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DISSERTATION

THE DEVELOPMENT OF PSYCHOMETRIC SCALES TO MEASURE SENSE OF PLACE

By
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In Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy
Colorado State University
Fort Collins, Colorado
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COLORADO STATE UNIVERSITY

May 2, 2000

WE HEREBY RECOMMEND THAT THE DISSERTATION PREPARED UNDER OUR SUPERVISION BY SUZANNE ELIZABETH BOTT ENTITLED "TOWARD THE DEVELOPMENT OF PSYCHOMETRIC SCALES TO MEASURE SENSE OF PLACE" BE ACCEPTED AS FULFILLING IN PART REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY.

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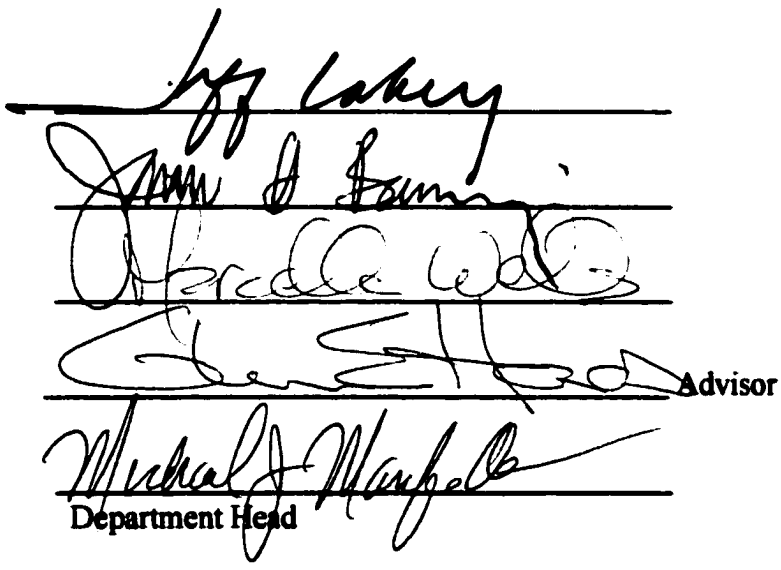

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ABSTRACT

THE DEVELOPMENT OF PSYCHOMETRIC SCALES TO MEASURE SENSE OF PLACE

Sense of place has been described as a subjective construct without a formalized definition or set of determining criteria. Recent research has expressed a need for a more holistic approach to designing and managing landscapes (Driver et al. 1996). This research set out to 1) develop a simplified definition of sense of place and 2) test domains and scales evaluating factors influencing sense of place perception.

Colorado State University in Fort Collins, Colorado was the research setting. Two sites previously determined to have high and low sense of place (Greene 1996b) were evaluated. One was the Oval, a historic mall with significant vegetation and regional vernacular architecture; the other was a plaza with modern architecture, nonnative building materials, and limited vegetation.

The methodology involved multitrait-multimethod social science techniques based on grounded theory and qualitative research, and quantitative empirical survey research. Steps included a literature review of Environmental Psychology, Geography, Environmental Design, and Resource Management research. Focus groups and an expert panel developed 90 items to be used in a written survey to evaluate sense of place, grouped into two sets of factors, four general groups (domains), and fifteen subgroups (scales). Three qualitative questions were included that asked respondents to describe specific places and emotions that came to mind when thinking about sense of place.

In addition to testing the scales at two different sites, the survey used two different experimental methods to test for differences between multisensory on-site perception and single-sense visual perception. Surveys were completed by 373 students from the College of Natural Resources during July and August 1999.

Reliability and correlation analysis verified reliability of the domains and scales. Factor analysis resulted in no additional scales. Analysis of Variance showed significant differences between the two sites and the two methods of evaluation. Thematic analysis of qualitative data determined additional factors to enrich the quantitative data.

The study resulted in significant findings in four areas: 1) a simplified interdisciplinary definition of sense of place: sense of place is the perception of meaning associated with a site; 2) a set of psychometric domains, scales, and items were developed and tested; 3) significant differences were found between two different experimental methods and two

different settings; and 4) a new holistic model was proposed in contrast to the linear design of previous models.

The research supports and unites literature and practice from four disciplines which have previously worked independently to generate place perception theory. This research takes a significant step toward understanding human-environment interaction by providing a bridge between the theoretical and applied processes. The research supports individual perceptions as valid, shows that sense of place is a concrete phenomenon which can be assessed objectively, and provides a methodology to objectively evaluate sense of place.

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DEDICATION

For My Parents, Donald and Miriam Bott,
My Brothers, Christopher and Timothy Bott,
and My Nieces, Emily Elizabeth and Haley Katherine Bott

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CHAPTER I

INTRODUCTION

A. Problem Statement

"Sense of place" is a phrase used to describe a site or location of special significance or meaning. The phrase is commonly used across a range of disciplines, in a variety of managerial settings, and in the popular vernacular of society. Despite its wide use, a scientifically developed set of characteristics, which would help define sense of place, has not been established.

During the 1970s and 1980s, a set of psychometric scales referred to as the Recreation Experience Preference (REP) scales was developed to help define the motivations for recreation experiences and is currently being used by a number of public land agencies to maximize benefits from recreation (Driver, Nash, and Haas 1985; Manfredo, Driver, and Tarrant 1996). The REP scales are the basis for this research in that they clarify the psychological or physical motivations and outcomes or benefits individuals seek in a recreational experience, thereby improving the planning and management of the resources. Similar information would benefit planning and management in the case of sense of place.

The REP scales were developed based upon a structure of domains (item groupings that represent a broad goal construct) and scales (within-domain item groupings that represent dimensions of the broader goal construct). This study will

develop a similar set of psychometric domains and scales in order to further understanding of the construct of sense of place and the factors that contribute to it. It is intended that the results will have similar utility in the planning and management of meaningful sites to maximize human and natural system benefits.

The study also seeks to serve the general public by articulating how and why a place is meaningful with a list of descriptive terms or items which can be used to identify the qualities or characteristics that are important in the public's perceptions of place.

B. Need For The Study

In scientific circles the four main disciplines examining sense of place have been Environmental Psychology, Geography, Environmental Design, and Resource Management. Despite common or shared research into similar phenomena, there has been limited exchange between the four disciplines regarding sense of place. Factors that contribute to or detract from sense of place have not been adequately identified, described, empirically tested, or shared (Carlson 1994; Groat 1995a; Sime 1995).

Scientific literature, specifically in resource management, acknowledges the need for a shift: "since the Enlightenment, aided by dualism of mind and matter, and endorsed by the success of science, the concept of nature has been dominantly mechanistic; that is, spiritless" (Rolston 1996, 17). Recently, a desire has been expressed for a more holistic perspective and for shared research. This call is the result of a significant paradigm shift within design, development, and resource management, leading to a more "purposeful use of lands to maintain and renew the human spirit" (Driver et al. 1996).

Rather than a Newtonian-Cartesian approach to the human-nature connection where humans are separate and apart from nature, researchers are calling for an "ecological world view" where humans are a part of nature. Technological development has resulted in a shift from what was distinctive to what is identical; from daily interactions with nature to indoor living; from an earth alive with meaning to "real estate"; and from ecological diversity of regional landscapes to horticulture (Roberts 1996). As a result of this ecological disconnect, land managers are now aware of a desire for greater opportunities to reconnect with places that feed the human spirit (Dustin 1994).

The Federal Government has acknowledged the need for an interdisciplinary approach to management and mandated that agencies managing the nation's natural and cultural resources be concerned with resource value beyond purely economic or commodity considerations. The National Environmental Policy Act (NEPA) of 1969 states in Section 102(A) that agencies must

> utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision-making which may have an impact on man's environment." (NEPA 1969)

Similarly, the USDA Forest Service implemented a Visual Management System (VMS) in 1974 to evaluate changes to the natural landscape "in the tradition of the fine arts: line, color, form, and texture, as if the landscape were a compositional work of art." More recently, an update of the VMS was undertaken in response to a significant increase in demand for high quality scenery and it now contains a "stronger linkage with constituents and their sense of place" (USDA 1995).

In addition, although the phrase "sense of place" is neutral, it has come to be associated with places under intense scrutiny, for both positive and/or negative reasons. These places are often evaluated in superlatives: "the most," "the best," "the wildest," "the last." With the challenges facing modern society, people look to their surroundings for connection, rootedness, affirmation of values, security, spirituality, and meaning. Environments that offer those elements through their authenticity, quality, beauty, uniqueness, and appropriateness of development can serve as a refuge from the pressures of modern-day society (Kaplan, Kaplan, and Ryan 1998; Abrams 1996; Moore 1996; Roszak, Gomes, and Kanner 1995; Bolen 1994).

Citizens have recently turned to environmental design practitioners for solutions to sprawl, loss of open space, lack of community, and an existential angst caused by the inhumanity of current planning, design, and architecture. The profession has responded by incorporating greater public involvement into the design and planning process through the use of public meetings and design charrettes, and in new theoretical approaches and design models centered around human scale, community values, simplicity, classical design principles, and preservation of valued resources (Susanka and Oblensky 1998; Nelessen 1994; Duany and Plater-Zyberk 1991; Hiss 1990; HRH The Prince of Wales 1989).

Evidence of the emergent interest in sense of place even exists in the field of literature, which has developed an extensive body of work on this subject. A large collection of both fiction and nonfiction specifically related to the topic of sense of place

has developed from a variety of perspectives (Stegner 1987, 1989; McPhee 1986; Erlich 1985; Nabhan 1994; Campbell 1996).

Even with such diverse interest and activity, the defining characteristics of sense of place have not been formally established nor has a precise definition been universally adopted. Although there does appear to be a shared understanding of what is meant by the phrase, a scientifically derived definition would be beneficial to a greater theoretical understanding of sense of place (Spretnak 1997; Rypkema 1996; Relph 1993b).

It has become apparent that based upon these stated needs, a formalized definition and set of psychometric domains and scales, which could be used to measure the factors influencing sense of place, would be useful in planning and managing sites perceived to have meaning or significance. The degree to which a site is deemed to have a high sense of place will determine the extent to which preservation of existing features and compatibility of new development are required. Developing and testing a set of psychometric domains and scales is the first step in joining divergent interests in a unified understanding of sense of place, which can result in better planning and management of the earth's resources.

