



Theme 7: Environment in a Shrinking World

Perception of Semi-Natural Urban Green Spaces

Intergenerational Preferences Between Youth And Elderly: Public Outdoor Settings That Promote Well-Being.

Layne, Michael (North Carolina State University, NC).

Segregation of the population into life cycle stages and the related decrease in the active participation of all generations in young people's lives continues to undermine their self-esteem and cripple their capacity to care. Just as a reduction in intergenerational interaction has led to isolation, an increase in contact between generations would lead to more enriching opportunities to share knowledge, skills, and affection. Given the fact that public outdoor settings could provide interactive opportunities, the purpose of this pilot study was to examine the relationship between outdoor settings and the perception construct, well-being, for both youth and elderly. Using photographic simulations, a preference survey was conducted with 27 elderly and 24 design students. The results point to variations in light, contiguous buildings, prospect and refuge, adjacency to open space, multiple-use and group/paired meeting opportunities as being required for creating settings that would be mutually supportive. In addition, natural settings, open spaces, lack of appropriate seating, water, circulation pathways, limited overhead cover, non-maintained areas, and inaccessible settings should be avoided. Since current research indicates that intergenerational interaction is important to the well-being of both elderly and youth, the results of this age-comparative study could help to improve the design of public outdoor spaces.

The Impact Of Urban Forests On Elderly People In Long Term Settings: A Multicultural Perspective.

Alves, Susana (University of Wisconsin-Milwaukee, WI), Betrabet, Gowri (University of Wisconsin-Milwaukee, WI), and Cantor, Marleen (University of Wisconsin-Milwaukee, WI).

This research project addresses a lack of research literature dealing with the role of culture and social in-

teraction among elderly residents in long term care environments, specifically as it pertains to interaction with/within nature. The project aims at assessing the influence of interaction with urban forests-particularly nature-related activities-on health outcomes of two elderly institutionalized groups-Spanish-speaking Hispanic immigrants, and English-speaking non-Hispanic Whites. The project consists of three phases: a) a systematic and comprehensive review of relevant research literature; b) a quasi-experiment examining, in a more controlled way, residents' interaction with nature; and c) case-studies documenting residents' and staff responses to nature-related interaction and activities in various long-term care facilities. We will present the results of the first phase of this project; a theoretical framework that organizes and interprets patterns found in a systematic review of research literature. The theoretical framework integrates the role of cultural factors and social activities in elders' interaction with natural environments, showing how elements of the physical environment, individual preferences and values, and mode of interaction, all influence the resulting health-related outcome. This framework serves not only to guide our research project but provides a theoretical basis for future much-needed research in this field.

From Exotic To Native: Conceptualization And Evaluation Of Melbourne's Urban Parks.

Bitar, Hassan (The University of Melbourne, Melbourne).

This study looked at how the public conceptualizes and evaluates urban parks in Melbourne, Australia. Forty visitors to The Melbourne Royal Botanical Gardens participated in the study. Seventy photographs of park environments were taken in thirty different urban parks and used as stimuli. Response data were collected using two photo-sorting techniques (multiple sort and rank order sort) and open-ended questions. Cluster and Multidimensional Scaling (MDS) analyses were used to analyze the photo sorting data. Eleven environmental categories and associated preferences were defined. Densely forested, natural Australian landscapes that contained water ranked highest in preference and open, flat, dry landscapes with few trees ranked lowest in preference. In addition, there were four dimensions underlying the response pattern: wa-

ter/no-water, formal/informal, native/exotic and open/closed. The open-ended descriptions revealed a variety of associated meanings and supplemented the MDS results. Given the historical British influence on park design in Australia, it was interesting to note that scenes of native bushland vegetation were more highly preferred than formal, exotic, "English" garden scenes. On a practical level, these results can be used to inform park designers and managers about public aesthetic preferences.

The Relative Importance Of Nature And Parks In Decisions To Buy Housing.

Marans, Robert (University of Michigan Taubman College of Architecture and Urban Planning - MI).

This paper examines the role of natural resources in the decision to buy housing in a rapidly suburbanizing metropolitan area. Working within three fringe counties in the Detroit area, questionnaires and focus groups interviews with recent homebuyers were used to answer several questions including: To what extent do homebuyers in outlying areas seek natural environments and other open spaces when looking for a place to live? What are the individual, social, environmental and economic benefits that homebuyers derive from nature and parks? What, if any, disbenefits are associated with natural areas? What do homeowners see as changes in the natural resources around them in the near and distant future? The work was guided in part by a model of the land development process offered by Beatley and Manning (1997). A modified version of the model is presented based on study findings. Study findings viewed within the framework of the model can contribute to local development regulations, resource and park management plans, and more livable and sustainable communities.

Neighbourhood Nature - Joy or Fear.

Berglund, Ulla (Sodertorn University College, Huddinge, Sweden).

Is the meaning of nature fading away in modern neighbourhoods in the Nordic countries? This question is raised within studies in Stockholm, Sweden and Riga, Latvia respectively. The almost self-evident high appreciation of nearby nature shown in many studies of northern countries is today threatened by bad maintenance and fear of crime. This is observed in two suburban areas, both in a process of transition. Over all contact with nature tends to diminish due to modernisation and migration - both factors tending to cause loser attachment to place. In the era of time-space compression urban places grow more alike and built up structures rather than natural settings are

launched by the urban cultural elite. In the expanding Stockholm nature now tends to be regarded more as a resource for building in than for recreation, by city authorities. Are we witnessing a long term shift towards a more "normal" international kind of relation to nature? Does this mean a real loss of attachment to nature or just a redefinition in other terms? What then might be the consequences for city planning and for the future city environment?

Comparative analysis between Japanese and English students on their perception to Japanese personal gardens.

Omori, Hirosh (University of Tokyo), Adachi, Megumi (Tokyo University of Agriculture), Hotta, Shinichi (University of Tokyo), Yamashita, Masako (Nihon University), Hanyu, Kazunori (Nihon University), Kishino, Hiroshisa (University of Tokyo) and Hayashi, Chikio (Institute of Statistical Mathematics).

To make a comparison between the way of Japanese and English students to perceive Japanese personal gardens, we used 40 photos of overall view of Japanese personal gardens in Yokohama. Subjects for the perception experiment were 40 Japanese and 15 English students. They were made to classify 40 garden photos into several groups by their impression and to answer to 30 yes-no questionnaires about the character of garden. The arrangement of gardens using similarity values between gardens obtained by the classification experiment of English students was somewhat similar to that of Japanese. The arrangement of them by correspondence analysis to the questionnaire experiment was quite different between English and Japanese students. This difference was seemed to relate the difference the degree of familiarity to Japanese gardens.

Perceptions And Values Of Forest Landscapes.

Symposium Chair: Ward Thompson, Catharine (Edinburgh College of Art/Heriot-Watt University), and Bell, Simon (Edinburgh College of Art/Heriot-Watt University).

This symposium presents a range of current and recent projects that involve aspects of public perception and participation in the planning and use of forest landscapes. The scope ranges from small, urban fringe woodlands/forest in the Central Belt of Scotland through to large-scale forest landscapes on the northern periphery of Europe; all have been supported by the Forestry Commission of Great Britain. The projects

demonstrate a range of qualitative research methods and a critical analysis of the benefits and problems associated with different techniques, including participant use of video cameras, focus groups, questionnaires, observations and interviews. The symposium will provide an opportunity for discussing and comparing these approaches. Presenters include:

**John Murray (Heriot-Watt University),
Catherine Findlay (Heriot-Watt University),
Robert Fish (University of Nottingham),
Jorge Rubiano (University of Nottingham),
Catharine Ward Thompson (Heriot-Watt University),
Simon Bell (Heriot-Watt University),**

The Experience Of Forests.

Murray, John (Edinburgh College of Art/Heriot-Watt University).

This was a pilot study to investigate people's multi-sensory (and not solely visual) experience of forests. An open-ended, qualitative and flexible approach was used to create minimal intrusion. Participants were invited to make a self-directed film of their walk, with comments, using a hand-held digital camcorder. A short questionnaire was used to obtain supplementary information from participants at the end of their walk. The results indicate which aspects of the forest experience are of common interest and most attract users' attention, and the way these differ from experts' predictions. The paper discusses the results and analyzes the effectiveness of this technique as a way of tapping user responses to outdoor environments.

