

Environmental Psychology

Enhancing our world

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Introduction

Environmental psychology is the study of how we, as individuals and as part of groups, interact with our physical settings—how we experience and change the environment, and how our behavior and experiences are changed by the environment. In environmental psychology, “environment” includes both natural and built settings, that is, natural resources, parks, homes, workplaces, public spaces, from the personal scale to the room, building, neighborhood, urban, wilderness, and global scales.

Environmental psychology (EP) is a relatively new field—about 50 years old now--that has grown rapidly in response to the declining health of the natural environment and the need to design buildings that better reflect the needs of their users. One of its primary goals is to understand

individuals’ transactions with their environments, and to use this knowledge to influence policies that help promote sustainable behavior and create more liveable and green built environments.

The field is psychological in that it focuses on the thoughts, attitudes, and behaviors of individuals and small groups in relation to their environment. Among other things, environmental psychologists examine how our transactions with our work environment are related to our satisfaction and productivity, how our transactions with our home environments are connected to our well-being, and how natural environments promote mental health.

Environmental psychologists ask such important questions such as, “What prevents people from behaving in a sustainable manner?” and “What can we do to encourage environmentally friendly behavior?” and “How can

buildings serve the needs of their users?” Answers to questions like these have already had a significant impact on environmental behavior, and are described later.

A BIT OF HISTORY

Although EP is a relatively new branch of science—only recognized as a field since the late 1960s—some of its ideas have been part of psychological research almost since psychology’s inception. Its modern roots can be traced back to the middle of the 20th century, with the ideas of researchers such as Egon Brunswik (1903-1955) and Kurt Lewin (1890-1947). Brunswik argued that psychologists should focus on an organism’s environment just as much as the organism itself. Like Brunswik, Lewin viewed the environment as essential for determining behavior. He also emphasized that research should be driven by real-world social problems, and should strive to solve these problems. His work inspired others such as Roger Barker, Urie Bronfenbrenner, and Robert Sommer, some pioneers of EP.

The late 1940s and 1950s experienced an increase in research on psychological processes and their relation with physical surroundings. These earlier studies focused largely on human interaction with the built environment, and were categorized as research in “architectural psychology.” The primary goal of many of these studies was to improve human well-being and satisfaction by designing or altering built environments.

The 1960s was a time of increased societal awareness, when people started becoming more concerned

Topics

- Ecological consequences of human actions
- Sustainability and climate change
- Psychological aspects of resource management
- Psychological and behavioral aspects of people and nature
- Place attachment and place identity
- Environmental risks and hazards: perception, behavior, and management
- Personal and group-based perceptions and evaluations of buildings, and natural landscapes
- Design and evaluation of workplaces, schools, homes, public buildings, and public spaces
- Cognitive mapping, spatial cognition, and wayfinding
- Leisure and tourism behavior in relation to their physical settings
- Stress related to physical settings
- Social space: crowding, privacy, territoriality, personal space

with the health of the natural world. This time period witnessed rapid growth in EP. Researchers began to study environmental issues, such as how human activity negatively influences the biophysical environment, and how human-caused problems (such as noise and pollution) affect human health and well-being. Topics such as these soon became an essential part of what environmental psychologists did.

During the 1960s, the first EP conference, journal, and PhD program were established, as well as the largest environment-behavior organization, the Environmental Design Research Association (EDRA). Today, most large national and international psychology organizations have a section or division devoted to EP.

HALLMARKS

EP encompasses an ever-growing variety of topics. Today, the field is characterized by a number of key goals and values.

Environmental psychologists:

- Seek to improve our stewardship of natural resources and the built environment
- Study everyday settings
- Recognize that individuals actively cope with, and shape, environments—they do not passively respond to environmental forces
- Work in conjunction with other disciplines

Journals

The *Journal of Environmental Psychology* and *Environment and Behavior* are international, peer-reviewed academic journals with strong impact factors that focus on environmental psychology.