C. Study Objectives and Hypotheses

The purpose of this study is to develop a greater understanding of the factors that contribute to or detract from sense of place, how those factors vary by setting, and the

manner in which they are perceived. The following specific objectives are proposed:

Objective 1: To develop a set of psychometric domains, scales, and items that measure the construct of sense of place (the SOP scales) through the use of multitrait-multimethod techniques based on grounded theory research and social science survey research.

Objective 2: To test the validity of the SOP scales within the context of two distinctly different urban campus *settings*, which vary in degree of sense of place, using two separate *experimental methods*, through the use of a written survey of items established under *Objective 1*.

To test *Objective 2*, two hypotheses are being proposed. The researcher anticipates that the two different settings and the two different types of experimental methods used will have significantly different results when evaluated using the Sense of Place scales. To scientifically test these hypotheses for statistical differences they are stated as null hypotheses:

H_{01}: There are no significant differences between SOP scale mean scores across *settings* purported to have high or low sense of place.

H_{02}: There are no significant differences between scale mean scores across settings purported to have high or low sense of place when using two different *experimental methods:* visual slide presentation versus multisensory on-site presentation.

D. Definitions

A number of brief, general definitions are listed in this section. An extensive review of the etymology of the key words used throughout this research are included in Appendix A.

1. *Sense of place*

   The perception of meaning associated with a site or location.

2. *Natural environment*

   Any environment consisting largely of natural features without human-made structures.

3. *Built environment*

   Any environment consisting largely of human-made structures.

4. *Functionalism*

   The ability of a setting to convey information about its ability to meet an individual's needs.

5. *Settings*

Locations where activities take place, specifically referring to managerial conditions.

E. Limitations and Assumptions of the Study

1. The lack of systematic empirical research on the specific construct of sense of place is considered a limitation. In light of this, the results of the study will be considered one of the first steps in a series of studies to be conducted to validate a Sense of Place scale consisting of domains, scales, and items.

2. The study population comprises Colorado State University students. A non-probability, voluntary sample of subjects was used in this study. This sampling design was necessitated by the constraints of time, budget, and resources available for conducting the study. Internal validity is high but external validity and generalizability of the study may be limited.

3. The selection of urban campus settings with high or low sense of place was based upon research of Greene (1996b). The assumptions are that sense of place does vary and that the settings used in this study do indeed represent settings with high and low sense of place.

CHAPTER II

REVIEW OF LITERATURE

A. Sense of Place Research in the Literature

The involvement of four separate disciplines in the research necessitates a fairly lengthy literature review. A synopsis of the most relevant research and theory are provided in the areas of Environmental Psychology, Geography, Environmental Design, and Resource Management, with cursory mention of early research.

The theoretical basis for understanding sense of place has developed largely along two divergent tracks that have only recently started to converge. Carlson (1994) notes "On the Theoretical Vacuum in Landscape Assessment," that there continues to be a "theoretical vacuum," as previously pointed out by Bourassa (1991); Zube, Sell, and Taylor (1982); and Appleton (1975). The vacuum is largely due to the variety of perspectives held by researchers in different disciplines and the extensive range of experimental methods being used by each. However, according to Carlson, as research continues, the field of landscape assessment is gaining a foothold as its own discipline, based on the natural outgrowth of the research.

Carlson also notes that Zube, Sell, and Taylor (1982) draw a distinction between

two general notions of theory that exist between the "social and behavioral sciences" and the "design and planning disciplines." "They suggest that the social and behavioral sciences see theory as an explanatory construct aimed at determining what is the case and why it is the case, while the design and planning disciplines view it as a normative model aimed at determining what ought to be the case" (Carlson 1994, 52).

Carlson concurs that environmental psychology and geography have followed the path of *explanatory theory* which "identifies things and states of things, indicates the causes of their being as they are, and thereby aids in explaining why they are as they are. In providing us with such knowledge, this kind of theory allows us to explain, predict, and control" (1994, 53).

In contrast, environmental designers and resource managers have followed normative philosophical or *justificatory theory*, which "concentrates on our ideas or concepts of things, indicates the reasons why these ideas and concepts are as they are, and thereby aids in justifying our views about things. This kind of theory gives us conceptual knowledge that allows us to reason; that is, to formulate positions, argue for them, and to justify them" (Carlson 1994, 53). Carlson concludes by stating,

> justificatory theory is not imposed on a field of study from without, but rather grows naturally from within the field as the area matures into a proper discipline. It comes not from the research of those who are coming from other disciplines and applying their techniques to the new area, but rather from those who are in fact no longer working in another discipline at all, and in many cases not working in any recognized discipline, but who are yet at the center of the area destined to become a discipline. (1994, 55)

It is from Carlson's position that the four divergent tracks of research are thus contributing to the development of a whole new discipline dealing specifically with sense

of place. This new area of study is based upon convergent psychological explanations and theories, and the combination of both new experiential paradigms and practical applications of design and management.

1. Environmental Psychology

Early research into environmental psychology and perception was conducted in the 1950s and ensuing decades by Gibson (cited in Bell et al. 1990), Maslow and Mintz (cited in Bell et al. 1990) and Berlyne (cited in Bell et al. 1990). Gibson developed the theory of the environment as "affording" useful properties to the individual; Maslow & Mintz conducted studies that correlated the attractiveness of settings with study participants' ratings; and Berlyne conducted studies in landscape assessment and preference based on the organization of the environment. Berlyne found aesthetic judgments were influenced by "collative stimuli" in the environment (complexity, novelty, incongruity, surprisingness, and exploration). These resulted in pleasure as a basis for aesthetics, which he called *hedonic tone*, the function of which has an inverted U-shaped curve: as collative stimuli increased in the environment, pleasure increased at the same rate until a point of saturation, at which point pleasure diminished with overstimulation.

The work of Litton (cited in Bell et al. 1990) influenced landscape analysis and the development of a classification systems for public land management. The components of the descriptive landscape inventory approach were: line, form, color, and

texture. Litton's classification system continues to be used in landscape management.

In the 1970s, the work of Ittleson (1973) described environmental perception as cognitive, affective, interpretive, and evaluative components acting together, which he used to evaluate the influence of settings on individuals' well-being. Ittleson noted that in the history of experimental psychology the overwhelming bulk of perception research has been carried out in the context of *object perception*, rather than *environment perception*, with the findings of the former providing the basis for understanding the latter (1973, 3). Ittleson suggests that although the environment might appear to be an object of common sense, it is not, and is in fact so complex that there are many ways of examining the phenomena. The system should be viewed as open and continuously changing, with factors inside and outside the system influencing all aspects of the human-environment relationship (1973, 4).

Altman and Wohlwill (1976) edited the first in a series of "environment and behavior" compilations of advances in theory and research. The topics were broad and interdisciplinary involving social and behavioral scientists from environmental design, recreation, and resource management. It was in this volume that Wohlwill pointed out the need for new research to assist managers and designers, and Zube reported on the extensive empirical research into scenic values. Further research by Wohlwill (1978) determined that preference for natural scenes was based on refuge, fittingness (harmony), symbolic reasons, and the fittingness of man-made structures in natural areas.

Ulrich (1979, 1984, 1986) developed fundamental research into the role of natural scenes in lessening stress and improving healing, and noted "natural" includes

manipulated environments such as parks and golf courses. His study, "View from a window may speed recovery from surgery" (1984) has become a standard reference regarding the benefits of nature on well-being.

Separately and jointly, researchers Stephen Kaplan (1983, 1984, 1987), and Stephen and Rachel Kaplan (1978, 1982, 1987, 1989; Kaplan, Kaplan, and Ryan 1998), conducted precedent-setting research into perception based upon *information processing* of environments. They determined that perception is influenced by the environment's capacity to convey spatial organization information for two categories of human functioning: exploration (based upon *complexity* and *mystery* in the environment) and understanding (based upon *legibility* and *coherence*). They developed the Category Identification Methodology of information gathering based upon this theory. Additional research has been conducted into the restorative power of nature, the designer/user gap, and the application of psychological research to design.

Herzog (1992) conducted further research in support of the Kaplans' model and developed nine predictor variables for landscape preference: spaciousness, refuge, enclosure, coherence, legibility, complexity, mystery, typicality, and age.

Steele (1981) wrote an early formative work specifically on sense of place from the perspective of industrial psychology. *The Sense of Place* focused on understanding place as a means to improving quality of life for everyday citizens. He described place as a *transactive relationship* between person and setting, and outlined types of place experiences and major characteristics of place, as follows:

Types of Place Experiences	Major Characteristics of Place
• immediate feelings and thoughts	• identity
• views of the world	• history
• occupational experiences	• fantasy
• intimate knowledge of one spot	• mystery
• memories or fantasies	• joy
• recognition or newness	• surprise
• personal identification with a "spot"	• security
	• vitality
• accomplishment or blockage	• memory
• sense of enjoyment or displeasure	

Steele wrote a basic analysis of sense of place from the perspective of living, working, and designing in the environment. He discussed place in a transactional framework, as an object of interest, as well as an influence on individuals. He defined sense of place as:

> an experience created by the setting combined with what a person brings to it. In other words, to some degree we create our own places, they do not exist independent of us. There are, however, certain settings that have such a strong "spirit of place" that they will tend to have a similar impact on many different people. The Grand Canyon or the Left Bank of the Seine in Paris are excellent examples. (Steele 1981, 9)

Steele also noted the importance of the spirit of places, "which acts in a powerful, predictable manner on everybody who encounters them. This magic, with which certain locations seem to be endowed, is certainly a force worth considering" (1981, 13). Examples include: special physical features, spirit of people, city diseases of the spirit, spirit of mystery, spirit of personal place.

In 1983, Theodore Sarbin wrote about the phenomenon of 'love of place,' expressed by the Spanish phrase 'querencia.' This is the inclination of people to seek

places where they feel safe or particularly comfortable. "For example, a person may undergo hardship and reject opportunities for career advancement in order to reside in or be near to a certain place" (341).