Effectiveness Of Wayfinding Systems With Forest Users.

Findlay, Catherine (Edinburgh College of Art/Heriot-Watt University).

A user-led study of visitor's experience of forest signage systems was carried out at six locations across the UK. Visitors were interviewed using techniques based on Personal Construct Theory to explore issues associated with finding and using forest recreational centers. A signage audit of advanced, threshold and entrance signs was also carried out to compare existing forest signage systems with current best practice both in the UK and North America. Signage performs several functions - as a source of wayfinding information, to promote forest facilities, and also raise awareness of corporate identity. Preliminary findings suggest that signage encompasses a range of issues including not only sign location and design, but also the political and cultural landscape in which signs are placed.

Integrating Social Perceptions With Ecological Values In Landscape Restoration.

Fish, Robert (University of Nottingham), and Rubiano, Jorge (University of Nottingham).

This paper considers some of the theoretical and methodological issues at stake in integrating social perceptions with decision support systems for environmental management. Much has been written in recent years about the need to rethink the way that scientific practice relates to wider social constructs of environment and sustainability. The need for a science that can effectively engage and be informed by citizens is thought to be imperative at a time when the authority and claims of expert knowledge are increasingly called into question. Drawing on recent work in the Sherwood Forest Natural Area this paper explores the possibilities of a decision support tool to integrate different stakeholder visions of the future. In particular, the system aims to provide a mechanism by which discussion can occur between those developing different landscape scenarios for Sherwood Forest, and to relate these scenarios to their ecological impacts on the study area. Discussion concludes by considering the potential limits of this work as a model for citizen science.

Use And Abuse Of Forests By Local Communities.

Ward Thompson, Catharine (Edinburgh College of Art/Heriot-Watt university).

The paper describes a project to explore the qualities which attract forest use by local communities and those which constrain or inhibit their use, or which attract abuse. The initial information gathering used focus groups to elicit unforced information on the way forests are perceived (or not) as part of nearby countryside or recreational landscapes where people like to go. Teenagers and a range of adult groups were used for each of five different communities in the Central Belt of Scotland: Corstorphine (Edinburgh suburb), Alloa, Lennoxton, Whitburn, and Wishaw. The project then used site-based observation to gather primary evidence of use of forests/woodlands identified by communities, and to assess the qualities associated with use or abuse. This was followed by a more systematic, questionnaire-based survey of people's habits and views in relation to forest use. The effectiveness of the different techniques and their combination is discussed.

Participatory Forest Landscape Planning In Remote Parts Of Northern Europe.

Bell, Simon (Edinburgh College of Art/Heriot-Watt University).

A pilot project under the auspices of the Northern Periphery Programme of the European Regional Development Fund took place in northern Finland, Norway, Sweden, and Scotland between March 1999 and May 2001. This project used action-research to test methods of public participation in forest landscape planning using 'live' case-studies in real communities. The locations were all remote, with reliance increasingly being placed on tourism as their economic foundation, the landscape being the main asset for this. These studies included interviews and questionnaires with members of the communities and the development of plans for the forest landscapes. The studies revealed that communities do not separate landscape as a concept from their wider involvement and identity with the community and its setting. Communities interact with the landscape in many ways, and their concern for it is intimately connected to their sense of social and economic well-being. The project enabled a number of models for participatory planning to be presented that could be applied elsewhere according to the scale of the landscape and the nature of the community.

Variation 7: Environmental Protest and Public Opposition to Environmental Developments

Workshop Chair: Levi, Daniel

Nature & Ecology: Public Attitudes Toward Brownfields.

Levi, Daniel (Cal Poly, CA), Kocher, Sara (Planning Consultant, CA), Edelstein, Michael (Rampo College, NJ), and Westphal, Lynne (US Forest Service, IL).

Michael Edelstein discusses public opposition to Brownfield redevelopment involving innovative waste projects. A proposal to import river dredge materials and use it as feedstock for manufacturing products was defeated by community opposition. However, public opposition failed to stop a project to reclaim an old municipal landfill by converting solid waste into ethanol and recyclable materials. Results suggest that public attitudes toward projects inherit the environmental stigma attached to the original project. Daniel Levi and Sara Kocher discuss the use of Brownfield natural areas as recreation sites. Two large contaminated natural areas were studied: one sited is contaminated by an oil spill, while the other site has a nuclear waste

storage facility. Attitude surveys examine the suitability of these sites for recreation, along a continuum from nature preserve to developed recreation and tourism. Lynne Westphal discusses brown fields and access to nature: examples from Chicago. Changes in land use and increased environmental quality present opportunities for new nature access in brown fields, such as riverfronts behind factories and sludge drying fields. Research with user groups of the Chicago River and observations of access at the revitalization of the Calumet Area raise questions about access and design issues needed create these natural areas.

Cultural Production Of Environmental Consciousness: Cases Of Environmental Activism And Design In Taiwan.

Hou, Jeffrey (University of California Berkeley, California).

How do people change their view toward the environment at the local level? What is the relationship between environmental values and cultural identities? Since the mid-1980s, environmental protests in Taiwan have been strongly associated with local customs, traditional social networks and cultural symbols. However, these earlier protests rarely produced long-term change in people's attitudes towards the environment. In recent years, an emerging pattern of environmental actions has successfully integrated environmental values with local cultural identities. This paper examines two recent cases in Taiwan that manifest this new pattern of environmental actions. It argues that the new environmental consciousness in these two cases has been culturally produced. Specifically, cultural production through the construction of cultural identity, use of cultural symbols and reinterpretation of traditional values plays not only an instrumental role in facilitating the movement, but also a transformational role that contributes to the internalization and co-evolution of environmental and cultural values. The new culturally based environmental consciousness in turn provides the basis for sustainable environmental design and planning in the local communities.

Wind Turbines In The Landscape: An Evaluation Of Local Community Involvement And Other Considerations In UK Wind Farm Development.

Devine-Wright, Patrick (Institute of Energy and Sustainable Development, De Montfort University, Scraftoft, Leicester).

Despite public support for renewable energy and excellent natural wind resources, the UK has failed to

develop wind farms on a widespread basis during the 1990s. Many proposed schemes have met with controversy, local community opposition and planning refusals. Focusing upon three case studies, this paper seeks to evaluate the quality and quantity of efforts to solicit local community involvement and support by a private sector development organization. This evaluation is presented alongside the developer's own assessment of other key considerations in the planning process: the landscape characteristics of the site, the local political context and the local socio-economic context to provide a multi-dimensional analysis of the proposed schemes. It is concluded that the developer's efforts to solicit local community involvement were of poor quality. Few opportunities for genuine consultation and participation were made available to the local communities affected by the proposed schemes. The case studies suggest the advantages of pursuing a more systematic approach to community involvement in particular and a more flexible approach to the development in general, in order to ensure higher levels of local support and planning success in the future.

Ecological Behavior: Assessment, Prediction, And Change Across Contexts.

Symposium Chairs: Kaiser, Florian G. (Eindhoven University of Technology, The Netherlands), and Hartig, Terry (Uppsala University, Sweden).