Some Key Publications

- Clayton, S. D. (Ed.) (2012). *The Oxford handbook of environmental and conservation psychology*. New York: Oxford University Press.
- Fleury-Bahi, G., Pol, E., & Navarro, O. (Eds.). (2017). *Handbook of environmental psychology and quality of life research*. Springer International Publishing.
- Gifford, R. (2014). *Environmental psychology: Principles and practice*. (5th ed.) Colville WA: Optimal Books.
- Gifford, R. (2014). Environmental Psychology Matters. *Annual Review of Psychology*, 65, 541–579.
- Steg, L., Van den Berg, A. E., & de Groot, J. I. M. (Eds.) (2012). *Environmental psychology: An introduction*. New York: Wiley.



Making a Difference

Environmental psychologists help to improve the world in a variety of ways. Sometimes this impact is dramatic. Environmental psychologists have helped to influence the shape of cities, reduce crime, and even save lives. Other times, they influence the world in more subtle ways, such as by making hospitals more navigable, or making national parks more pleasant. Next, we celebrate a few of the ways that EP changes the world for the better.

PROMOTING SUSTAINABILITY

One of the most important challenges that EP is helping to overcome is to apply psychological knowledge to help preserve the natural environment. Many threats to environmental sustainability are caused by human behavior, and so targeting human behavior is paramount for protecting nature and natural resources.

Among other activities, environmental psychologists identify behaviors that can and should be changed to improve environmental quality, determine which factors affect these behaviors, and develop and evaluate interventions to change them.

Most people have some concern for the environment, and this concern stems in part from egoistic, altruistic, and biospheric environmental values (e.g., Schultz, 2001). Knowing what individuals value helps environmental psychologists develop intervention policies—if a person or group's primary concern is egoistic, for example, they can focus on



interventions which emphasize the personal benefits of caring for the environment, such as lower electricity bills.

To add to the challenge, many individuals rebound from their pro-environmental behaviors. For example, people who reduce energy consumption in one area tend to compensate by increasing consumption in another (Otto, Kaiser, & Arnold, 2014). Environmental psychologists seek not only to alter behavior, but to ensure this altered behavior leads to real and lasting results.

The above are just a few developments in this area. See Steg and Vlek (2009) for an in-depth review on encouraging pro-environmental behavior.

ENVIRONMENTAL IDENTITY AND NATURE

How individuals think about themselves can be an important predictor of pro-environmental behaviors. Those who identify as pro-environmental tend to engage in more pro-environmental behaviors (Whitmarsh & O'Neill, 2010).

Environmental psychologists use this knowledge to help influence pro-environmental actions, such as using marketing strategies that encourage greener identity.

Emotional connection to the natural world is an important predictor of well-being and ecological behavior. By helping people develop bonds with nature, environmental psychologists promote sustainable behavior and overall well-being.

RESTORATIVE ENVIRONMENTS

Another key point of interest in EP is the effects of urban and natural settings on people. A growing number of environmental psychologists specialize in restorative environments, places that help people recover from day-to-day psychological overload. Nature walks, for example, can lead to stress reduction, improved attention, and decreased anger (Hartig, Evans, Jamner, Davis, & Gärling, 2003). This research reveals the importance of preserving accessible green areas, and has implications for how we structure cities and homes.

PLACE ATTACHMENT

Place attachment is the bond between a person and a place. It is a complex reciprocal association involving cognition, affect, and behavior (Lewicka, 2011; Scannell & Gifford, 2010).

With the rise of globalization and mobility, place attachment has become of particular interest, as person-place bonds have become increasingly tenuous. This in turn can

influence the perceived safety and pleasantness of an environment, and can lead to people being less protective of these places. Because of this, and because place attachment is associated with environmental risk perception, place attachment is very important for understanding pro-environmental behavior.

Place attachment can be a means of influencing behavior in positive ways, for example by encouraging the use of public spaces such as national parks. Place attachment is also relevant for disaster psychology, and has been used to help understand and mitigate the grief experienced by those forced to relocate.