Prohansky, Fabian, and Kaminoff (1983) explored the concept of "Place Identity," stating that through personal attachment to geographically locatable places, a person acquires a sense of belonging and purpose, which gives meaning to life. This process of place identification is unconscious, involving affect and emotions, knowledge and beliefs, behaviors and actions.

Stokols and Altman (1987) determined six factors contributing to aesthetic perceptions: experience, knowledge, expectations, sociocultural context, environmental elements, and physical context. Altman and Low (1992) edited *Place Attachment*, a compilation of studies on the theoretical foundations of place attachment. The work of Low (1992) is an important phenomenological study of place attachment conducted in a community plaza in Costa Rica. She evaluates the multiple meanings of place attachment that the plaza imparts as: genealogy, loss, economics, ownership, celebration, and narrative.

David Hummon (1992) theorized that there are four kinds of sense of place: rootedness, alienation, relativity, placelessness; and three levels of community sentiment: attachment, satisfaction, identification — each linked to differing social processes. He reported on the need for research into the built environment and the symbolism it represents as place:

> Here, particularly, work is needed that explores the way the built environment, as a nonverbal symbolic medium, can serve to communicate and store such varied meanings for local residents. Such understanding will help to clarify how individuals interpret their environment, at once imbuing the local landscape with personal meaning and reading it for shared public significance. (275)

He also pointed to the extent of intra-community variation in the expressions of community sentiment received from his research subjects, and suggested representative cross-community sampling to establish relative frequencies and develop an understanding of the factors that contribute to the variation.

Hull and Vigo (1990) and Hull (1992) reported that place attachment is viewed as overlapping layers of opportunities, meanings, and emotions based on settings, resembling a flower with overlapping petals. The denser and more interrelated the layers, the more likely the setting will develop the qualities of place (1990, 149). Qualities of place lead individuals to develop attachments to place and a sense of community, "image congruity refers to the fit between the meanings and values associated with a place and a person's image of self. Image congruity in residential environments promotes attachment to place and the consequent benefits associated therewith" (1992, 181).

Groat (1984, 1995a, 1995b) developed research into designers' versus users' meanings of the built environment, and neovernacular and historicist trends. Groat (1995a) edited a significant volume of articles in environmental psychology, *Giving Places Meaning*, which evaluates the need for research into place, and presents recent articles on theories of place, prototypicality, expert judgement in aesthetic evaluations, and the meaning of home. Within that volume is an article by Sime (1995) which

explores the need for a shared methodology and research framework among disciplines. Sime notes, "it is argued that modern architecture has concentrated on the properties of geometric space, while psychology has neglected the physical context of behavior and experiences. The concept of place should help to integrate design and research issues" (26).

The *phenomenological approach* to theoretical principles of place perception was developed by Martin Heidegger (cited in Abrams 1996) who developed early ideas on phenomenology and existentialism, and wrote the seminal work *Being and Time*. The trend toward phenomenology was a new philosophical perspective that allowed the *perceived* experience of the individual to exist without question. Heidegger believed that "dwelling" in the world was the ultimate existential experience. Phenomenology looked at place as a holistic integrated experience of perception, based upon landscape (built and natural) combined with activities and the meanings associated with them.

In *Being and Circumstance*, Robert Irwin (1985) expresses a philosophy toward perception with its roots in phenomenology. He describes the value of allowing perceptions to indeed be reality, and not discounting the experiences and perceptions individuals have. Irwin validates the individual's recognition of experience as truth, rather than accepting another's reality:

> In Western thought, the search for the quantitative *in everything* has come to affect every facet of our understanding. As a consequence, we seldom trust our "feeling" in matters of "importance," and we pass over the wonders of our seeing for one practicality or another. But nonobjective, phenomenal art *is* about seeing — about seeing, "feeling," and determining aesthetically. Yet it seems every time we get a real glimpse of this power of *our* seeing, we quickly give it away by attributing it to someone or something outside ourselves.

> Quantities are no more real than qualities
> Intellect is no more true than feelings
> Truth is no greater an aspiration than beauty.
> (Irwin 1985, 20)

The end result of Irwin's discussion is the point at which he describes how the individual's presence influences his/her perceptions (that person's *being)*, and the context of the situation in which the person exists (*circumstance*):

> If all this seems a bit familiar, it should. No one "invents" a new perceptual consciousness. This process of being and circumstance is at most basic perceptual (experiencing) action, something we already do at every moment in simply coming to know the nature of our presence, and we almost always do so without giving the wonder of it a second thought. Once again this "oversight" speaks not of its insignificance; on the contrary, it speaks of its extraordinary sophistication. What I am advocating is simply elevating this process, this reasoning, to a role of importance that matches its innate sophistication. (Irwin 1985, 11)

The phenomenological approach has been encouraged by the individual and collective works of David Seamon (1982, 1993). With colleagues within The Society for Phenomenology and the Human Sciences he has been discussing the person-environment relationship, with a focus on such themes as environmental ethics, sacred space, environmental behavior, sense of place, and a phenomenology of environmental design. They stress the need for a reciprocity between theory and practice by recognizing that design is "a major point of union, through which sensitive seeing and building grounded in dwelling would strengthen the world ecologically, humanly, and spiritually" (1993, 11).

As editors of *Dwelling, Place, and Environment: Toward a Phenomenological Ecology*, Seamon and Mugerauer (1985) found the modern world in a paradoxical

situation: humans living at the height of technological mastery yet finding themselves separated from both the earth and others in an unsettling nexus of domination and homelessness.

Contributors to *Dwelling, Place, and Environment* (Seamon and Mugerauer 1985) include Brenneman (1985), who evaluated sacred space in Ireland and noted how loric places draw people in; Saile (1985), who studied pueblo dwellings and sacred and loric powers on a regional scale in the southwestern United States; and Dovey (1985), who, in writing, "The quest for authenticity and the replication of environmental meaning," looks for answers to the question of why people are disconnected from the environment and concludes that much of the disconnectedness has to do with the loss of craftsmanship and construction. In the past, when a road or structure was wanted or needed, humans had a meaningful connection between built environment, natural environment, and human world. He states that in modern times, people are searching for a connection with the environment and looking for ways to recreate the places of their memories. They are replicating elements of the built environment in such a way that the form is not authentic, and for an original purpose that is now obsolete. Examples include inoperable shutters, gas fireplaces which don't burn logs, and exterior building materials that are synthetic replications of stone or brick. He says, "only in the context of everyday use does the shutter gain its meaning. False shutters are an attempt to retain or regain this meaning through replication of appearance" (37).

Contributors to *Dwelling, Seeing, and Designing* (Seamon 1993) include the following: Coates and Seamon (1993), who used foundational ecology in a design project

based on Alexander et al. (1977) in developing an outdoor education center; Mugerauer (1993), who described the need for a phenomenology of architectural elements as they support human experiences; Violich (1993), who studied sense of place in four Yugoslavian towns using a distinctly descriptive phenomenological approach; Walkey (1993), who developed eight architectural qualities that mark a building's essential character based on research conducted in Greece: seasonality, open front, mass, detail, ascending lightness, floating roof, balanced center, and special rooms; and Clare Cooper Marcus (1993), who described the mechanisms that develop commitment to place: sacrifice, investment, renunciation, communion, mortification, shared values, transcendence, and setting (based on Findhorn, Scotland).

Identifying a sacred structure of valued places, Hester (1993) gives an example of a planning process that has developed out of this philosophy. Hester explored the settings, situations, and events that marked the heart of a community, and which assisted in planning for tourism in North Carolina.

Cooper Marcus (1992) in her work "Environmental Memories" describes the components associated with place attachment and the need for more research into the field as the population ages and environmental memories become more extensive. She focuses on the importance of memories in determining place attachment, but also notes other important qualities: control over meaningful space; the manipulation of that space by means of actual construction, subtle changes, decoration, furnishings, modifications, etc.; and the re-creation of some essence of significant past settings in later life. These acts — control, manipulation, and re-creation — have important psychological

consequences: we are motivated to effect these changes in order to discover, confirm, and remember who we truly are. Thus, our memories of such settings and self-expression are profoundly important reminders of self-identity, especially at times when that very identity is weakened or threatened. Without such memories our very identity as a unique human being may be lost (110).

Shamai (1991) evaluated sense of place using a measurement scale that evaluated place knowledge, involvement, attachment, and commitment, comparing the responses of students to different schooling methods. The results are less indicative of factors contributing to sense of place than of attitudes resulting in actions toward place.

Mazumdar and Mazumdar (1993) studied sacred space and place attachment and determined that emotional connectedness to place is forged through the creation of sacred settings.

The work of Abrams, *The Spell of the Sensuous* (1993), mentioned earlier, is a significant philosophical work that continues the development of a systems approach to being, dwelling, and place, and which brings useful concepts to the nonscientific community. The work focuses on the experience of the individual as a sentient being in a world where that perspective is largely undervalued. Abrams writes of studying other cultures with an interest in learning how others connect with the natural world and how they then incorporate those elements into their daily lives. The subtitle of *The Spell of the Sensuous* is "*Perception and Language in a More-Than-Human World,*" with the "more-than-human" factors being all other elements of the earth including plants, rocks, animals, atmosphere, and hydrosphere.

Abrams examines the philosophies of phenomenologists Husserl and Merleau-Ponty in an effort to validate the subjective methods of evaluation and perception. He explains how early scholars Galileo and Descartes set out to assign all phenomena a mathematical rationale, which has resulted in a descriptive and theoretical void.

Bourassa (1991) writes about an approach to landscape evaluation based upon attitudes toward the landscape that have developed out of biological laws evolving from the relationship between struggle and aesthetics (habitat theory), cultural rules based on an individual's social environment bias, and individual strategies of creativity and experience. The biological laws are the result of human evolution and the relationship between survival and aesthetic preferences, information processing, and Gestalt theory; the cultural rules developed out of cultural bias toward stability and identity; and the individual strategies are the result of individual experiences based on the significance of personal creativity as the source of cultural change.

Bourassa notes that even with significant development of landscape evaluation research, theory is lacking in landscape assessment and he suggests regional landscape "criticism" as an approach based upon surveys and assessment of public preferences coupled with the sensibility and knowledge of a creative landscape expert. "Landscape" is an aesthetic object that demands an aesthetics approach based on the interaction and intensification of everyday experience (1991, 31).