Landscapes become landfills, plant and animal species vanish, and people sicken in a world of noise, trash, bad air, and over consumption. Crucial needs for preservation, conservation, and restoration demand broad involvement from environmental professionals. As psychologists, we can help by explaining behaviors such as recycling, energy conservation, consumerism, and commitment to environmental organizations. Unfortunately, the measurement and prediction of ecological behavior, not to mention the modification of unecological behaviors, are enterprises that have yet to produce striking solutions and conclusive results. For example, environmental attitudes still have a rather bad reputation as predictors of behavior; the environmental attitudes people express seem to have little relation to the behaviors they perform. Yet there are some encouraging developments. Newly applied psychometric strategies allow better accounting for situational influences on ecological behavior and result in more valid measures. Findings concerning attitude-behavior relations have been more promising when researchers have attended to situational influences such as opportunities for behaving ecologically and dependence

on others for support in that behavior. Differences in such situational influences should be accounted for in cross-cultural comparisons but often are not. Elaborations on possible evaluative bases of traditional attitude models also may boost predictive power. More precise strategies for measuring environmental knowledge and introducing informational feedback provide greater hope for effective behavioral interventions. Representing new developments in this area of research, the contributors to this symposium will present papers on the measurement and prediction of ecological behavior, within and across particular contexts. The papers address a variety of conceptual and methodological issues, including the dimensionality of ecological behavior; contextual influences on attitude-behavior models; the extension of environmental attitude models; and the influence of knowledge and information on ecological behavior in general and energy conservation in particular. Participants include: **Jacqueline Frick (Swiss Federal Institute of Technology, Switzerland), Terry Hartig (Uppsala University, Sweden), Florian G. Kaiser (Eindhoven University of Technology, The Netherlands), Cees J.H. Midden (Eindhoven University of Technology, The Netherlands), Teddy McCalley (Eindhoven University of Technology, The Netherlands), Hanna Scheuthle (Swiss Federal Institute of Technology, Switzerland), P. Wesley Schultz (California State University, San Marcos, CA), Einar Strumse (Lillehammer College, Norway).**

People's Ecological Behavior: One Or Several Dimensions?

Kaiser, Florian G. Eindhoven University of Technology, The Netherlands

Traditionally aggregated measures across different ecological behavior domains - based on correlations - commonly fail to establish unidimensional scales. Applying the Rasch model in the measurement of ecological behavior turns out to be a viable solution (Kaiser, 1998). Evidentially, behaviors as diverse as buying solar power panels and refraining from driving a car in the city can be collapsed into a single dimension. However, specific measures representing particular domains - and therefore, more distinct dimensions - such as energy conservation, consumerism, and recycling appear both practically relevant and theoretically reasonable. In a follow-up study of 823 (92.0%) of them, two versions of a 50-item ecological behav-

ior measure were compared. The results indicate that the unidimensional Rasch model fits the data rather well, suggesting that ecological behavior can be meaningfully measured unidimensionally. Remarkably, the multidimensional solution fits the data even better and yields six highly oblique (i.e., correlated) dimensions (from $r = .41$ to $r = .77$).

Testing The Environmental Attitude-Ecological Behavior Relation Cross-Culturally.

Scheuthle, Hannah (Swiss Federal Institute of Technology, Zurich, Switzerland) and Kaiser, Florian G. (Eindhoven University of Technology, The Netherlands).

In spite of the considerable amount of the environmental psychology literature, the cultural invariance of the attitude-behavior relation remains as open question. Since contexts and attitudes jointly affect a person's performance, behavioral criteria that confound both influences cannot yield conclusive cross-cultural information. Based on the General Ecological Behavior scale (Kaiser, 1998), the present paper explores whether a cross-situationally generalisable version of Ajzenis (1991) theory of planned behavior (TPB) is a cross-culturally applicable and, thus, generalisable environmental attitude model. In three cross-sectional surveys of approximately 900 Swiss and German residents each, and 330 Spanish students, the cultural invariance hypothesis was tested by means of structural equation models. By aggregating across different behavioral domains and, thus freeing the proposed relations within the TPB from arbitrary situational influences, individual behavior can be predicted with reasonable accuracy in the vicinity of 60% to 70%. Intention's variance, in turn, can be accounted for even more impressively by the three TPB components: attitude, subjective norms, and perceived behavioral control.

Psychological Restoration In Natural Environments Is Associated With Ecological Behavior.

Hartig, Terry, Uppsala University, Sweden; Strumse, Einar, Lillehammer College, Norway; Kaiser, Florian G. Eindhoven University of Technology, The Netherlands

University undergraduates' perceptions of restorative quality in an unspectacular natural environment have been found to predict their ecological behavior (Hartig, Kaiser, & Bowler, in press). Perceived restorativeness was taken to represent both a respondent's history of restorative experiences in different environments and his or her recognition of a potential for restorative experiences in natural environments more generally. Thus the restorativeness perceptions were not direct mea-

asures of the extent to which the respondents actually resorted to natural environments for psychological restoration. Two limitations of the study, then, were a student sample population and the indirect representation of psychological restoration in nature as a predictor. The present study addresses these two limitations. First, it builds on data from a large Norwegian adult population sample ($N=1413$). Second, to more directly represent restoration in nature as a predictor, it uses self-reports regarding strength of agreement concerning the value of nature experiences for mood repair and other aspects of restoration. Ecological behavior is, as in the initial study, represented with a general ecological behavior measure based on item response theory. The association between restoration in nature and ecological behavior will be reported in the presentation, as will results bearing on whether restoration augments or simply duplicates prediction of ecological behavior by environmental concern.

Values, Attitudes, And Implicit Connections With Nature.

Schultz, P. Wesley (California State University, San Marcos, CA).

Human survival is directly tied to our relationship with the natural environment. Achieving a sustainable lifestyle depends on establishing a balance between the consumption of individuals, and the capacity of the natural environment for renewal. Yet, we often act as if we are separate from nature - as if we can get along without nature. Indeed, built environments serve as barriers between individuals and the natural environments in which they live. Offices, schools, homes, cars, restaurants, shopping malls, and many other built environments segregate people from nature. Such built environments offer climate controlled, light controlled, artificial environments that are not found in nature. This paper examines the implicit connection that individuals make between self and nature, and the impact of built environments on these implicit cognitions. We report a modified version of the Implicit Associates Test which can be used to assess the degree of connection between an individual's self concept and nature. Data are reported from a study using the modified IAT to examine correlations with values, attitudes of concern for environmental issues, and proenvironmental behavior. Implications for theory, design, and sustainability are discussed.

Perceived Environmental Threat And Environmental Locus Of Responsibility As Predictors Of Environmentally Responsible Behaviors.

Strumse, Einar (Lillehammer College, Norway).

The data reported in the present paper stem from a Norwegian national survey (N = 1413) on environment and behavior issues. The paper examines relations between ecological behaviors and a set of environmental concerns; perceived seriousness of local and global environmental problems, beliefs about environmental impact on health, and environmental locus of responsibility (i.e. whether one assumes personal responsibility or believes that others (government, corporations) are responsible for environmental problems). Locus of responsibility for environmental problems is little researched, but is assumed to be an important predictor of environmental behaviors, as well as being related to perceived environmental threat. For example, it may be the case that high scorers on personal locus of responsibility for environmental problems tend to perceive environmental threats as more serious than subjects who are low on this dimension. The purpose of the paper is thus to examine how such perceptions are distributed in a representative sample of the population and their effectiveness in predicting ecological behaviors. In particular, environmental locus of responsibility will be examined as a moderator of the relationship between perceived environmental threat and environmentally responsible behaviors.

Predicting Ecological Behavior By Three Types Of Environmental Knowledge.

Frick, Jacqueline (Swiss Federal Institute of Technology, Zurich, Switzerland).

Knowledge about environmental issues is considered a rather poor predictor of individuals' ecological behavior, since empirical findings commonly yield a fairly low association between the two constructs. In contrast, environmental education relies almost exclusively on knowledge as a necessary precondition for both, attitude and behavior. To study this controversial issue in some detail, a test was constructed based on three distinguishable types of environmental knowledge. All necessary items for the three subscales (ecosystems, action, and effectiveness knowledge) derive from interviews with members of the environmental sciences department at the Swiss Federal Institute of Technology. A cross-sectional pilot study was conducted with 899 students from departments with varying degrees of environmental education in their curricula (i.e. electro-engineering, forestry, and environmental sciences). The students completed two versions

of a questionnaire that consisted of the three knowledge scales and a well-established ecological behavior measure. The results indicate that the unidimensional partial credit model within item response theory fits the knowledge data better than a multidimensional solution does, suggesting that environmental knowledge can be reliably and validly measured on one single dimension. Furthermore, it was found that ecological behavior was at least moderately correlated with environmental knowledge ($r = .45$).

Goal-Directed Energy Feedback Using Computer Simulated User Interfaces.

