equitable use of residential space: A psychological perspective and research agenda

Andreas Deuß, Anke Blöbaum, Ellen Matthies
Otto von Guericke University Magdeburg, Magdeburg, Germany

For ecological and social reasons, residential space in urban areas needs to be used more efficiently and equitably. Individuals who currently live in comparatively large dwellings can contribute to this goal by reducing their residential space—either by moving to a smaller dwelling (so-called downsizing) or by sharing their dwelling with others. Importantly, reducing residential space is a complex issue from a psychological perspective. Homes may fulfill a diversity of psychological functions, such as providing privacy, enabling self-expression, and offering room for social interaction. The fulfillment of these functions is central to residential satisfaction. However, reducing residential space may compromise this fulfillment. Viewed through a human-centered lens, individuals cannot be expected to voluntarily reduce their residential space under these circumstances, as doing so could negatively affect their residential satisfaction. Accordingly, the willingness to downsize or share is likely to remain low. This raises the question of how these functions can be fulfilled after downsizing or sharing, thereby making a more efficient and equitable use of residential space feasible. This presentation addresses this question. First, the key psychological functions that homes may fulfill are outlined. Next, drawing on existing literature, it is investigated how downsizing or sharing may compromise these functions. Finally, the implications of these insights are discussed, and a research agenda for impact-oriented environmental psychology is proposed. This agenda aims to identify ways to enable residential space reduction without undermining residential satisfaction. In this context, both downsizing and sharing will also be discussed in terms of their plasticity.

---

128 Innovative methods for assessing environmental quality in apartments: A closer approach to people and the environment.

Simone Barbosa Villa, Maria Isabel Nogueira de Oliveira
The Federal University of Uberlândia, Uberlândia, Brazil

Housing exerts a strong influence on the daily lives of residents, directly impacting their quality of life, expectations, and development possibilities. In social housing, negative impacts are frequently associated with both low construction quality and unsustainable resident habits, especially regarding energy efficiency, environmental comfort, and resource use. These inadequacies weaken the person-environment relationship and compromise the well-being of users and are still recurrent in housing developments in Brazil. Given this scenario, the institutional research presented here addresses the development of post-occupancy environmental quality assessment methods in housing, aligned with the Sustainable Development Goals (SDGs) and supported by innovative digital communication and information technologies. The article presents the digital questionnaire “MEUAPÊ”, designed to

assess the environmental quality—considering adequacy and comfort—of apartments in use, as well as to identify the role of residents in mitigating

environmental impacts based on the analysis of their daily habits and actions. The results of its application in the city of Uberlândia (Brazil) indicate low environmental quality indices in the analyzed dwellings, highlighting unsatisfactory comfort conditions and high environmental impacts. The information obtained aims to support the production of statistical and scientific data capable of contributing to the improvement of the environmental quality of future housing projects, as well as guiding public policies, standards, and legislation. Additionally, the tool acts as a means of disseminating information and raising awareness among users about housing and its environmental impacts, reinforcing its dual function of performance evaluation and promotion of sustainable practices.

---

723 Communicating with social tenants during retrofit in Virtual Reality: comparing two different scenarios

Christiaan Benning, Habiba Mukhtar, Huu Dat Nguyen, Arno Freeke, Clarine van Oel
Delft University of Technology, Delft, Netherlands

Effective communication with tenants is crucial for the successful performance of sustainable retrofit projects. Recent developments in immersive modelling can take full advantage of the potential of visuals to support a just, inclusive energy transition. By tracing what attracts attention, and what does not attracted attention, the current study aims to investigate the difficulty of two communicative scenarios to social tenants during a deep retrofit project . Before formally consenting tenants could immersive into a Virtual Reality module to support their choice for one of several options for kitchen (participation). The second was just before the actual start of the retrofit process explaining the hindrance (information). Given the vulnerability of the tenants, this study sought to investigate whether the two scenarios differ in the tenants' effort to allocate attention to Areas-of-Interest.

The study is part of the larger uVITAL project and concerned a retrofit project of a social housing association in the Netherlands. Narrative guidance was used to support tenants during immersion. 19 and 23 tenants participated in the choice and hindrance module respectively (mean age 48.9 (resp. 47.7 years; both sd = 17.5) immersed into VR while their gaze behavior was recorded using Tobii-integrated VR headsets. The data was analyzed in SPSS using linear mixed-effects modeling. Results showed clear difference in fixations, smooth pursuit and saccades between the two scenario's with a significant decrease in fixation, an increase in saccades and an increase in smooth pursuit in the participation scenario as compared to the information scenario.