In the area of landscape assessment, driven by the National Environmental Policy Act (NEPA), Craik and Zube (1976) conducted research that used descriptive methodology provided by experts to develop the Perceived Environmental Quality Index (PEQI). It provided baseline and comparison data to measure air and water quality, noise, landscapes, scenic resources, recreation, transportation and institutional environments. Zube, Pitt, and Anderson (1974) quantified scenic resources in the Southern Connecticut River Valley based on physical components: land-use compatibility, relief, height, contrast, water, and derived formulae for evaluating scenic quality.

Zube (1993), Zube and Whittaker (1991), Sell and Zube (1993), and Whittaker and Zube (1993) have also done extensive work in perception of the built environment in national park settings and recommend design standards to ensure compatible development in these unique settings. Zube's most relevant work on landscape perception was a survey of existing research published in 1982, "Landscape Perception: Research, Theory, and Application" (Zube, Sell, and Taylor 1982). This paper summarized the theoretical perspectives presented between 1965 and 1980 by profession and discipline, noted the theoretical vacuum, and offered a framework for research based on an interactive process. In working for many years on landscape assessment and preferences, the authors developed a theoretical approach based upon four approaches: *expert evaluation* by skilled trained observers; *psychophysical evaluation*, based on tests to evaluate perceptions of the general public for planning purposes; *cognitive psychological*

evaluation, an experimental approach to measure human meaning assigned to landscapes; and the *experiential evaluation* approach, which was transactive with observer as participant. Their framework was based on human interactions with the landscape, and resulted in outcomes in terms of satisfaction, information, and well-being. Their model is presented in Section B — Theoretical Models of Sense of Place.

In the area of humanistic geography, sense of place was one of the key concepts used by geographers in the 1970s to distinguish its approach from that of other geographers. In particular, it was associated with the phenomenological approaches of Relph (1976, 1989, 1993a, 1993b, 1996) and Tuan (1974, 1980, 1993). Geographer Yi-Fu Tuan (1974) used the phrase *topophilia* to denote a love of place and named a book after the concept: *Topophilia: A Study of Environmental Perception, Attitudes, and Values.* Tuan identified the concept of place with a form of reverence called *geopiety*, as well as the *rootedness* associated with living in a location for an extended length of time.

Edward Relph (1976) describes the phenomenonolgical basis of geography by quoting from the works of Dardel, Paassen, Hartshorne, Tuan, Heidegger, and Merleau-Ponty, each supporting the fundamental basis of geography as the phenomenon of the lived-world (5-6). Relph states that the direct experience of living is *geographical reality*, which is often so obvious in form that it is taken for granted and not studied or described. This lack of information on the human-environment relationship has led to the loss of significant places and flourishing of meaningless places (7).

His seminal work, *place and placelessness* (1976) explores the essence of place from a phenomenological perspective, touching on different types of space and place

(existential, perceptual, architectural, cognitive, abstract), identity of place (insidedness and outsidedness, images and identities), authentic placemaking, placelessness (kitsch, mass communication, mass culture, big business, central authority), and prospects for places (the inevitability of placelessness, and designing a lived-world of places).

According to Relph (1996) the concept of place only became a significant focus of interest outside geography in the early 1960s as a result of a shift in academic attention toward issues of human-environment interaction, a cultural change in the way people related to environments, the simultaneous changes in the physical nature of environments, and the technological advancements in communication, travel, and ideological globalization (906). He notes trends in research being directed toward recovery and design of place and cites the attempts to maintain *place* as coming from three directions: *local political reactions*, often taking the form of neighborhood protests against the threat of potentially place-destroying intrusions, *personal sensitivity to places* as foundation for recovering something that is disappearing from the world, and emphasizing *the need to find ways to design and maintain* distinctive places. (1996, 918)

It is significant that spiritual values, the role of sacred places, and the defining role of place symbols and meanings have recently received attention. These areas indicate a need for meaning in the environment, which is a recent postindustrial phenomenon. Subject areas that were never before at issue because meaning and symbolism were readily at hand within the environment are now developing for research. According to Relph (1996, 917), "this is a radical transformation. In the geography of global culture it involves a sort of space-time-culture compression, the global village, in which a diverse

mixture of international practices and tastes is being made more or less equally available everywhere." He further states:

> Distinctiveness is given either by the self-consciously preserved or reconstructed fragments of old landscapes, by an emphasis on a selective social activity, or by particular combinations of uprooted and transported global fragments. I am struck, for instance, by the gondolas which ply the modernist waterfront in Toronto, and Texas-style restaurants in the Victorian centre of Glasgow. (1996, 918)

Relph suggests methods for the recovery and redesign of place, suggesting proactive citizen involvement — "self-help design" and an effort toward a "geographically responsible way of doing things in which global processes and fashions would cease to be imperatives and would be used only when refracted through the lens of locality and implemented in a locally responsible way" (1996, 920).

In the 1970s, Saarinen (1973) bridged the gap between geography and environmental and social psychology by studying the cognitive-behavioral relationship using projective techniques. In order to better understand a person's perception of the environment and one's actions, Saarinen used analysis of photographs and mental mapping in an approach called Thematic Apperception Testing (TAT) which allowed individuals to respond to a stimulus (viewing photographs) and create a more elaborate product (their impressions).

Appleton (1975) put forth theories of landscape preference based upon the environment's capacity to provide habitat as well as suitable locations for meeting prospect and refuge needs. He maintains these theories in the revised edition (1996) after twenty years of review and analysis, and notes that other theories have value and are not

mutually exclusive, but rather mutually supportive. Although there is not general agreement on a single theory of landscape preferences and aesthetics, the "most important item on the agenda is bringing them more closely together" (1996, p. 254).

Rapoport (1982) and Rapoport and Kantor (1967) discuss the development of design traditions and approaches toward meaning in the built environment (observed and humanistic); differences between designers and users; perceived control by users; and nonverbal communication of built environment.

During the 1980s, interest in the concept of place grew outside humanistic geography to economic, historical, and political geography. Nicholas Entrikin (1991) tried to mediate between the varying notions of place by arguing that "to seek to understand place in a manner that captures its sense of totality and contextuality is to occupy a position that is between the objective pole of scientific theorizing and the subjective pole of empathetic understanding." He examines the debate over quantitative and qualitative research and argues for the need to study place from "points in between" because neither approach can fully capture the intricacies of what is both *rational* and *affective*.

Eugene Walter (1988) describes "topomorphic revolutions" as the a radical shift of topistic structure: a fundamental change in the form of dwelling together (23). He discusses the sociological changes of the Middles Ages and the Industrial Revolution and the profound changes in land use that accompanied them. The changes brought about by the automobile and the post-World War II rush to the suburbs are two examples of recent topomorphic revolutions. Presently, the globalization of society is a topomorphic revolution under way as a result of the technological revolution. These shifts toward mass

communication, supersonic travel, global distribution of goods and services, and cultural exportation have been transforming geography in a direction sharply away from individuality and location.

Lowenthal's research (1985, 1996) has primarily been in the form of historical geography and landscape criticism. His latest work examines the recent popularity of the heritage tourism industry.

Jackson (1984, 1994) describes sense of place as an ambiguous, overused phrase that has lost its historical meaning. According to Jackson, the phrase is used to describe the *atmosphere of a place* or the *quality of the environment*. Jackson remarks that the term still implies a specialness that is *related to ritual*: many places are more significant in modern times because of the time spent in those places, rather than distinctive features of the landscape. He suggests that to retain sense of place, humans must return to a more natural order, and to do so will result in a "new kind of history, a new, more responsive social order, and ultimately a new landscape" (1994, 157).

Porteous (1982, 1996) delineates four approaches to environmental aesthetics: contemplative-humanist, activist, planner, and scientific experimentalist, with scientific rigor and relevance driving the value of each approach. His more recent work develops the concept based on Maslow's hierarchy of needs (Maslow, cited in Porteous, 1996) where he states that as human needs have become satisfied with the help of technology, we are more able to focus on self-fulfillment through self-actualization and cognitive and aesthetic experiences. The opportunity to experience meaning has become paramount and "feeling may involve attachment (or its opposite), and thus sense of place" (1996, 8-9).

3. Environmental Design

As researchers in environmental psychology and geography were developing their theories of place, architects, landscape architects, and planners were reporting results of their work in aesthetic perception of the urban environment, including observations of images and symbols. Planner Kevin Lynch and students at the Massachusetts Institute of Technology (1960) studied city dwellers' perceptions of the urban environment, and Lynch, David Appleyard and John Meyer conducted the first study on how automobile drivers and passengers perceived new highways being constructed across the country (Appleyard, Lynch, and Meyer 1966).

Lynch was a pioneer in the study of the human-environment relationship and wrote extensively on planning and environmental social science. His works, *The Image of the City* (1960), *Site Planning* (1962), *Managing the Sense of Region* (1976), and *A Theory of Good City Form* (1981) laid the foundation for place study from an environmental design perspective, and included numerous guidelines and principles for application.

In his early work, Lynch describes sense of place as a "synthetic faculty, like a sense of judgement or sense of responsibility, which embraces and extends the various senses of perception." (1962, 9 cited in Relph 1996, 910). He states, "a place affects us directly through our senses — by sight, hearing, touch, and smell." He developed a "language" to describe the human-designed environment based on paths, edges, districts, nodes, and landmarks, which make an environment legible. Lynch notes how sense of place is strongly associated with personal identification:

> Place character is often recalled with affection; its lack is a frequent subject of popular complaint. People are pleased to "know" a great city or to understand its history. Indeed, a strong sense of place supports our sense of personal identity. For that reason, familiar features of a landscape are often fiercely defended. (1976, 23)

In response to the changing environment of post-World War II, concern was rising that technological improvements were wiping out the humanistic elements of the environment. Pressure was on designers to guarantee that human needs for expression and personal satisfaction could be met along with the improvements in efficiency and convenience.

Arguably the most significant work on design elements and their relation to humans over time was done by Christopher Alexander. His *A Pattern Language: Towns, Buildings, Construction* (Alexander et al. 1977) and *The Timeless Way of Building* (1979) significantly influenced the way architects and planners have designed for that relationship. *The Timeless Way of Building* describes the theory behind the task of making towns and buildings, and *A Pattern Language* describes in detail the tools necessary to do those tasks. The "language" consists of a series of patterns within the environment that combine to make "wholes." The wholes combine to create the intrinsic essence, or whole place, described as being or having the "quality without a name." This quality without a name may be interpreted as sense of place.