McCalley (Eindhoven University of Technology, The Netherlands), and Midden, Cees J.H. (Eindhoven University of Technology, The Netherlands).

Informational feedback has been researched as a measure to reduce energy consumption. In general, findings show weaker effects than one would expect. Product-integrated feedback is information presented during the product-user interaction. By focusing on the interaction between the product and its user, it may be possible to better encourage energy conservation. Our research explores different forms of product-integrated feedback. The paper reports a series of experiments that we conducted to develop more effective feedback in household appliances. All experiments were performed in a laboratory setting using computer simulation of an advanced electronic washing machine's control panel (i.e. Miele Novotronic). While self- and experimenter-induced goals prior to washing decisions were highly successful in the conservation of energy, little differential response to various forms of feedback was found, except for an impressive load-weight information effect. Age, gender, cohort, personality type, and experience were all found to additionally modify the goal-feedback interaction. In conclusion, our results suggest that product-integrated feedback can be successful if user interest (i.e. goals) and information (i.e. load weight) jointly promote a certain washing and energy conservation behavior. In other words, product-integrated feedback can be effective if an energy saving goal is already in place.

Sustainability Assessment As A Topic For International Research.

Symes, Martin (University of the West of England).

The European Union Framework research programs 4 and 5 have provided a new range of research opportunities for international teams. There has been an emphasis in the environmental field on proposals that deal with urban sustainability. This is seen not just as a matter of technological development but also as one

of lifestyles and values. Research funding has been directed towards projects that can demonstrate economic and social consequences of changes in environmental policy. The research teams must show added value from including partners from a number of European Union member states. They must also explain the continent wide implications of their work. This paper will discuss some of the research management issues that have emerged in projects in which the author has participated. These have included: establishment of international networks, development of internationally relevant environmental indicators, coordination of the activities in demonstration projects in different parts of the Union, working in a common language, finding means of communication and dissemination of the results. One of the EU objectives is to create an international research community. This paper aims to help assess the problems of its achievement.

Sustainable Development: Which Qualities of Life?

Charles Vlek, Linda Steg (University of Groningen, The Netherlands)

We have explored the theoretical and empirical basis of ‘sustainable development’ in terms of various human needs and values. This should facilitate clear assessments, proper comparisons and convincing policy design about economic wealth, social well-being and environmental quality. Our paper reviews main ideas and results from several own studies. A literature survey yielded a shortlist of 22 variables making up people’s Quality of Life (QoL). Using initial versions of the QoL shortlist we have assessed the perceived importance of specific variables such as health, social relations, safety, nature and privacy. We have also charted expected changes in people’s QoL-profile, as due to changes in (national) economic and environmental conditions. Moreover, expected changes in QoL were studied in relation to different ways (technical, behavioural) and degrees (20, 30%) of reduced household energy consumption. Factor analyses on variable importance ratings from several subject samples consistently revealed about seven well-interpretable bundles of the 22 QoL variables, such as material wealth (‘not very important’), personal freedom, maturity (both ‘modestly important’) and family, health and safety (‘very important’). Such QoL factors provide useful insights in what people aspire for and in which ways they might be hurt by significant economic, social and/or environmental changes. The pattern of seven QoL factors implies that ‘sustainable development’ is too roughly indicated in the usual terms of economic wealth, social well-being and environmen-

tal quality. To assess the nature and the degree of sustainable development, a more precise and operational look is required at the human needs and values at stake, and at the ways in which human principles and practices eventually impact on measurable qualities of life. Such an approach is applicable not only to private households but also to business corporations where the concept of ‘sustainable corporate performance’ is lively debated – probably until it can be properly measured.

Unidimensional Measure Of Environmentally Significant Behavior Representing The difficulty Of Behavior.

Steg, Linda (University of Groningen, The Netherlands), and Uneken, Everd (University of Groningen, the Netherlands).

In many studies, only small correlations are found between different types of environmentally-friendly behavior. However, common research method, e.g., Correlational or Factor Analysis, do not take into account the difficulty of probabilistic Rasch scale analysis yields a reliable unidimensional scale representing the difficulty of environmentally significant behavior. Second, it was examined whether individual scores on this scale are related to factors pertaining to the difficulty of behavior, i.e., response efficacy (whether one thinks one can help solving environmental problems), knowledge of ways to reduce energy use, environmental knowledge problems), and environmental attitudes. The probabilistic Rasch scale analysis yielded a reliable scale, representing the difficulty of environmentally significant behavior. So, respondents acted consistently with regard to the environment when the difficulty of behavior was taken into account. Moreover, individual scores on the Rasch scale were significantly correlated with response efficacy, knowledge and environmental attitudes. The results imply that cognitive models that generally focus on attitudes and preferences are not sufficient to explain differences in behavior patterns, and that situational factors like facilities and barriers play an important role too.

Responsible Ecological Behaviour in the School Context.

**María Dolores Losada Otero & Ricardo García-Mira
Department of Psychology University of Corunna
(Spain)**

This paper analyzes the relationship between the attitude towards the environment and the appearance of responsible ecological behaviours in a sample for Spanish students who attend Obligatory Secondary Education. This study establishes environmental attitude as

a powerful predictor of ecological behaviour based on Ajzen's Theory of Planned Behaviour. The Scale of Environmental Preoccupation from Aragonés & Amérigo (1991), which is an adaptation of The Environmental Concern Scale (Weigel & Weigel, 1978); are used to measure the attitude towards environmental preservation. The Questionnaire about Responsible Ecological Behaviour from Hess, Suárez & Martínez-Torvisco (1997) is used to measure ecological behaviour.

Human-Wildlife interactions in natural environments

Working Group Chair: Bentrupperbaumer, Joan M. (James Cook University, Australia)

Popular Culture Images And Representations Of An Endangered Species And Implications For Management.

Bentrupperbaumer, Joan M. (James Cook University, Australia), and Reser, Joseph P. (James Cook University, Australia).

This paper examines the development and use of images of an endangered species, the cassowary, as symbol, logo, and popular culture touchstone for the Wet Tropics World Heritage Area of Australia. A description and analysis of a spectrum of representations, images, and contexts is followed by a consideration of how such use affects public understandings of endangered species management issues and actual conservation initiatives and effectiveness. The discussion also considers this extended example in the context of human-wildlife interactions more generally, and the role which popular cultural images play in the construction of human-wildlife interrelationships and environmental concern. While there are many overseas examples of such species-linked symbols of environmental issues and concerns, e.g. Smokey the Bear, the Australian land use and popular culture context is very different from urban America and raises its own set of issues and concerns. The paper concludes with a number of scenarios with respect to how current caricatures and use of cassowary representations will impact on conservation initiatives and popular understandings.

Perceptions Of Wildlife In The Sandhills Of Nebraska.

Richert, Amy (University of Nebraska, State Museum), and Amedeo, Doug (University of Nebraska, NE).

The Sandhills of Nebraska, USA is a region dominated

by natural prairie grasses. The area is sparsely populated; cattle ranching is the primary land use. Towns are relatively small and quiet. Recently, eco-tourism has increased in the region and many people, from wildlife-oriented recreationists to local ranchers, are beginning to recognize that the area contains a richly diversified wildlife community. We conducted face to face interviews in order to acquire perceptions about wildlife species that inhabit the Sandhills. Ranchers, wildlife-oriented recreationists, and storeowners were given 16 photographs from the most to least favorite species. We present the results of the rankings based on Q-mode factor analysis and discuss the ideas that were raised by participants during the ranking process. Presenter is Amy Richert.

Perceptions Of Transformed Forest Landscapes In Two Rooted Communities: A Cross-Cultural Comparison.

Sheppard, Stephen Dr. (UBC, Vancouver, Canada), Lewis, John (UBC, Vancouver, Canada), and Corbett, Jane (University College of London, UK).