---

200 Accessible housing in the United States: Twenty years of change and challenge

Nichole (Nic) Campbell
Ohio University, Athens, United States

Background: With the U.S. population aging, accessible housing features are crucial for older adults wishing to remain living independently. This study revisited the substantial gap between accessible home numbers and elderly household needs, as identified two decades ago (Memken & Earley, 2007).

Objectives: This research compared current accessible housing supply to demographic demand, examining changes in regional disparities since the original study. Research questions included:

- How has accessible housing supply shifted over 20 years relative to the 65+ population?
- How have regional trends evolved?

Methods: U.S. Census (2000, 2020) data and MLS real estate listings (Realtor.com) were analyzed using nonparametric and regression models to assess regional differences and the relationship between supply and demographic shifts.

Findings: Results confirm an intensifying gap between older adult households and the supply of housing with accessible features, surpassing previous projections. The Western U.S. now leads in relative supply, overtaking the Northeast, but all regions showed a shortfall, with supply lagging behind demand.

Implications: This longitudinal comparison revealed a worsening national deficit of housing and shifting regional patterns. The results highlight the urgent need for targeted policy and design interventions in both practice and research to better support aging in place. These findings provide valuable guidance for designers, architects, policymakers, and developers seeking to bridge the accessibility gap for older adults.

References: Campbell, N. A., & Memken. (2007). Accessible housing availability for the growing U.S. elderly population. *Housing and Society, 34*(1), 101-115.

INDIVIDUAL ORAL PRESENTATIONS:
Inclusive design

Fri 3 July, 12:00 – 13:15, 32 MS 03

Chair: Benjamin Cleveland
University of Melbourne, Melbourne, Australia

---

571 Quality of life in the Fabric District – Timișoara, Romania – environmental psychology study

Corina Mirela Ilin, Alexandra Stancu, Patricia Albulescu, Alin Semenescu
West University of Timișoara, Timisoara, Romania

The research is based on the theoretical model PREQIs (Bonaiuto et al., 2015). PREQIs is a scientifically validated instrument, which includes a set of indicators that measure how people perceive the quality of their urban residential environment. The questionnaires were applied in the field and online between December 2024 and March 2025, the sample consisting of 153 respondents, residents of the Fabric neighborhood, Timișoara, Romania. The quantitative research was complemented by qualitative focus group research. The results reflect how the residents of the neighborhood perceive the quality of urban space measured by 21 relevant aspects. Two aspects are particularly relevant, the degree of residential satisfaction of the residents and the emotional attachment to the neighborhood. The analyses revealed that residential satisfaction correlated most strongly with relaxation (r = 0.53), sociability (r = 0.44), building aesthetics (r = 0.41), school services (r = 0.39) and maintenance (r = 0.37), indicating that an increase in satisfaction with these aspects will lead to a proportional increase in residential satisfaction. In order to improve residential satisfaction, it would be recommended that public interventions and policies focus on aspects such as neighborhood maintenance, building aesthetics and perceived sociability. In contrast, the focus groups also suggest community-based solutions, emphasizing the organization of local events and initiatives to educate residents about the importance of active involvement in neighborhood life. This methodological complementarity emphasizes the importance of perceptions of the quality of the urban and residential environment, which influences well-being in general, its assurance depending on participatory governance.

---

246 Accessibility justice and supply–demand mismatches of disability-relevant public services: Evidence from Lianyungang, China

Ying Sun[1], Zhizhe Sun[2], Xiangfeng Li[1]
[1]Southeast University, Nanjing, China. [2]Hunan University, Hunan, China

Background: Equitable accessibility to disability-inclusive public services is fundamental to wellbeing and environmental justice. Yet rapidly urbanising cities often show systematic mismatches between facility provision and the spatial distribution of high-need populations, motivating replicable, action-oriented diagnostic frameworks.

Aims: This study examines the spatial configuration, supply–demand mismatches, and equity of disability-relevant public services and derives planning implications for inclusive provision.