In *Genius Loci: Towards a Phenomenology of Architecture* (1979) Christian Norberg-Schulz lays the foundation for the construct of genius loci. He describes the key to understanding human identity as it relates to nature as the ability to find identification within the world based upon the character of a place, and the ability for orientation within

space, in order to understand the relations or provide context for living. Norberg-Schulz defines place in *Genius Loci* as:

> a totality made up of concrete things having material substance, shape, texture, and color. Together these things determine an "environmental character" which is the essence of place. In general, a place is given as such a character or "atmosphere." A place is therefore a qualitative, "total" phenomenon, which we cannot reduce to any of its properties, such as spatial relationships, without losing its concrete nature out of sight. (1979, 8)

> Man dwells when he can orientate himself within and identify himself with an environment, or, in short, when he experiences the environment as meaningful. Dwelling therefore implies something more than "shelter." It implies that the spaces where life occurs are *places*, in the true sense of the word. A place is a space which has distinct character. Since ancient times the *genius loci*, or "spirit of place," has been recognized as the concrete reality man has to face and come to terms with in his daily life. Architecture means to visualize the *genius loci*, and the task of the architect is to create meaningful places, whereby he helps man to dwell. (5)

The result of these endeavors is the translation of nature into an ordered microcosmos or *imago mundi*, which concretizes the world, and thus gives humans a foothold in the world. This leads to "dwelling," in the existential sense of the word, which facilitates the process of being.

In the journal, *Places: A Forum of Environmental Design*, architect Mike Pease (1995) alerts designers to the role of place in sustainable development when he remarks that recent projects have not shown sensitivity to setting to include a reduction in scale:

> All are forms forced onto a reluctant landscape, all relics of a tradition in which the land was the enemy — or at best, merely a tool, a floor on which to build — and dominance by humans was the only objective. For sustainability's sake, if for no other reason, it is surely time to reconsider this set of assumptions. Some traditions, after all, may need to change.

> The quest for sustainable communities, sustainable landscapes, sustainable

> architecture, leads us toward a reevaluation of our relationship to the earth at every scale. Our cultural history in recent centuries has been increasingly anthropocentric. That anthropocentrism is as clear in our architectural and planning paradigms as anywhere, and that will have to change. More than anything, the call for sustainability is a call for a new understanding of the meaning of place. (Pease 1995, 69)

Another influential contemporary source on the development of the built environment has been HRH Charles, The Prince of Wales, whose work *A Vison of Britain: A Personal View of Architecture* (1989) chronicles his views on the demise of architectural integrity in Great Britain and around the world during the last half of the Twentieth century. He recommends Ten Principles of Design based on historical principles developed over time. The ten principles are discussed in depth with photographs and illustrations in the text and are as follows:

1. The Place
2. Hierarchy
3. Scale
4. Harmony
5. Enclosure
6. Materials
7. Decoration
8. Art
9. Signs and Lights
10. Community

Regarding the most effective and pleasing ways to create a better environment, The Prince of Wales writes,

> By standing back and looking at what has been happening as objectively as possible, I could see that we seem to have forgotten some of the basic principles that have governed architecture since the Greeks. Many of them are common sense, like the laws of grammar that create a language. (1989, 76)

> I'm sure there is a general agreement that an emphasis on quality creates greater value, as well as leaving our descendants something worth inheriting. What follows, therefore, is not new. It is a simple extension of the rules and patterns that have guided architects and builders for centuries. (97)

In a similar manner, planner and historic preservationist Donovan Rypkema writes,

> the character of our built environment, historic areas and others, is directly related to both the strength of our communities and the quality of place. The two concepts, community and place are inseparable. "Place" is the vessel in which the "spirit" of community is stored; "community" is the catalyst that imbues a location with a sense of place. Once understood in this context, many things begin to make sense. (1996, 60-61)

Most recently, architecture and planning have seen the emergence of a number of trends related to enhancing sense of place: neotraditional town planning and new urbanism, with a return to older models of community design geared away from the automobile and toward community interaction (Duany and Plater-Zyberk 1991).

Architect Sarah Susanka, (1998) in *The Not So Big House* (Susanka and Oblensky 1998), focuses on reducing size and scale of structures and improving the quality through attention to detail. The messages are, "less is more," and "quality over quantity." Similarly, architect Fay Jones (1990) develops elegant designs that blend structures into the landscape and favor simplicity and magnificence of materials over grandiose attempts at modernism and monuments to technology.

Planner Anton Nelessen writes in *Visions for a New American Dream* (1994) of the downward spiral from village-type communities to suburban sprawl, calling suburbs "Edge Cities" with no sense of place (1994, 25). He suggests the spiral can turn back toward livable communities through the use of design principles focusing on humanism and human scale, ecological responsibility, open space, a compatible mix of land uses, walking distances, and community focus. Using a process of viewing slides and rating

preferences for features in the slides (on a twenty one point Likert-type scale called the Visual Preference Survey™) Nelessen developed a methodology for evaluating the characteristics citizens prefer in their communities. The slides focus on a wide ranges of features and facilities found within communities and respondents rate the images in terms of appropriateness, likeability and positive or negative potential. Having analyzed over 50,000 surveys, Nelessen states that clear visual and spatial preferences have emerged in favor of more traditional small communities with many of the specific design components noted above (1994, 88).

The emergence of conservation practices to preserve sense of place in rural areas has resulted in the formation of land trusts and such preservation tools as TDR (transfer of development rights), and agricultural districts. In addition to landscape and environmental assessments, cultural assessments are being conducted to evaluate the human-related aspects of place that are in need of preservation.

From a tourism-related perspective, an exhibition ran from 1996 through 1999 at the Armand Hammer Museum in Los Angeles and the Cooper-Hewitt National Design Museum in New York on "The Architecture of Reassurance: Designing the Disney Theme Parks" (Landecker 1997). The exhibition showcased over 350 objects from the studios of the Walt Disney Imagineers (the design teams of planners and architects), from the 1960s to the present. They include designs for the Experimental Prototype Community of Tomorrow (EPCOT), which was originally envisaged as a "real" community, and designs for the theme parks that included the most basic and fundamental principles of design, "modified" to give the visitors the ultimate experience: streets offer pedestrians a

desirable object in the distance — a terminus at the end of an axis, such as a castle, to make a long walk seem shorter. Buildings were designed at 7/8 human scale to give people a sense of control. Disney's ideas have influenced developers with ideas for festival marketplaces, walkable town centers, and New York's famed 42nd Street, which has now been "themed" by Disney's renovation of a theater (1997, 7).

4. Resource Management

Directly related to this study is the development of the psychometric scales known as the Recreation Experience Preference (REP) scales, developed to illuminate motivations for recreation experiences (Driver, Nash, and Haas 1985). The scales clarify the psychological or physical outcomes or benefits individuals seek in a recreational experience and are used to improve the planning and management of the resources. The REP scales were developed based upon a structure of domains (item groupings that represent a broad goal construct) and scales (within-domain item groupings that represent dimensions of the broader goal construct).

In a meta-analysis of twenty years' research, Manfredo, Driver, and Tarrant (1996) explain the historical development of the REP scales. The methodology was primarily developed in two stages. The first involved literature reviews of personality trait and motivational theory to determine the needs and motivations that would influence recreation; brainstorming and adaptation of existing psychometric scales of items that might measure those factors; open-ended qualitative discussion with recreationists of their

motivations; and review of the recreation literature. The second phase involved testing over numerous studies to establish scale reliability and validity.

Examples of the domains that developed include achievement/stimulation, autonomy/leadership, risk-taking, family togetherness, learning, introspection, enjoying nature, and physical escape. Within the domain of achievement/stimulation, scales include reinforcing self-image, social recognition, skill development, competence testing, excitement, endurance, and telling others. Under the scale of reinforcing self-image, individual items include gaining a sense of self-confidence, developing a sense of self-pride, and showing yourself you could do it (Manfredo, Driver, and Tarrant 1996, 198-201). The conclusion of the meta-analysis was that the research up to that point be viewed not as the final word on recreation motivation research, but rather as a focal point upon which to build.

Both the USDA Forest Service and USDI National Park Service have actively applied procedures and standards for landscape assessment and each department has become more involved in recent years. The USDA Forest Service Agriculture Handbook Number 701, *Landscape Aesthetics: A Handbook for Scenery Management* defines "Scenic Attractiveness" as:

> the scenic importance of a landscape based on human perceptions of the intrinsic beauty of landform, rockform, waterform, and vegetative pattern. Reflects varying visual perception attributes of variety, unity, vividness, intactness, coherence, mystery, uniqueness, harmony, balance, and pattern. It is classified as A - Distinctive; B - Typical or Common; C - Undistinguished. (USDA 1995, Glossary, 5)

The handbook offers a variety of testing methods for landscape assessment and

emphasizes the importance of community or stakeholder involvement in the evaluation and planning process. The Forest Service has taken a lead role in promoting the concept of ecosystem management through the use of "an ecological approach that blends social, physical, economic, and biological needs and values to assure productive, healthy ecosystems" (USDA 1995, Glossary, 2).

The National Park Service has maintained an approach that takes into account the scenic beauty of the natural setting as well as the compatibility of architecture. Conferences and studies have been undertaken that provide the basis for the Park Service's position. For example, the Second Annual Design Workshop — Visual Quality of the Built Environment (September, 1988), resulted in a report outlining visual quality standards and operations.

A separate research endeavor produced the handbook, *Visual Quality of the Built Environment in National Parks* (USDI 1993b), the purpose of which was to "raise awareness of and sensitivity to the importance of the visual quality of the built environment in parks. It provides a review and discussion of visual quality strategies and tools for planning, designing and managing" (1993, iii). Development of the report included site surveys, a mailed survey of NPS personnel attitudes about visual quality, review of concerns and techniques for addressing visual quality, and communication with regional directors, superintendents, and maintenance facilities managers.