It has been argued that aesthetic landscape preferences are at least partly biologically determined, as in the savanna hypotheses and prospect-refuge theory. Emerging perceptions research with aboriginal groups in western Canada sheds an interesting new light on these theories, and on the impact of cultural transformations of the forested landscape within semi-traditional, rooted communities. This paper examines patterns of landscape preference and meaning in a First Nations community in BC's Fraser Valley, where cedar forests and riparian corridors have given way to private farmland. It then compares these patterns with those found in surveys of another rural, rooted community in a transformed landscape: the Wychwood Forest area in Oxfordshire, England, where elms, hedgerows, and forestland have been lost to disease and industrial-scale farming. Both communities are characterized by strong cultural ties to the forest as a source of livelihood, local identity, and mythology/spirituality; and community interest in restoring the forest landscape to a historic or more sustainable state. This paper explores patterns of response in the two sets of survey data, with implications for appropriate design of restored forest landscapes and a research agenda for more systematic cross-cultural comparison of landscape preferences.

The Relationship Of A Population With The Riparian Ecosystem.

Bernardo, Fatima (Universidade de Evora, Portugal).

Rivers are vital natural features that are suffering an

increasing pressure by anthropogenic uses. In this context this study addresses the understanding of attitudes and behaviors towards a river by a resident population, as it seems to be an important factor to be considered in environmental education programs, which aim to promote the protection and enhancement of rivers. The study was carried out on 162 residents of the Alcacovas River basin (Portugal) which stands for a typical riparian ecosystem in the Mediterranean region. The methodology used, was adapted to this specific social and environmental context, and is based on the combined use of an attitudinal scale and a questionnaire on self-reported behaviors. The research findings allow identifying a wide range of behaviors associated to the river that can be grouped into two classes: activities with economic value and activities with recreational value. Two major results can be pointed out: (a) a better knowledge of the public does support the development environmental education programs, and (b) all the concepts should be equally understood by all the publics. In this specific case, the concept of 'environmental quality' of the riparian system should be worked out in order to improve the success of riparian protection programs.

Methodology And Relevance: Environmental Design Of The Blue Ridge Parkway.

Myers, Mary (North Carolina State University, NC).

Is the design methodology developed for an American parkway relevant for road design problems of today? This paper presents the ways that ecological issues were addressed in the design of the Blue Ridge Parkway, (1934 - 1987). It seeks to show the relevance of a design approach which balanced concerns for the experiential aspect of driving, traffic safety, recreational needs, and the ecological and cultural impacts of roadways. A broad and inclusive approach was applied to a complex problem: the design of a nearly 500 mile road through the eastern Appalachia. Preliminary research indicates that the approach responded to the emerging sciences of wildlife ecology and soil conservation. Landscape specifications were altered in the late 1930s to encourage forest regeneration and wildlife habitat on parkway lands. The designers began to think outside the project boundaries to consider ways to benefit the physical environment beyond the right of way. By 1952, over 10,000 acres of privately owned farms, impoverished from abuse and misuse of the soil, were being restored through parkway assistance. (BRP Master Plan Development Outline: Soil and Moisture Conservation, March 1952, p.4,6) Methods used to address the topic include archival research related to BRP specifications, memoranda, drawings and reports; and interviews with persons associated with its design,

interpretation and management. Field study of a section of parkway, in Smart View, Virginia, will illustrate the evolution of the parkway environs. The design methodology employed for the Blue Ridge Parkway is worth consideration as an alternative to the standard engineering approach to road design, which has rent the fabric of landscapes and cities throughout the United States.

Reframing 'Interpretation' and Nature-Based 'Heritage Management:' Designing Experiences and Transactional Encounters

Symposium Chair: Reser, Dr. Joseph P. (University of Durham, England).

There are a number of parallel universes, which exist with respect to interpretation and natural heritage management, with these in turn reflecting important areas of collective and selective omission as well as little cross-referencing. The ships passing in the night include environmental education, nature-based tourism, interpretation, cultural heritage management, natural resource management, outdoor recreation, landscape design and aesthetics, park planning, and environmental psychology. An important area of omission which characterizes these differing disciplinary approaches relates to the transactional and reciprocal nature of the encounter between people and natural or nature-based environments. This requires a simultaneous consideration of how people are impacting on the setting (biophysical impacts) and how settings are impacting on people (psychosocial impact). What seems to be missed is the dynamic and reciprocal character and integrity of the interface, encounter, and relationship. A more holistic and transactional framing of the encounter between individual and setting highlights the nature and quality of the transaction, the relationship, and the outcomes, as well as the reciprocal and contingent character of biophysical and psychosocial impacts. A reframing of the nature and dynamics of such transactions and encounters provides multiple and innovative opportunities for designing the experience and managing the impacts.

Bentrupperbaumer, Joan

Saunders, Carol

Kaplan, Stephen

Reser, Joseph

Uzzell, David

Hartig, Terry

Ham, Sam

Francis, Mark

Sustainability and the Perception of Natural Environments

Workshop Chair Amedeo, Douglas (University of Nebraska, NE).

Case studies on landscape issues are discussed in this workshop. One looks at recreationists' environmental images as they are formed while directly *transacting* with natural landscapes through hiking. The purpose here is to understand landscape *sensemaking* and the cues or stimuli attended to while involved in such cognitive processing. The role of affect is given special attention. Another study will examine preferences for sustainable design in built landscapes. Relationships between preferences, cognitive evaluation, environmental attitudes and knowledge, and culture will be the focus here. Finally, a third study in this workshop will investigate group conservation perspectives about landscapes in general and whether such perspectives enter into preferences for various public and private, environmental-policy, advocating agencies. In the previous conference, all three studies limited their discussion to modeling. In EDRA 32 conference, however, each study looks at the plausibility of its modeling when actual subject responses are assessed. Additional information is expected about the formation of internal landscape impressions from actual transactional environmental experiences, the role group landscape perspectives play in environmental agency preferences, and knowledge about whether perceived degree of sustainability relates to preferences for sustainable designs. Presenters include:

Takemi Sugiyama, University of Sydney, Australia;
Douglas Amedeo, University of Nebraska, NE;
Amy Richert, University of Nebraska, NE.

Ecological Sustainability And The Urban Ecosystem.

Deal, Brian (University of Illinois, Champaign, IL).

Although the current literature includes discussions relating to the sustainability of the built human community, planning professions have focused their attention on continued technological solutions to environmental problems. These interventions attempt to stabilize the problem at hand through further technological infusion increasing the gap between the origination of the problem and ecologically sound solutions. Ecological sustainability, however, involves the identification of ecologically sound alternatives to current practices. This paper focuses on an integrated, ecological and engineering approach to analyzing urban

systems. Ecological theories are introduced to provide a baseline for a correlation with planning and principles of community development. Connections between these ideological entities establishes a theoretical framework for the development of a spatial modeling technique for the identification of ecological systems in the domesticated urban environment. This will be presented by theorizing the conceptual origins of the term sustainability, briefly describing some theories of ecological thought and ecological applications to urban environments. A new urban patch model is then introduced that relates the ecological concepts of hierarchical patch dynamics theory to the urban environment.

Using Satellite Data To Validate Perceptions Of Natural Environment.

Ellis, Christopher (Texas A&M University, College Station, TX).

Natural environments (e.g., trees, shrubs, grass) have been linked to health and well-being through studies of human perception. It remains unclear, however, if actual (versus perceived) natural environments will yield similar results. Remote sensing via satellite imagery is often used to assess environmental qualities. The quality, quantity, and type of vegetation found in a particular area can be captured and stored in multi-spectral reflectance values by satellite. These objective data are used in this study to externally validate human perception of the natural environment by comparing them with data collected via survey questionnaire.

Landscape Design For Energy Efficiency And Natural Resource Conservation In Affordable Housing.

Tai, Lolly (Clemson University), Haque, Mary Taylor (Clemson University), and Ham, Don (Clemson University).

Energy consumption, quality of life, and affordable housing issues are increasing throughout the world, and action must be taken to meet these rising demands with minimum negative impact on the environment and economy. In one year alone, for example, the state of South Carolina spent more than \$8 billion on energy. In the past twenty years the population in SC metropolitan centers has increased by forty percent while the rate of land conversion to urban uses has been greater than 200 percent. Excessive energy use and urban sprawl are not only a drain on an area's economy; they are also detrimental to the environment. An academic design studio project was used to illus-

trate methods of creating a sustainable landscape for affordable housing in SC by integrating principles of energy and water conservation along with preservation of trees and urban wildlife habitat. These cost effective and innovative approaches help create a healthier, more productive and pleasant environment for living and working. Project partners include Habitat for Humanity International, National Wildlife Federation, SC Energy Department, SC Forestry Commission, Sustainable Universities Initiative, local municipality and Clemson University faculty and students of landscape architecture, horticulture, and forestry.