WAYFINDING

Knowledge of how people find their way in the built and natural environment has a wide range of applications. For example, psychologists have used this research to help catch criminals (Canter & Larkin, 1993) and locate persons lost in the wilderness (Heth & Cornell, 1998). It has also been used to discover ways to more quickly evacuate dangerous areas, such as a

burning hotel (Kobes et al., 2009) or a smoky railway tunnel (Cosma, Ronchi, & Nilsson, 2016). Wayfinding research has also helped to develop head-mounted displays that can aid firefighter navigation in emergencies (Wilson & Wright, 2009).

ENHANCING BUILDING DESIGN

EP first started making its mark in the world of architecture. For decades, environmental psychologists have been working to improve buildings by focusing on the human element of building design. Environmental psychologists ask questions such as, How do people find their way around a building? What do building users need and desire in a building? How can this knowledge be applied to modern architecture? Answers to these questions have led to more navigable hospitals (e.g., Carpman, Grant, & Simmons, 1983-1984), to classrooms that increase learning and participation (e.g., Sommer & Olsen, 1980; Wollin & Montagne, 1981), and to decreased frustration in built settings (e.g., Wener & Kaminoff, 1983).

CLASSIC RESEARCH HIGHLIGHTS

Not only does EP shape buildings, neighborhoods, and parks, but it has even been used to design cities. For example, an urban designer applied cognitive mapping principles to the urban design of Ciudad Guyana, a planned Venezuelan city that was created to centrally amalgamate several existing small towns (Appleyard, 1976).

Robert Sommer's book *Personal Space* is one of the most influential texts on user-centered design. It covers topics such as privacy and spatial invasion, and how applying these principles to the co-operative workplace can improve performance and well-being. Originally published in 1969, *Personal Space* remains highly relevant to this day, and continues to be used in the design of shared digital spaces.

Irwin Altman's book *The Environment and Social Behavior: Privacy, Personal Space, Territory, Crowding* (1975) pioneered the recognition of the social aspects of environmental psychology, how we use the space between us, and how the environment influences our use of that space.

Environmental Psychology Organizations

The following organizations all play important roles for environmental psychologists, depending on their specific interests and where they live.

IAAP DIVISION OF ENVIRONMENTAL PSYCHOLOGY

<https://iaapsy.org/divisions/division4/>

This is the global-level home of environmental psychologists. It is part of the International Association of Applied Psychology.

The purpose of Division 4 is to study people's interactions with their physical environments, and to use this knowledge to improve our physical settings. Division 4 invests in EP knowledge about buildings, parks, and the atmosphere, and strives to reduce poverty, crime, climate change, and other negative aspects of the built environment.

INTERNATIONAL ASSOCIATION FOR PEOPLE AND THEIR SURROUNDINGS (IAPS)

www.iaps-association.org

Founded in 1981 in Europe, IAPS is the now the home of environmental psychologists from about 40 countries. It is an inter-disciplinary forum of scholars who come from a variety of backgrounds, including environmental psychology. Joined by a common interest in people's interaction with the environment, the primary goal of IAPS members is to improve quality of life. They do this



not only through research collaboration, but also through lobbying efforts that lead to policy change.

APA DIVISION 34: ENVIRONMENTAL POPULATION AND CONSERVATION

www.apadivisions.org/division-34/

The home of environmental psychologists within the American Psychological Association (APA).

ENVIRONMENTAL DESIGN RESEARCH ASSOCIATION (EDRA)

www.edra.org

EDRA is a large association of environmental psychologists and others who study and advocate for environments that improve quality of life. EDRA's function is to advance research that benefits both the built and natural environments, and it has been doing so since 1968.

DGPS: FACHGRUPPE UMWELTPSYCHOLOGIE

<http://fachgruppe-umweltpsychologie.de/>

This section of The German Psychological Society (DGPs) hosts

the biannual International Conference on Environmental Psychology.