Development is also being influenced by efforts to present specific design principles to preserve sense of place: The Ecotourism Society's *Ecolodge Sourcebook* (Hawkins, Wood, and Bittman 1995) and the National Park Service's *Guiding Principles*

of Sustainable Design (USDI 1993a) are two examples.

In terms of theoretical research, a significant recent publication is the 1996 compilation of articles, *Nature and the Human Spirit: Toward an Expanded Land Management Ethic* edited by Driver, Dustin, Baltic, Elsmer, and Peterson. This volume provides insight into a significant paradigm shift in public land management toward sustainability and consideration of spiritual values.

In the Introduction the editors state that they met in 1992 to "consider the 'spiritual' meanings that nature holds for human beings and to consider if and how a more thorough understanding of these meanings could improve management of the public lands" (1996, 3). They held a focus group with individuals from a variety of professions and perspectives and found a definite demand for a text that would increase understanding of the topic. Within the text are articles dealing specifically with the importance of recognizing the relationship between place and hard-to-define human experiences (Roberts 1996; Goodale and Godbey 1996; Mannell 1996; Driver and Ajzen 1996; Greene 1996a). The essays assert that these subjects have become so important over time that they cannot be overlooked or ignored by planners, managers, and policy makers. The timeliness of this book points to the convergence of numerous disciplines and the development of a new view of landscape perception.

In other areas of resource management, Wyman (1985) used qualitative research in the form of environmental biographies to analyze the perceptions of nature experiences in the lives of individuals and correlated responses to recreation management professionals' expectations. The results of the study concluded that

individual experiences were decidedly rich and varied and did not always meet the expectations of education, planning, and design professionals, therefore supporting the need for greater involvement of individuals.

Fishwick and Vining (1992) conducted a phenomenological study related to sense of place and recreational use. They noted that much of the research on people's responses to landscapes was focused on functional and visual descriptors in terms of location and appearance, and the view of the user or visitor as "shopper" for psychological outcomes. Recognizing a need in the research, they utilized a phenomenological approach to determine that meanings and significance also exist.

Within research directed at understanding the importance of the setting component in meeting the recreational goals of natural resource users, several studies stand out. Williams and Roggenbuck (1989) defined *place attachment* as the extent to which an individual values or identifies with a particular environmental setting. They divided the construct into *resource identity*, which is the degree of emotional or symbolic value assigned to a place and the extent to which using that place is a central aspect of one's life; *resource dependence*, the importance of the resource for doing a particular recreational activity; and *resource specificity*, whether another site could be substituted for the activity.

Williams, Patterson, Roggenbuck, and Watson (1992) were able to show that different users held different degrees of place attachment based on number of previous visits, residence, the setting focus (as opposed to activity or group focus), visiting alone and on weekdays, hunting in the area, sensitivity to site impacts, and horse encounters.

They expressed the conclusion that evaluation of theses items could be significant in improving management of wilderness areas.

In addition, Williams, Anderson, McDonald, and Patterson (1995) evaluated how people use leisure to "thicken" the meaning in their lives and reconnect to place and community, and showed results similar to Williams, Patterson, Roggenbuck, and Watson (1992). They found again that place dependence and place identity were significant factors in the importance a person attaches to a place.

Similarly, Moore and Graefe (1994) provided the following definitions: *place attachment* as the extent to which an individual values or identifies with a particular environmental setting; *place identity* as the valuing of a particular setting for emotional-symbolic reasons; and *place dependence* as valuing a particular setting based on functional (activity-related) reasons. Their research showed that place dependence is rooted in how well the setting facilitated users' activities and composed of frequency of use and distance between the site and the user's home. Place identity focused on the importance of the setting independent of activities, and was correlated with the length of time the site had been in use. Implications for management are that users often have strong attachments to sites and should be brought into management decision-making processes, as well as tapped for volunteer activities and public involvement dollars.

M. Y. Mitchell, et al. (1991) commented in their article, "Forest places of the heart: Incorporating special places into public management," that the role of attachment to an area was an important reason for visiting the area. They used qualitative methods to identify attachment orientation and noted that the affective components of visitors to an

area included reminiscing, remembrances, and a sense of ownership for the area. In addition, the value of affective relationships with the environment included self-definition, identity, and a way of handling modern technology. They noted the value of a "transactive planning" process to include the affective components of place in future planning.

Finally, Williams and Stewart (1998) concluded that the specific construct of sense of place has evolved to the point of saliency in natural resource management policy development and management techniques. They note the convergence of numerous, often disparate, disciplines with a shared agenda of resource protection:

> the concept offers managers a way to anticipate, identify, and respond to the bonds people form with places. By initiating a discussion about sense of place, managers can build a working relationship with citizens that reflects the complex web of lifestyles, meanings, and social relations endemic to a place of resource. Sense of place can be the shared language that eases discussions of salient issues and problems and that affirms the principles underlying ecosystem management (1998, 18)

They offer suggestions of ways to integrate sense of place and the human dimensions of resource management into the planning and management process: 1) know and use the variety of place-names, 2) communicate management plans in locally recognized place-specific terms, 3) understand the politics of places, and 4) pay close attention to places that have different meanings to different groups (Williams and Stewart 1998, 21-22).

B. Theoretical Models of Sense of Place

The earliest model contributing to the development of place theory found in the literature was developed by Edward Relph (1976). Three other models have been selected as being most representative of the development of theories representing perception of place: Steele (1981), Zube, Sell, and Taylor (1982), and Greene (1996a).

Relph's model (Figure 2.1.) was based upon a framework of three components: static physical setting, activities, and meanings (1976, 47). The setting and activities are easily understood and described; meanings, however are more complex. The intentionality associated with the experience includes individual and cultural variations that reflect individual experiences and also expectations: a priori ideas that mix with experiences to form a stable meaning. Added to this are the concepts of "belonging" to a place and the perceptions of insider versus outsider.

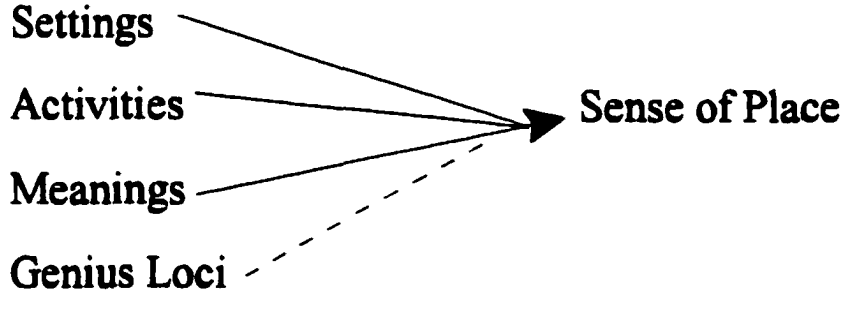


Figure 2.1. Relph's Model of Components Contributing to Sense of Place (1976).

The three individual components are further complicated by the levels each can be subdivided into. The importance lies in how they are interwoven: "physical appearance, activities, and meanings are the raw materials of the identity of places, and the dialectical links between them are the elementary structural relations of that identity" (Relph 1976, 48).

Relph adds a fourth component to the model and it is one that is most complex and difficult to quantify: the spirit of place, or genius loci. Relph notes that it is the *character* of the most unique locations that remains the same over time, even though generations pass, industries change, buildings come and go. Relph's simple model shows four factors contributing to sense of place: settings, activities, meanings, and genius loci.

Steele's model (Figure 2.2.) has two setting factors, physical and social, which contribute to the independent, individual "person," or psychological factors giving rise to sense of place.

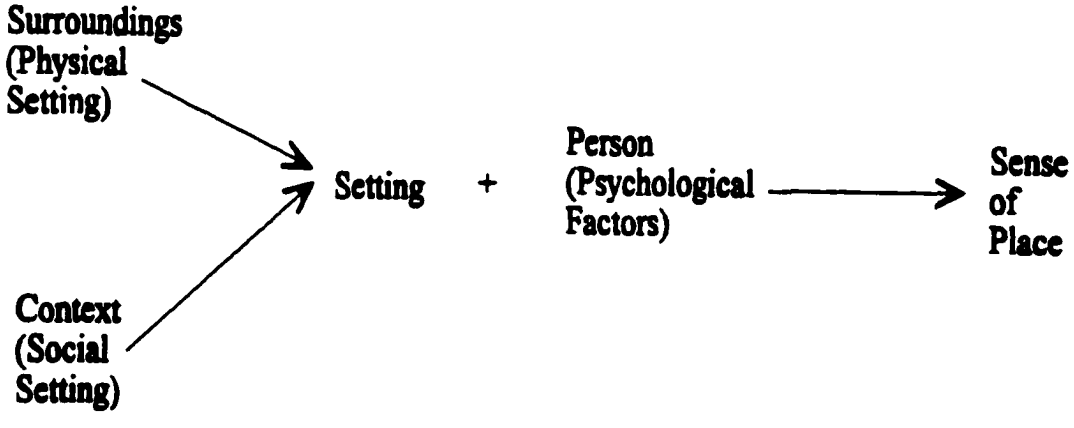


Figure 2.2. Steele's Model of Factors Contributing to Sense of Place (1981).

Steele comments, like Relph, on the *transactional nature* of the factors in generating reaction to a setting:

> sense of place is the pattern of reactions that a setting stimulates for a person. These reactions are a product of both features of the setting and aspects the person brings to it. This is an oversimplification, the main point here is that sense of place is an interactional concept: a person comes into contact with a setting which produces reactions. These include feelings, perceptions, behaviors, and outcomes associated with one's being at that location. Sense of place is not limited just to the experiences of which the person is consciously aware. (12)

Zube, Sell, and Taylor's model (1982) (Figure 2.3) comprises human – landscape interactions, similar to the models by Relph and Steele and the way they produce outcomes. This model is also similar to the other models in that its components are based on interactions, but it elaborates on the individual components and outcomes, as noted earlier in the discussion of Geographical Research.