Renewal and Rehabilitation in the Built Environment

Renewing The Types: Establishing A Theoretical Base Through A Case Study.

Bustami, Leila H. (University of Petra, Amman, Jordan).

Assuming that architecture is a medium through which to understand society, and that the architectural object cannot be created without the aid of inherited forms, the adaptation of typological solutions becomes essential in making a human architecture of today. In supporting this belief, this paper examines the potentialities of types and presents a theoretical framework for understanding and reusing them. The study picks up a type, the Roman Theater of Amman in Jordan, as a case study for testing the practicality of the proposed framework. The process of investigation involves using that analytical method of Simon Unwin and refers to Geoffrey Broadbent's creativity techniques for pursuing its purpose. Conclusions draw attention to some crucial issues for appreciation and consideration such as modernity and aesthetics. The study also renders a picture of the sociocultural situation in Jordan under the influence of globalism and capitalism.

Preserving And Reusing The Inherited Buildings In An Egyptian City.

Mohamed, Usama (Nagoya Institute of Technology, Nagoya).

The inherited buildings in the Egyptian cities face dangers, many dangers relate to inconvenient use or uselessness. The most suitable solution to preserve the inherited buildings is to be reused conveniently. As it is impossible to reuse and preserve all, the inherited buildings must be prioritized and the convenient uses must be determined to apply the preservation process economically and successfully. To reuse and preserve the inherited buildings in an Egyptian City "Minia",

the area of the study has been chosen, within which the inherited buildings have been determined. The inherited buildings have been prioritized according to the architectural value, artistic value, location, and site plan of each. Due to the ability to add parts and the total area available to be reused, the inherited buildings have been prioritized according to the ability to be reused. In addition, the most convenient uses have been determined according to the advantages and disadvantages of the existing uses of the inherited buildings. Finally, strategies have been suggested to reuse and preserve the inherited buildings economically and successfully.

Re-Use Schemes For Old Buildings - A New Way Or An Old Practice.

Sirry, Azza (Egypt - Netherlands Training & Research in Housing & Urban Development Projects, Cairo, Egypt).

Most of the countries enter the New Millennium while their urban areas are suffering from many problems, many of which are brought about by the changing needs of housing, industries or commercial activities due to technological changes. Thus leaving a lot of redundant buildings that are no longer in use. In the past few years, therefore, there has been growing interest in the conversion and re-use of old buildings not only among those who wish to conserve the heritage of each city but also among economists. Converting old industrial and commercial buildings that are no longer needed for their original purpose, especially in old cities has become a new trend in architecture in many countries, although quiet new in Egypt and the Middle East. Often these buildings have far more character than anything we would build today, and if they are left empty they soon decay and blight the whole area around them. Economically it is often cheaper to adopt a new building than build a new one. "Adoptive reuse" as it is sometimes called is an important part in urban regeneration of old cities. Thus it is important to prepare the community and decision makers and to teach architecture students and on how to respond to this need of designing and implementing a conversion schemes for redundant buildings. Of equal importance is to illustrate to them different aspects of the conversion process. This includes plans, management, actors involved and means of finance as well as cultural aspects not only of the building involved but of the whole area surrounding it. S this subject is a practical topic presenting it must depend on giving practical examples of successes and failures in such projects. The paper concentrates on identifying the problem of redundant buildings in many countries among them Egypt. It indicates the need for the development in

the Architecture curriculum to include teaching special needed skills to design and implement such projects. It emphasizes the need for coordination between architecture design as a subject and other subjects such as building materials, construction methods, rehabilitation of structure as well as economic studies. It emphasizes the need for community participation and how to deal with this challenge. The process of converting a building from one use to the other is not new. It used to be normal practice to adopt buildings for different purposes among the most famous conversions that conversion and rehabilitation of Aia Sofia in Turkey.

Predicting Residential Satisfaction: A Comparative Case Study.

Potter, James J., Chicoine, Jean L. & Speicher, Kathryn E. (University of Nebraska - Lincoln, NE, USA).

This is a comparative case study that focuses on resident satisfaction in three buildings renovated for housing. The intent of the study was to compare responses of the residents to see whether there were differences in resident satisfaction between the groups and the buildings. A survey based on environment-behavior factors that can contribute to resident satisfaction was developed and distributed to residents of the buildings. Residents in fifty-two percent (52.5%) of the units of three renovated buildings responded to the survey (N=64). Of ten (10) index variables, six (6) index variables with forty-seven (47) questions were used to determine residents' satisfaction with renovated housing. Cronbach's Alpha was used to test the reliability of the scales that comprise each of the index variables. Index variables that contributed to resident satisfaction and were used for analysis were: management, perception, wayfinding, safety, comfort, and adequacy; those deleted were: utility, privacy, image, and friendship formation. Based on a frequency distribution of ages across buildings, differences in standard deviations, and research that indicates resident satisfaction may be influenced by age, a Pearson correlation was calculated between age and resident satisfaction. There was a significant relationship between resident satisfaction and age for one building. Utilizing stepwise multiple linear regression, safety and perception were significant for all buildings. Safety, perception and comfort were significant in different ways for each of the three buildings.

Between Tradition And Contemporaneity: Transformations Of Public spaces In Middle Eastern Cities.

Moustafa, Amer A. (American University of Sharjah,

Sharjah, United Arab Emirates).

This paper addresses transformations in the character and role of public spaces in contemporary Middle Eastern cities. What were the functions of public spaces of traditional cities in comparison with today's functions? How are these functions changing as cities encounter new socio-economic, political and cultural forces of global dimensions? What are the specific manifestations of such transformations in public space character, use, provision, and management? And, how can environmental designers take into consideration these transformations in public spaces as they pursue the task of making good cities? The paper concludes with suggestions that can enrich the practice city makers.

Environmental Amenities, Rural Landscapes and Small Town Life

Symposium Chair: Kocher, Sara (Sara Kocher and Associates, San Luis Obispo, California).

Don't have to travel far to see a horse or cow. Kocher, Sara (Sara Kocher and Associates, San Luis Obispo, California).

The relative contribution of ecological, social and physical amenities to sustaining small town character is examined through content analysis of responses to public attitude surveys. The data was gathered in conjunction with General Plan updates in three California cities.

Defining Rural Character From Multiple Perspectives: A New England Case Study.

Ryan, Robert L. (University of Massachusetts-Amherst, MA).

Rural landscapes throughout North America and Europe are being threatened by new residential development at the edge of metropolitan areas. New development consumes farmland, woods, and other natural features-often destroying the rural character that attracted residents to these areas in the first place. In order for planners to develop alternative strategies for accommodating residential development, they need to understand the qualities of the rural landscape that are valuable to local residents. This study used a photo-questionnaire to elicit rural New Englanders' preference for scenes of innovative cluster subdivisions and traditional rural development, their perceptions of rural character, and their attitudes toward rural living in general. The survey responses from 173 rural residents in western Massachusetts showed that subdivisions in which the protected open space is more visible from the public realm (e.g., along roads and entries) are

perceived to be more compatible with the rural landscape. In addition, the study found that residents' perceptions of rural character were strongly based on natural features, including farm fields, rather than on cultural features, such as old homes or stone walls. A second phase of the study compares local residents' perceptions of rural character to those held by planners and developers.

Landscape Perception in a Remote Highland Village

Ward-Thompson, Catharine (Edinburgh College of Art)

Theme 7: Posters

The Art Of Engaging Landscapes: An Exploration Of Three Design Types.

Steed, Alexandra (University of British Columbia), and Luymes, Don T. (University of British Columbia).

How can art be integrated into landscape to create more engaging public places? Does art have the ability to foster attachment to place? How can art improve people's perception and encourage human understanding of the material world? Methods of uniting art and landscape are identified and described. Three design approaches are tested in a park that presently hosts an exclusive public art exhibition, as more substantial and alternative models. The conclusion is that artistic approach must be determined on a site-by-site basis. Pre-development planning for public art is important to ensure integration in landscape.