Methods: Focusing on Lianyungang's urban core, we assess four facility categories—specialised disability services, healthcare, education, and sports/recreation. Network-based spatial accessibility is quantified using a three-step floating catchment area (3SFCA) model based on POI and road-network data, with facility supply weighted by service-capacity proxies. Demand is operationalised via disability population density, augmented by older-adult density to capture compound need. Equity is evaluated using population-weighted Lorenz curves and Gini coefficients. To
support actionable targeting, Z-score standardisation classifies spatial units into mismatch typologies (high/low supply × high/low demand), highlighting low-supply–high-demand priority areas.

Preliminary findings: Lorenz curves depart from the equality line, indicating uneven accessibility benefits. Inequity is most severe for education (Gini=0.73) and sports/recreation (0.64), with specialised disability services also markedly unequal (0.54), whereas healthcare is comparatively less unequal (0.43). Overall, results suggest a centre–periphery divide in service opportunities and potential cross-boundary travel burdens for disabled and older residents.

Novelty and implications: By integrating accessibility modelling with equity diagnostics and mismatch identification for high-need groups, the workflow bridges measurement and planning action, informing prioritised investments and equity-sensitive facility planning aligned with sustainability-as-wellbeing.

---

134 Classifying personal evaluation structures in publicly used space

Jingya Li[1], Naoyuki Oi[2]
[1]Kozo Keikaku Engineering Inc., Kumamoto, Japan. [2]Faculty of Design, Kyushu University, Fukuoka, Japan

Public spaces are designed for multiple users and purposes. However, when individuals decide where to spend time, their choices depend on situational factors, intended activities, and preferences. To understand why people choose certain places, it is essential to ask users and uncover their underlying evaluation structures.

This study aims to classify individuals' evaluation structures to identify what matters to each person when selecting publicly used spaces. University students were chosen as research participants because they are relatively independent financially and psychologically, have flexible schedules, engage in diverse activities, and therefore can evaluate spaces from multiple perspectives.

To examine personal evaluation structures, this study employed the Evaluation Grid Method, which is a developed form of the Repertory Grid Method grounded in Kelly's Personal Construct Theory and refined by Sanui et al. (1986). This method is widely used in interview-based research. The target spaces were parks and cafes, which university students commonly use in various situations, either

alone or with different types of companions. For companion scenarios, participants were asked to imagine spending time with family members, friends, or romantic partners.

The analysis suggests three types of users:

1. Individuals whose choices are guided primarily by their own stable preferences, showing similar evaluation structures across situations.
2. Individuals who have clear preferences but adjust them depending on the situation.
3. Individuals whose evaluation structures change significantly depending on the social context or intended activity.

In conclusion, understanding different user types and their evaluation structures can support more inclusive design strategies.

---

94 Inclusive spaces to support the learning, health, and well-being of school students with neurodiversity and/or disability

Benjamin Cleveland
University of Melbourne, Melbourne, Australia

Background: This oral presentation discusses the first 18 months of work on an Australian Research Council Linkage project titled 'Designing Learning Spaces for Diversity, Inclusion & Participation'.

Aim/research question: The project aims to develop an evidence base for designing or modifying mainstream schools to be more inclusive for students with neurodiversity and/or disability. The overarching research question is: How can schools be designed to make it easier for students with disabilities to participate?

Approach: A mixed-methods approach has been undertaken, comprising four studies to date: 1) a scoping review of the literature, 2) photovoice research with students exploring their preferred and non-preferred school environments, 3) a large-scale online survey of students, teachers, school leaders, and parent/carers analysing the environmental barriers and enablers of students' participation, and 4) a study of students' perceptions of lighting, air quality, thermal comfort, and acoustic conditions. Further research, including four PhD projects, is being carried out by a multidisciplinary team.

Findings: Early findings suggest that simply providing accessible learning spaces is not enough to support students' participation. Being present is required but insufficient. Learning environments must also cater to a range of human needs, offering different settings for learning and social activities that address students' sensory needs and learning support requirements.

Novelty and implications for research and practice: This project expands the existing literature by both highlighting the limitations of the built environment for students with neurodiversity and/or disability and identifying design features that support better participation at school.

---

iaps INTERNATIONAL ASSOCIATION PEOPLE-ENVIRONMENT STUDIES

UNIVERSITY OF SURREY

SUSTAINABILITY AS WELLBEING