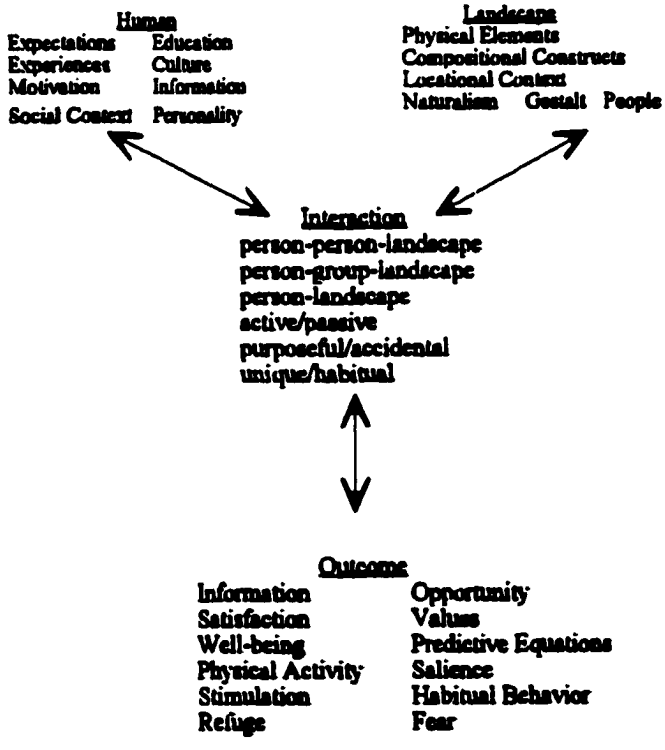


Figure 2.3. Zube, Sell, and Taylor's model of Landscape Perception (1982).

Greene's model (1996a) (Figure 2.4.) is also similar to the other three in that he emphasizes the transactional influence of person-setting relationship. Greene, however, adds the component of managerial influence into the setting component: "this addition is necessary because managers moderate or regulate the opportunities for visitor setting interactions on public lands" (303). This added component is a valuable consideration, particularly for resource managers, but may be an unnecessary extraction of a single item in order to meet the needs or interests of a particular constituency. Greene's model also emphasizes the importance of the interactions, but like the other models, it is somewhat limited by a linear design.

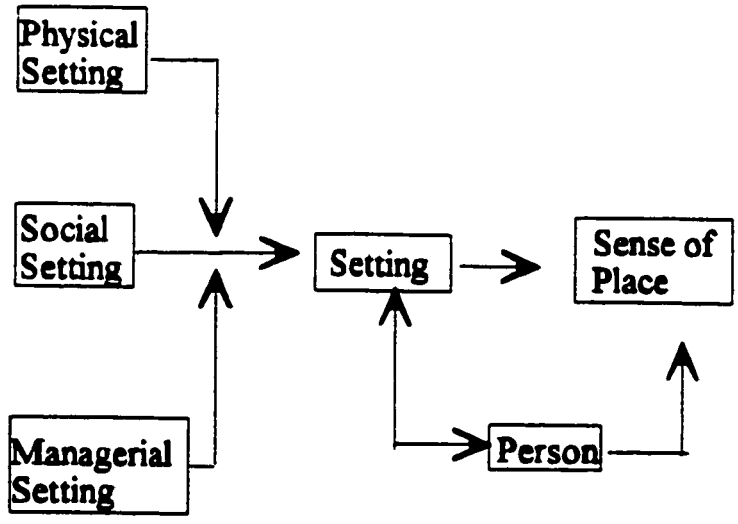


Figure 2.4. Greene's Model of Place Relationships (1996a).

C. Literature Synthesis

In summary, the preceding discussion of definitions, applications, and models of sense of place indicates how the research has developed from a multidisciplinary foundation. It is evident that the various disciplines have each approached the subject with their own specific agendas and have only recently begun interdisciplinary sharing. However, the focus of each discipline has laid important foundational groundwork for current research into sense of place.

The research methodology has included both qualitative and quantitative methods and there appears to be a need for both. The continued expansion of multitrait-multi-method approaches strengthens each individual discipline and provides greater understanding of the complex concepts surrounding place theory.

Finally, in support of the concept of a new discipline of place perception, Carlson concludes his essay "On the Theoretical Vacuum in Landscape Assessment" (1994) by stating that the development of theory that explains, as well as justifies, the importance of landscape quality in human lives is proceeding through "the process of lifetimes spent in experience," and through an "appreciation of the landscape, together with deep and reflective thought about the nature and meaning of such experience and appreciation" (1994, 55).

He notes *the importance of landscape assessment in society as being critical to quality of life and enrichment of society*, and refers to Leopold (1966), who concluded his "Conservation Esthetic" in *A Sand County Almanac*, by noting that the expansion of development into natural resource areas requires a corresponding growth of human

perception, and that "development is a job not of building roads into lovely country, but of building receptivity into the still unlovely human mind" (1966, 295). Thirty-four years later, that challenge still exists.

CHAPTER III

RESEARCH METHODOLOGY

The purpose of this chapter is to provide a detailed explanation of the procedures used in this research. The first section describes the research strategy including construct definition and scale development and includes a discussion of the focus groups, expert panel, and pilot test. The second section describes scale testing involving the research design, sample population, and sampling design. The third section describes the data collection, and the final section explains the data analysis. Table 3.1 introduces the research program as it was conducted between January and December, 1999.

A. Research Strategy

The development of a definition of the construct "sense of place" and the sense of place scales were based on grounded theory research. Grounded theory involves multiple stages including literature review, and purposeful sampling of focus groups to form a theory of characteristics inherent in the construct (Creswell 1998). The study involved the review of previous research and new data collection using sociological research methods (Creswell 1998; Patton 1990). Parsimony, precision, and ease of analysis are benefits of this methodology (Patton 1990, 50).

TABLE 3.1: RESEARCH PROGRAM AS CONDUCTED BETWEEN JANUARY AND DECEMBER, 1999

	1. Construct Definition and Scale Development				2. Scale Testing, Refinement, and Confirmation		
Researcher	Lit. Review						
Group I		Focus Groups					
Group II			Expert Panel				
Group III				Pilot Test			
Group IV					Method X_1	Observ. O_1	
Group V					Method X_2	Observ. O_2	
Group VI					Method X_3	Observ. O_3	
Group VII					Method X_4	Observ. O_4	
Researcher							Analysis

TIME →

Banning (1995) notes the benefits of the process in providing the means to increase internal validity by using prolonged and varied field experiences, triangulation, peer examination, interview technique, authority of the researcher, structural coherence of methodology, and referential adequacy. To ensure reliability, dense descriptions of research methods, triangulation, peer examination, and coding procedures are included; to ensure generalizability, description of setting and participants have been included.

1. Summary of Findings from the Literature Review. Research findings used to develop the methodology for this study came primarily from the models of Relph (1976), Steele (1981), Zube, Sell, and Taylor (1982), and Greene (1996a); Recreation Experience

Preference (REP) Scale research by Driver, Haas, and Nash (1985) and Manfredo, Driver, and Tarrant (1996); resource management research of Driver, et al. (1996); and the design theories of Lynch (1962), Alexander, et al. (1977), and Norberg-Schulz (1979). Table 3.2 summarizes sense of place construct development from the literature. Full citations with dates are noted in the References.

TABLE 3.2 - SENSE OF PLACE CONSTRUCT DEVELOPMENT

Ulrich	natural scenes, including manipulated environs (parks, golf courses)
Ittleson	cognitive, affective, interpretive, and evaluative components acting together; open, continuously changing, with factors inside and outside the system influencing all aspects of the human-environment relationship
Kaplan, Kaplan, and Ryan	the environment's capacity to convey spatial organization information for exploration based upon complexity and mystery, and understanding based upon legibility and coherence; *information processing*
Steele	transactive relationship between person and setting; major characteristics and types of place experiences; pattern of reactions that a setting stimulates for a person both features of the setting and aspects the person brings to it; factors include identity, history, fantasy, mystery, joy, surprise, security, vitality, memory; spirit of place
Herzog	nine predictor variables for landscape preference: spaciousness, refuge, enclosure, coherence, legibility, complexity, mystery, typicality, and age
Wohlwill	symbolic reasons, refuge, fittingness (harmony), and the fittingness of man-made structures in natural areas
Stokols and Altman	experience, knowledge, expectations, sociocultural context, environmental elements, and physical context
Hull and Vigo	overlapping layers of opportunities, meanings, and emotions based on settings (resembling a flower with overlapping petals)
Abrams	phenomenology of the lived world
Heidegger	holistic integrated experience of perception based upon landscape combined with activities and the meanings associated with them

Seamon, and Mugerauer	contributions of phenomenology to environmental psychology and environmental design; edited two extensive volumes of research
Cooper Marcus	commitment to place generated by sacrifice, investment, renunciation, communion, mortification, shared values, transcendence, and setting
Appleton	the environment's capacity to provide habitat as well as suitable locations for prospect and refuge needs
Lynch	evaluate and identify features of the landscape that make an environment legible: paths, edges, districts, nodes, landmarks
Alexander	a series of patterns in the environment combine to make a whole; many of the patterns are archetypal, so deeply rooted in the nature of things that they will be a part of human nature and human action, as much in five hundred years, as they are today
Norberg-Schulz	a totality made up of concrete things having material substance, shape, texture, and color, which determine an "environmental character." A qualitative, "total" phenomenon, which we cannot reduce to any of its properties, such as spatial relationships, without losing its concrete nature
Nelessen	developed Visual Preference Survey™ using slides and 21-point scale. Emphasized humanism and scale, ecological responsibility, open space, mix of land uses, pedestrians, and community
HRH Charles Prince of Wales	Ten Principles of Design: place (setting), hierarchy, scale, harmony, enclosure, materials, decoration, art, signs and lights, community
USDA Forest Service	perceptions of the beauty of land, rock, water, & vegetative pattern; reflects varying visual perception; attributes of variety, unity, vividness, intactness, coherence, mystery, uniqueness, harmony, balance, pattern
USDI Park Service	design guidelines in National Parks and guiding principles of sustainable design
Driver, Nash, and Haas	development of Recreation Experience Preference (REP) scales to categorize motivations and outcomes of recreation users
Manfredo, Driver, and Tarrant	meta-analysis of REP Scale research over 25 years, supports the development of domains and scales to measure phenomena