Carbondale Labyrinth 2000 - The Project

Swenson, Robert (Southern Illinois University at Carbondale, IL).

This paper will share the planning process and the professional and personal experiences working with four diverse community groups and individuals, who were separately focused on spiritual, healing, meditative, and other personal and psychological centering experiences resulting from walking "old world" circular paths called Labyrinths, to organize and together provide a labyrinth for the community in time for the world wide "new millennium Labyrinth Walk" held New Years Eve, 99/2000. The process included many participants meeting personally for the first time; organizing a community meeting, workshop, and labyrinth walk with a regional expert; members visiting, walking, and sharing labyrinth experiences world wide with each other; selecting an appropriate community site (including researching its history, site preparation, and

installation/painting of a temporary unique labyrinth pattern designed to adapt to and honor an existing 10 sided R. Buckminster Fuller geodesic dome slab and former home of "Synergy", a drug and suicide crisis center manned by volunteers); and development a multi-phase master plan with rendering, study model, and promotional materials for education and fundraising purposes.

Un ferrocarril del Siglo XIX en una reserva ecológica para el siglo XXI

De la Llave Gil, Luis Francisco, Roberto Olavarrieta Marengo (Universidad Veracruzana, Mexico).

This paper presents the recuperation and preservation intermunicipal project and its first (10km) railway bridges and original stations that were part of the first Mexican Railroad (1873) at the ecological conservation center "Barranca de Metlac". In the middle of the nineteenth century the first Mexican's railway were built a few years after the end of Independence war. During those years, more that 30, the railway was an important instrument in the battles against the French invasion and scenery for the most important political and social facts over its 470 km and its 2,490 m in altitude between Mexico City and the ancient city of Veracruz which was the most important Mexican port and the second city at the new world. Now 127 years later and after having periods of development and decadence it seems that it disappeared but its possible to recover at least a part of the original infrastructure located in a ecological reserve denominated "Barranca de Metlac". The reserve is located in the central region of the state Veracruz characterized by a huge unclassified biodiversity and represents the geographical center of an area with economical, social and cultural potential in Veracruz.

Determining The Value And Economic Effects Of Milwaukee's Boulevards And Greenspaces.

Alves, Susana (University of Wisconsin, Milwaukee, WI).

The objectives of this study were to examine Milwaukee residents' preferences for boulevard trees, and to provide recommendations to the city of Milwaukee to improve the management of its urban forests. A survey was used to address people's preferences for Milwaukee's boulevard trees including tree benefits, annoyances, satisfaction with specific tree features, and people's experience derived from interaction with trees such as relaxation. I will discuss the conceptual framework I proposed to guide research about people's preferences for trees and present the main results of Milwaukee residents' evaluations of boulevard trees.

Rail-To-Trail Conversion Linking Two Small Mid-West Towns.

Pokryfke, Peter (Andrews University, MI), and Moreno, Mark (Andrews University, MI).

This project is an independent study on the design of a linear park connecting Paw Paw, Michigan and Lawrence, Michigan. The 14 mile long park will be located on an abandoned rail corridor that stretches through a variety of conditions, some of which are pleasant in nature like the vineyards, some of which are challenging for political, cultural, and geographical reasons. This linear park also has the opportunity to link with other established trails in the area. The presentation consists of drawn maps highlighting important nodes along the route and speculative, 3-dimensional, depictions of proposed interventions. All images are accompanied by text dealing with the issues of the proposed park. There are several issues to discuss. What will the effects of a new park development have on these two rural towns? Will it bring the two communities together? How do the residents of these towns feel about the proposal? Will the new trail spur growth and development? Presenter: Peter Pokryfke (Andrews University).

The Report for Semi-structured Interview of One's Own Gardens.

Yamashita, Masako (Nihon University).

A pilot survey on citizens' gardening activities was administrated in Japan and England. Seventy-eight suburban residents in a Japanese town and 28 suburban residents in an English town were participated semi-structured interview for their own gardens. They were asked (or told spontaneously) about their own garden, i.e. their taste for the coordinate, the information sources, and so on. Although some parts of each interview datum were not provided perfectly, due to semi-structured style, some commonalities and differences between the two countries were revealed.

Classification of Japanese personal garden and its characterization.

Hotta, Shinichi (University of Tokyo), Omori, Hiroshi (University of Tokyo), Yamashita, Masako (Nihon University), Hanyu, Kazunori (Nihon University), Adachi, Megumi (Tokyo University of Agriculture), Kishino, Hirohisa (University of Tokyo) and Hayashi, Chikio (Institute of Statistical Mathematics).

What kinds of personal gardens are there in the suburbs in Japan? We visited 78 houses chosen at random in Yokohama and took photographs of their gardens.

We selected overall view of each garden and used them for two types of experiments. Subjects were 40 Japanese students. First, they were made to classify 78 gardens into several groups. Second, they were made to answer to 30 yes-no questionnaires like: Does the garden look dull?" for each garden. Using similarity values between gardens from the first experiment, each garden was arranged on the plane by MDS. The first axis might represent spacious-nonspacious feeling, and the second was messy-dull. Correspondence analysis was made for the second experiment. The arrangement of gardens was somewhat similar to that of the first. We could extract four types of Japanese garden such as messy, Japanese style, tidy and Western style.

Ranch Land Preservation and Documentation.

Vlahos, Ekaterini (University of Colorado at Denver, Colorado)

It is evident that housing settlements, growth and human intervention on the land are quickly and drastically changing the western landscape and panoramas of our region. Historically, housing settlements and ranch sites were built in response to key environmental factors: climate, nearness to water, solar orientation, natural wind paths, vegetation and strategic positioning. Today, developments appear consisting of dwellings grouped together in an improvised way, void of an architectural vernacular that responds to the context and with little forethought regarding the impact and consequences on the ecosystem and surrounding environment. The western ranch presents an ideal precedent to study of structures built in response to the natural environment and landscape. Through the preservation, documentation and analysis of ranch sites a primary goal is to understand the importance of our western history and the architecture developed, and the ranching lifestyle that is increasingly under pressure. Ultimately, this information might cause us to reconsider and change how we design and construct our built environment in relationship to the land.

Meetings

Looking for Environmental Psychology in the UK.

Ungar, Simon (*Department of Psychology, London Guildhall University, London*), **Uzzell, David** (*Department of Surrey, Guildford, Surrey*).

'EPUK' was the title of a conference that was held at London Guildhall University in December 1999. The purpose of the conference was to bring together Environmental Psychologist and other researchers, practitioners, etc. with an interest in environmental/behaviour issues. The conference was a great success, and left the impression that environmental psychology (EP) is alive and well in the UK. It also provided the 'glue' to establish a network of EP researchers around the UK, as well as the impetus for setting up the EnvPsy e-mail list and the initial moves towards establishing a BPS EP section. The session at EDRA32 will constitute the second meeting of EPUK. Consistent with the spirit of the inaugural event, we plan to divide the session into two parts: a series of papers by young UK-based EP researchers (funded by EPUK bursaries); followed by an opportunity for discussion of future EPUK meetings, the future of the network and ideas for enhancing it.

Integrating Scientific and Lay Accounts of Air Pollution

Kelay, Tanika (*Department of Psychology, University of Surrey*).