ASSOCIATION POUR LA RECHERCHE EN PSYCHOLOGIE ENVIRONNEMENTALE (ARPENV)

<http://arpenv.weebly.com/>

ARPEnv is the French association of researchers, practitioners, and teachers in environmental psychology.

CPA SECTION ON ENVIRONMENTAL PSYCHOLOGY

www.cpa.ca/aboutcpa/cpasections/environmentalpsychology/

The home of environmental psychologists within the Canadian Psychological Association.

MAN-ENVIRONMENT RELATIONS ASSOCIATION (MERA)

www.mera-web.jp

MERA is the home of environmental psychologists in Japan. It is affiliated with IAPS and EDRA; the three organizations share core values and goals and also hold joint seminars.

Graduate Programs in Environmental Psychology

A growing number of universities offer formal or informal graduate programs in psychology departments, schools of architecture, and other departments. The following are some of the top EP programs around the world, taken from the American Psychological Association website ("Graduate Programs in Environmental and Conservation Psychology," 2017).

OFFICIAL PROGRAMS

City University of New York

gc.cuny.edu/Page-Elements/Academics-Research-Centers-Initiatives/Doctoral-Programs/Psychology/Training-Areas/Environmental-Psychology

This five-year PhD program collaborates closely with the social/personality psychology program and the human geography program. The program's goal is to increase practical knowledge that will

lead to a more just and sustainable environment.

University of Surrey (UK)

surrey.ac.uk/postgraduate/environmental-psychology-msc-2018

The University of Surrey offers an MSc graduate program. It is one year long, consisting of eight classes and a dissertation.

The aim of the program is to provide students with both theoretical and practical knowledge of EP. It emphasizes research that has practical benefits for policy and planning.

Colorado State University (USA)

psychology.colostate.edu/aps/

The Applied Social and Health Psychology MA and PhD programs at CSU offer a concentration in EP. Students learn methodologies and techniques for investigating such topics as managing natural resources, promoting sustainable behaviour, and designing learning environments. The program is flexible, and students can take on seminars and research projects that work towards individual career goals.

University of Victoria (Canada)

web.uvic.ca/~esplab/

UVic Psychology graduate students have the option of entering the Individualized Program in EP.

Coursework is determined by the broad environmental psychology interests of students in consultation with their supervisor, Dr. Robert Gifford.

Humboldt State University (USA)

humboldt.edu/programs/psychology

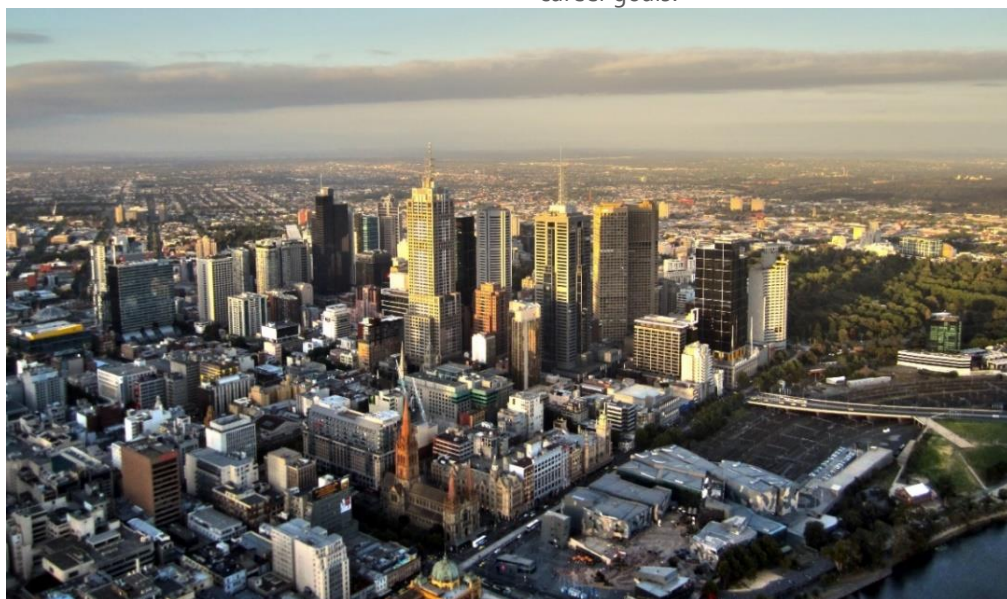
Humboldt offers a two-year MA program in Social and Environmental Psychology. Students study human-environment interactions, environmental issues, and how to positively influence others towards addressing environmental concerns. Successful graduates are prepared for work in organizations that are concerned with the environment, and may also pursue PhD studies.