The Environmental Psychology Research Unit in the Department of Psychology at the University of Surrey, in collaboration with Guildford Borough Council, are researching relationships between transport, air pollution and health. In addition, the Fluids Research Centre at the University of Surrey are employing dispersion modelling techniques to study actual levels of air pollutants in the Surrey area. Through the collaboration of behavioural and natural scientists the present research aims to investigate and account for *actual* and *perceived* levels of air pollution in Guildford. The research provides a multidisciplinary approach to the study of air pollution, by utilising a conceptual framework drawn from existing theories and paradigms in the field of environmental psychology, combined with investigatory and analytical modelling frameworks from mathematical and biological sciences. In terms of empirical research, to date there have been few attempts to integrate measurements of actual air pollution with perceptual

data. The first phase of this study involved the development of a methodology to allow this type of analysis. This resulted in the design of a large-scale air pollution risk perception survey, which is to be carried out in the Guildford area. Respondents will be required to complete two tasks: a self-administered questionnaire and a cognitive mapping exercise. The aims of the study are twofold. Firstly, the questionnaire has been devised to procure a comprehensive psychological understanding of residents' perceptions of air quality in their locality. Thus, as well as gauging generalised information on residents' knowledge, awareness and risk perceptions associated with air quality, the questionnaire has been designed to provide an in-depth social-environmental psychological analysis of perceptions. To achieve this, an *Urban Identity Scale* was developed in order to enable an investigation of the relationship between residents' perceptions of air quality and levels of identification with their local neighbourhood. Drawing on previous research which has found significant relationships between identity processes and environmental assessment, this research aims to examine the importance of local identity processes in predicting the perception of threats to the local environment. The second component of the study comprises a cognitive mapping exercise, which requires residents to plot on maps where they perceive air pollution to be dispersed in their local area. The rationale behind this exercise is to allow comparisons of actual and perceived levels of air pollution dispersion to be made, through GIS (Geographical Information Systems) modelling and mapping techniques, with subjective data elicited through the psychological procedure of cognitive mapping. With the use of GIS, the perceptual spatial representations of air pollution dispersion will be compared with actual real-time air quality data in order to detect and identify disparities between residents' perceptions and actual dispersion levels. This paper will present the preliminary findings of the first study.

Factors influencing household attitudes and behaviours towards waste management in Exeter, Devon

Barr, Stewart (*Department of Geography, University of Exeter*).

The problem of municipal solid waste (MSW), largely in the form of household refuse, is a significant and growing environmental problem in the UK. The limited capacity for landfill along with global targets for the reduction in methane emissions ensures that alternatives to landfill are needed as a means to deal with household wastes. The UK Government has

sought to deal with this problem by producing a Waste Strategy (DETR, 2000) that emphasises the need to deal with waste according to the 'Waste Hierarchy'. This hierarchy posits that waste should first be reduced (or prevented), second reused, third recycled (or recovered) and only finally should it be sent for disposal. Householders are seen as key actors in achieving waste reduction, reuse and recycling. However, research into household attitudes and behaviours towards waste has been relatively sparse in the UK compared to work in North America. Work from the United States and Canada indicates that waste management behaviours (in the most part recycling behaviour) are influenced by a large range of factors. This research uses this literature to formulate a conceptual framework of waste behaviour and then utilises this framework to collect, analyse and interpret data on waste management in Exeter, Devon. The literature concerning waste behaviour indicates that there are three fundamental sets of variables that are likely to influence action. First, underlying *environmental values* have been found to influence waste behaviour, with those demonstrating ecocentric attitudes more likely to manage waste more carefully. Second, a range of what may be termed *situational variables*, such as socio-demographics and social context, have been found to be important predictors of waste behaviour (for example, access to kerbside recycling). Third, a set of *psychological factors* can be seen as important, incorporating notions such as self and response efficacy, subjective norms and perceived logistical factors. These three sets of variables were organised into a logical framework by using the *Theory of Reasoned Action* (TRA) as a skeletal model. Thus, it was posited that intention to act was the primary predictor of behaviour. However, in moving away from the conventional TRA, it was argued that environmental values were the logical predictors of behavioural intention, with situational and psychological factors intervening to both modify behavioural intention and the intention-behaviour relationship. This framework was tested by using data from a large questionnaire survey of Exeter residents selected at random from the Electoral Register. The total usable sample was 673, a 69% response rate. The questionnaire was hand delivered and collected and asked questions concerning twenty waste behaviours (5 reduction, 5 reuse and 10 recycling). Intentions were also measured. Both questions were assessed using 5-point Likert scales. Basic socio-demographic data were collected along with information on household access to kerbside and other waste management facilities. Finally, a series of attitude statements assessed respondent agreement with items concerning the

influence of subjective norms, self-efficacy, etc. The data were analysed using a range of statistical techniques such as cluster analysis, factor analysis and multiple linear and non-linear regression. Factor analysis revealed that the behavioural items loaded onto three distinct factors representing reduction, reuse and recycling behaviours. Path diagrams of these three behaviours were drawn. The results suggest that the predictors of recycling behaviour are fundamentally different from reduction or reuse behaviour. Recycling is characterised by good access to facilities, an appropriate level of recycling knowledge, the perception that recycling is easy and convenient, and the influence of neighbours and friends on one's behaviour. Conversely, reduction and reuse behaviours are undertaken more by those with ecocentric environmental values, a belief that their action is making a difference, a perception of individual responsibility and a perception that the growing waste problem is a threat to their health and well-being. These results demonstrate the need to examine waste behaviours individually, since they evidently have different predictors. Indeed, the conceptualisation offered provides a new way to examine waste behaviour (and potentially other environmental actions) both at the theoretical and policy levels.

Interior Thoughts: Understanding Housing Modification Behaviour

Kempen, Elizabeth (Department of Psychology, Centre for Investigative Psychology, University of Liverpool)

Modern commitment to modification reveals a variety of different psychological processes that underlie home improvement. It could be argued that these reflect attitudes towards purposes of the new home. This study was developed to explore these processes and to reveal the relationship with home improvement. A convenient sample of 56 middle class new homeowners from 8 privately developed neighbouring estates was used during this study. The estates were situated in Croxteth (L12) and Gillmoss (L12) wards in Liverpool. The study focussed on home improvements done to the inside of the new home with regard to the living room, kitchen, main bedroom and main bathroom. The participants completed a set of measuring instruments after which a short interview was scheduled and photographic data was collected. The participants varied between 2 months and 4½ years of residing in the new home with the majority of participants between 2 and 3 years of living in the new home. The instruments used during this study were developed to explore the Symbolic, Social, Personal, Instrumental, Evaluation and Modification facets of home

improvement. Each facet consisted of a different measure developed to explore the meaning of modification. The Symbolic facet was measured by means of words associated with the four rooms in question, currently experienced as a state of complete or incomplete modification. A sorting procedure of a variety of photographs of living rooms from the latest interior design magazines was used to explore the Social facet of the research. Respondents were also asked to determine which people would be associated with the various groups sorted. The heart of this study focuses on the home improvements completed by the participants. Data pertaining to this facet was obtained by means of a verbal account of the improvements done to the structural components of the rooms such as walls, floors, windows, doors, and ceilings and also an account of decorative objects (pictures, ornaments etc) and furniture items in the rooms. A distinction was made between items that had been brought from a previous residence and items that had been newly purchased for the rooms. This instrument is referred to as the modification index. The following analyses have been done on the Symbolic, Social and Modification facets of the research. From a content analysis of words associated with the four rooms modified by the new homeowners it is clear that some common terms exist. However to determine what underlying relationship exists between the terms used and the meaning of home improvements a small space analysis (SSA) was carried out on the data. The analysis defined a social, personal and functional/purposeful structure to the data corresponding with the various levels of modification done to the new home. A content analysis and frequencies of terms used for the sorting of living rooms revealed categories of colour, content, style and fashion. This was followed by a small space analysis of the underlying relationship between these categories and the distinction between age, social status, income and profession. Content analysis of the modification data was transformed into frequency tables of modifications to the new home regarding structural, decorative and furniture aspects. Results indicate the importance and extent of modifications to the new home and the importance of certain rooms in the modification process. These results also support the image of the new home held by the respondents. These findings could also support the instrumental facet of the research focussing on the level of attachment to the new home through modification. A rich support of qualitative data serves as a background to the interpretation of the results across these three facets. From these instruments it has become clear that the process of modification is complex and has many intricate relationships to be

explored. These three facets are also an indication of how different measuring instruments reveal the meaning of modification to the new home.

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Bechtel, Robert B. (Chairman & Editor of Environment & Behavior), Canter, David (Editor of The Journal of Environmental Psychology), Seidel, Andrew (Editor of The Journal of Architecture and Planning Research), and Schwarz, Benjamin (Editor of Journal of Housing For The Elderly).

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