PROGRAMS WITH SOME EP CONTENT

Many other universities offer programs with close ties to EP, such as ecotherapy, ecopsychology, and human and social ecology. Here are some of the strongest programs with EP content.

USA

- Arizona State University
- California State University, San Marcos
- College of the Atlantic, ME
- College of Wooster, OH
- Connecticut College
- Cornell University, NY
- Indiana University
- Lewis & Clark College, OR





- Minnesota State University, Mankato
- New York University
- Pennsylvania State University
- Prescott College, AZ
- University of Arizona
- University of California, Irvine
- University of California, Santa Barbara
- University of Colorado, Denver
- University of Illinois
- University of Michigan
- University of New Hampshire
- University of Utah
- University of Wisconsin, Milwaukee
- University of Wisconsin, Superior
- University of Washington

Worldwide

- Carleton University, Ontario (Canada)
- Lakehead University, Ontario (Canada)
- Lund University of Technology (Sweden)
- Universidad Nacional Autónoma de México (UNAM), Mexico City
- Royal Roads University, British Columbia (Canada)
- Tallin University (Estonia)
- University of Barcelona (Spain)
- University of Melbourne (Australia)
- University of New England (Australia)
- University of Rome, La Sapienza (Italy)
- York University, Ontario (Canada)
- Groningen University (The Netherlands)

See also the universities of the key researchers, in the next section.

A Sampling of Key Environmental Psychologists

Here we list a few of the many experts in EP from around the world, according to country. Around the globe, about 1000 researchers identify partly or wholly as environmental psychologists. Search the programs on the previous two pages to find other experts.

To find other environmental psychologists who may be near you or have similar interests, check out this global census:

web.uvic.ca/~epcensus/page1.html

USA

Barbara Brown, University of Utah



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Professor Brown's research interests include the linkages between the physical environment and human behavior, with special focus on the community design, health, sustainability and place attachment.

Gary Evans, Cornell University



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Professor Evans researches how the physical environment affects health and well-being among children, focusing on environmental stressors, housing, learning environments, and the environment of poverty. He also does work on children's environmental attitudes and behaviors.

Susan Clayton, College of Wooster



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Professor Clayton is interested in understanding and promoting a healthy relationship between humans and nature. She also studies how the environment shapes identity, and the perceptions of justice within the context of environmental challenges.

Frances (Ming) Kuo, University of Illinois



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Professor Kuo's research shows that urban greening can reduce aggression, crime, and ADHD symptoms. It also promotes self-discipline and academic achievement in children, as well as health across the lifespan.

Daniel Montello, UC Santa Barbara



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Professor Montello studies navigation in built and natural environments, spatial learning and development, the psychology of maps and GIS, spatial aspects of social behaviour, and other issues related to spatial and geographic cognition.

Rachel Kaplan, University of Michigan



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Professor Kaplan (emerita) has focused on understanding the role the environment plays in helping people become more reasonable, effective, and psychologically healthy.

David Seamon, Kansas State University



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Professor Seamon studies the ways that the natural and built environments contribute to human well-being. His research includes human aspects of design as well as environmental and architectural aesthetics. His most recent book is *LIFE TAKES PLACE* (Routledge, 2018).

Carol Werner, University of Utah

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Professor Werner (emerita) developed and evaluated education campaigns for sustainable living. Her work includes using cognitive processing and normative influence to increase mass transit use and recycling, and reduce energy consumption and toxic product use.

Robert Sommer, UC Davis



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Professor Sommer is a pioneer in EP with influential research on the learning environment as well as personal space. He continues to be a consultant for the design of facilities, such as hospitals and prisons.

Daniel Stokols, UC Irvine



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Professor Stokols' research emphasizes the health and behavioral impacts of environmental stressors, applications of environmental design research to urban planning, the environmental psychology of the Internet, and the

ecology of collaboration in cross-disciplinary science teams.

**Ann Devlin,
Connecticut
College**



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Professor Devlin specializes in the creation of more humanistic environments for healthcare, including psychotherapy offices, and also facilities that house the elderly. A secondary research emphasis is way-finding.

**P. Wesley Schultz,
California State
University, San
Marcos**



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Professor Schultz focuses on social marketing and behavior change. Recent projects include studies on recycling, energy and water conservation, the behavioral dimensions of climate change, and cross-cultural research on environmental attitudes.

**Jeff Joireman,
Washington State
University**



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Professor Joireman's research topics include reactions to repeated warnings about depleting resources, and the association between Christian orthodoxy and environmentalism. He acts as associate editor for the *Journal of Environmental Psychology*.

**Richard Wener,
New York University**



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Professor Wener studies the way correctional architecture affects

facility operations and the behaviour of staff and inmates. He has studied ways to reduce violence, vandalism, and stress in correctional settings, and written about using this information to support humane conditions in detention settings.

CANADA

**Robert Gifford,
University of
Victoria**



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Professor Gifford and his lab members investigate a range of topics within environmental psychology, from climate change and sustainability to architecture and place attachment. He is a generalist within the field who also develops measurement scales and general models.

**Jennifer Veitch,
National
Research
Council**



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Dr. Veitch is a Principal Research Officer at the National Research Council of Canada. She researches the effects of indoor environmental conditions, particularly lighting, on people's health, well-being, and performance.

UNITED KINGDOM

**Sabine Pahl,
Plymouth
University**



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Professor Pahl researches behaviour change, particularly in the area of protecting marine environments and energy efficiency. She also examines

restorative effects of natural environments, including the use of natural environments in healthcare.

**David Uzzell,
University of
Surrey**



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Professor Uzzell's interests primarily focus on public understandings of climate change, critical psychological approaches to changing consumption and production practices, environmental risk, and heritage interpretation and identity formation.

ITALY

**Marino Bonaiuto,
University of Rome**



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Professor Bonaiuto has researched sustainability, place attachment, and the environmental psychology of urban environments, including perceived quality of neighbourhoods, among other things.

**Mirilia Bonnes,
University of
Rome**



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Professor Bonnes has authored scientific publications on several topics of environmental psychology, ranging from architectural psychology to psychology for environmental sustainability issues.

**Giuseppe Carrus,
University of
Rome**



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Professor Carrus' research concerns the identity and well-being of people in relation to the environment, and

the association between attitudes and behavior in the fields of the environment, health and nutrition.

Fernando Fornara,
University of
Cagliari



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Professor Fornara's research includes perceived quality of healthcare and urban environments, psychometric tools measuring lay evaluation of design attributes, and normative influence on proenvironmental choices.

FRANCE

**Christophe
Demarque, Aix-
Marseille University**



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Professor Demarque's research focuses on decision-making and motivation in the field of pro-environmental behavior, as well as the perception of environmental issues.

**Liliane Rioux, Paris Nanterre
University**

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Professor Rioux specializes in appropriation of workspaces, attachment to workplaces, comfort at work, and pro-environmental behaviours at work.

SPAIN

**Ricardo Garcia-
Mira, University of
A Coruña**



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Professor Garcia-Mira coordinates EU projects GLAMURS (sustainable lifestyles) and LOCAW (carbon

reduction), and is a research partner for TRANSIT (social innovation), CONNECTING (nature-based solutions), and SMARTEES (energy transition and social innovation).

**Bernardo
Hernandez,
University of La
Laguna**



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Professor Hernandez studies place attachment, place identity, environmental beliefs, and the relationship of these processes with sustainable behaviour and environmental crime.

THE NETHERLANDS

**Henk Staats,
Leiden University**



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Dr. Staats researches environmental preferences, psychological restoration, and the analysis and change of pro-environmental behavior.

**Linda Steg,
University of
Groningen**



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Professor Steg specializes in understanding environmental behaviour, the effects and acceptability of strategies aimed at encouraging pro-environmental behaviour, and how and why acting pro-environmentally relates to wellbeing.

**Joop de Boer, Vrije
Universiteit
Amsterdam**



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Dr. de Boer has researched energy conservation, environmental stressors, and frame-based information tools on climate change.

GERMANY

**Florian Kaiser,
Otto von Guericke
University
Magdeburg**



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Professor Kaiser develops an attitude theory that explicitly involves the context of people's behavior. Topics of interest include environment and climate protection and evidence-based policy support.

**Sebastian
Bamberg,
Bielefeld
University of Applied Sciences**



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Professor Bamberg researches sustainability, environmental attitudes, and ways to promote pro-environmental behaviour.

DENMARK

**John Thøgersen,
Aarhus University**



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Professor Thøgersen researches social and environmental marketing, consumer and environmental protection, and environmentally responsible values, attitudes, and behaviour.

POLAND

**Maria Lewicka,
Nicolaus
Copernicus
University in Toruń**

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Professor Lewicka's research areas include psychology of human relationships with place of residence, place theories, place memory, and behavior of people in urban environments.

**SWEDEN**

**Patrik Sörqvist,
University of
Gävle**

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Professor Sörqvist's research concerns both cognitive and social perspectives on the psychology of the built and natural environment, with a particular focus on people in the work environment.



**Terry Hartig,
Uppsala University**

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Professor Hartig studies restorative experiences in everyday settings, notably natural settings and the home. This work helps inform environmental design and policy measures that promote health and well-being.



**Tommy Gärling,
University of
Gothenburg**

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Professor Gärling conducts research on travel, such as sustainable travel behaviour and how travel affects emotional well-being.



**Maria
Johansson,
Lund University**

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Professor Johansson's research interests include travel mode choice, effects of energy-efficient lighting, capturing perceived lighting qualities, human interaction with wildlife focusing on fear of large carnivores, and supported housing for people with severe mental illness.



**JAPAN
Toru Ishikawa,
University of
Tokyo**

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Professor Ishikawa researches human spatial cognition and behavior. He studies cognitive maps, wayfinding and navigation, and spatial thinking.



**BRAZIL
Hartmut Gunther,
University of
Brasília**

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Professor Gunther's work emphasizes the association between human and urban development, the psychology of transportation, ecological behavior, and methodology in EP.



**NEW ZEALAND
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Abrahamse,
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Professor Abrahamse focuses on the human dimensions of environmental



change. For example, she studies attitudes, social norms, and habits to help understand what prevents or encourages people from behaving pro-environmentally.

**Taciano Milfont,
Victoria
University of
Wellington**

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Professor Milfont researches pro-environmental attitudes, and how they influence behavior, as well as policy-based research to promote ecological behavior, health, and wellbeing.



**AUSTRALIA
Joseph Reser,
University of
Queensland and
Griffith University**

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Professor Reser's recent work focuses on risk perceptions and psychological adaptation responses to climate change and other environmental stressors, the design and evaluation of institutional settings, and psychosocial environmental impact assessment in natural environments.



**Donald Hine,
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England**

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Professor Hine's work focuses on understanding and solving a range of environmental problems related to resource over-consumption, climate change, air pollution, and invasive weeds and animals.



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