Wyman	qualitative insights into nature experiences, which reinforces validity of individual perceptions
Williams	place attachment: extent to which an individual values or identifies with a particular environmental setting; resource identity: the degree of emotional or symbolic value assigned to a place; resource dependence: the importance of the resource for doing a recreational activity
Mitchell, et al.	affective components: reminiscing, remembrances, and a sense of ownership for the area, terms of self-definition, identity, and as a way of handling modern technology.
Relph	a framework of the static physical setting, activities, and meanings, and the spirit of place, or genius loci; the importance lies in how they are interwoven: "physical appearance, activities, and meanings are the raw materials of the identity of places, and the dialectical links between them are the elementary structural relations of that identity."
Zube	*human*: expectations, experiences, motivation, social context, education, culture, information, personality; *landscape*: physical elements, compositional constructs, locational context, naturalism, gestalt, people; *interaction*: person-person-landscape; person-group-landscape; person-landscape; active/passive; purposeful/accidental; unique/habitual; *outcome*: information, satisfaction, well-being, physical activity, stimulation, refuge, opportunity, values, predictive equations, salience, habitual behavior, fear
Driver	Paradigm shift away from consumptive, extractive resource utilization toward integrated, holistic, sustainable development
Greene	the transactional process of person-setting relationship, with the additional component of managerial influence added into the *setting* component (physical setting, social setting, & managerial setting). The model emphasizes the transactive nature, and the importance of memory on the part of the individual perceiver. Significant places are distinctive, memorable, affect generating, and psychologically owned

2. Scale Development. In order to further develop the list of descriptive items taken from the literature to be used in the written survey, meetings were held with focus groups and an expert panel. Focus group participants listed items describing perceptions associated with positive and negative sense of place. Participants from three groups were used based upon their interests in the built and natural environments: architects and staff of the

architectural and planning firm CCMK Architecture +; owners and staff of gardening and home furnishing stores (The Perennial Gardener and Sense of Place); and upper-division undergraduates in the Department of Landscape Architecture at Colorado State University. Each focus group had a minimum of six participants.

Participants were asked to reflect on the questions listed below. The objective was to obtain extensive high quality data in a social setting where people considered their views in the context of others, thus providing relatively consistent responses to the most important concepts (Patton 1990). Participants were able to see each other's remarks (as they were noted by the researcher on 24 by 36-inch flip chart) and add additional comments. It was hoped that the data collected from the focus group research would add dimension to the full spectrum of properties that contribute to sense of place.

3. Focus Group Questions

A. Visualize yourself in a special place outdoors in a town or other developed setting, a place which holds significant meaning for you. Think about why it has meaning for you and the feelings it evokes for you. What makes this place unique, meaningful or special? What words come to mind in describing this setting?

B. Using the same process, visualize a town or other developed setting that you don't like, which has little or no meaning, and which holds no interest for you at all. What makes it undesirable or devoid of meaning? How would you describe this setting?

The questions were phrased in such a way as to invoke memory of specific developed locations. Memory has been shown to be important in forming impressions of place, leading to such behaviors as place identification, place attachment, and place dependence. According to Relph (1993a), place experiences are deeper than the relationships of humans to space and landscape because place is "necessarily time-deepened and memory-qualified" due to repeated encounters and complex associations of memory and affection (36). Places may have very little significance or be of enormous importance; they may invoke positive affection (topophilia) or aversion (topophobia). Associations with places, from the inconsequential to the profound, create lasting memories which influence all future encounters (Violich 1985; Mitchell, et al. 1991).

Analysis of the focus group responses involved open coding to form initial categories of over 300 items influencing perceptions of sense of place. Within each category, subcategories emerged, formed by individual phrases or "items." Following open coding, the data were reviewed using constant comparative analysis with primary, secondary, and tertiary coding. The coding involved six iterations, including initial grouping by like characteristics, removal of overlap and repetition, sorting and regrouping, naming of categories, removal of vague or unusual terminology, rephrasing of all terminology into positive descriptors, and review for completeness.

It was determined during the focus group process that only positive descriptors would be used in the formal survey. This determination was made because the two individual sites being evaluated in the study had been selected due to their previous determination as sites with high and low sense of place (Greene 1996b), and this

designation would be and independent variable held constant throughout the study. No new or additional information would be gained by using both positive and negative indicators which would require subsequent analysis of reverse-coded indicators, and potentially result in confusion over whether the site or the item was responsible for the response.

The analysis resulted in three general categories of factors influencing perception of place: setting factors, individual/personal factors, and genius loci factors. Within the three general categories of factors, five specific subcategories (domains) appeared: *physical* and *cultural* setting factors, *affective* and *functional* individual/personal factors, and the *genius loci* factors. These were presented to an expert panel for review and refinement along with over 175 individual items to be evaluated as possible indicator items for the survey.

4. Expert Panel. An expert panel consisting of the doctoral research committee and two outside members with expertise in sense of place research was used to evaluate the three general factor categories, five factor subcategories (domains), and 175 individual items developed from the focus groups. The items were evaluated for use in the survey and reviewed for their ability to capture the widest range of possible positive descriptors of the physical, social, and intangible factors generating sense of place. The panel also evaluated the list for completeness and discussed adding items that had not been generated by the focus groups.

The expert panel reviewed the two selected sites on campus for visits or viewing

by the student sample groups for data collection: the center of the historic Oval (high sense of place) and the plaza between the A and C wings of the Clark Building (low sense of place) (Greene, 1996b).

Based upon the input of the expert panel, the list of factors was refined to two general categories of factors (*setting* and *individual/personal* factors), and four specific "domains" within the two general categories: (1) *physical* and (2) *cultural* setting factors, and (3) *affective* and (4) *functional* individual/personal factors. The *genius loci* factor was eliminated due to the tendency of those items to be captured within the affective individual/personal factors domain.

Within the four specific domains, twenty scales were then developed and the individual items were evaluated. Ultimately the scales and items were distilled into four domains, fifteen scales and ninety individual items, which were selected for use in the survey. Table 3.3. summarizes the Domain, Scale, and Item distillation process as described above, and Table 3.4. presents the complete list of Domains, Scales, and Items used in the survey to measure sense of place. Wording of the survey questions are provided in the Survey Instrument (see Appendix B).

TABLE 3.3. SUMMARY OF DOMAIN, SCALE, AND ITEM DISTILLATION

Evaluation Method by Indicators	Items	Scales	Domains	Factors
Focus Groups	300	——	——	——
Open Coding and Constant Comparative Analysis by Researcher - 6 Iterations	175	20	5	3
Expert Panel	90	15	4	2

TABLE 3.4 DOMAINS, SCALES, AND ITEMS USED IN SURVEY

DOMAINS AND SCALES	ITEMS
D1. Natural Setting Domain	
S1. Natural Setting Scale	natural, sunny, has good lighting, has a good amount of trees
S2. Built Environment Scale	made of materials which are appropriate in color, made of materials which fit the setting, has attractive buildings
S3. Character Scale	clean, alive, peaceful, distinctive, harmonious, balanced, well-maintained, simple, spacious, open
D2. Cultural Setting Domain	
S4. Inherent Sociocultural Scale	historic, authentic, has a spirit of the people, fits within the larger context of CSU, supports the activities of CSU, feel a sense of history
S5. Transactional Sociocultural Scale	offers a sense of belonging, provides opportunities for interaction with others, offers civility, generates respect for the individual, has a distinct energy, feel a part of the community, feel a sense of belonging
D3. Affective Individual/Personal Domain	
S6. Significance Scale	meaningful, significant, interesting, valuable
S7. Existential Scale	feel a sense of connection, feel a sense of my own identity, feel a sense of attachment, feel a sense of ownership
S8. Memory Scale	familiar, well-known, memorable, feel a sense of connection, feel like I know it well, feel a sense of nostalgia
S9. Aesthetic Scale	beautiful, aesthetically pleasing, pleasing to look at, generates a positive sensory experience, feel a sense of awe, feel a sense of appreciation
S10. Transcendental Scale	inspirational, magical, sacred, a spirit of place, feel alive, feel inspired, feel connected to a higher power, feel fulfilled, feel a sense of romance, feel strong emotions

DOMAINS AND SCALES	ITEMS
D4. Functional Individual/Personal Domain	
S11. Purposive Scale	meets my expectations of a campus setting, supports my role at CSU
S12. Informational Scale	understandable, provides a sense of direction, has distinct landmarks, is easy for me to find my way around in, makes way-finding seem intuitive, provides information
S13. Prospect Scale	feel like there are opportunities here for me, feel like exploring, feel like I have options, feel a sense of mystery
S14. Refuge Scale	non-threatening, has obvious boundaries, offers shelter, feel a sense of refuge
S15. Well-being Scale	safe, comfortable, warm, serene, reassuring, revitalizing, feel in control, feel peaceful, feel comfortable, feel calm, feel a sense of comfort, feel serene

5. Pilot Test. A pilot test was conducted using six graduate students from the Department of Natural Resource Recreation and Tourism to evaluate content, technical worthiness, ordering bias, content of slides, physical settings, mechanics, and clarity of items. Modifications were made based on suggestions by the participants and final drafts of the survey instrument were circulated to the Doctoral Committee for review and approval.

B. Scale Testing and Confirmation

1. Research Design. Table 3.5. shows the research design in tabular form. The study utilized a post-hoc research design whereby: X = Subject Group of undergraduate students within the College of Natural Resources viewing a setting, and O = Observations

based upon experimental method (slide viewing versus field observations) such that:

X_1 (Clark)	O_1 (multi-sensory field review)
X_2 (Oval)	O_2 (multi-sensory field review)
X_3 (Clark)	O_3 (slides)
X_4 (Oval)	O_4 (slides)

TABLE 3.5 RESEARCH DESIGN — METHOD BY SETTING

Method by Setting	LOW Sense of Place	HIGH Sense of Place
Multisensory Perception of On-Site Campus Settings	Method X_1 Site: Clark Plaza	Method X_2 Site: Center of Oval
Visual Perception of Slides of Campus Settings	Method X_3 Slides: Clark Plaza	Method X4 Slides: Center of Oval

The study consisted of a case study to investigate factors contributing to sense of place and utilized survey research methods to examine the relationship of setting factors and experimental methods on the perception of sense of place. The domains, scales, and items are the dependent variables in the survey, the two sites and two experimental methods are the independent variables.

In developing the research strategy, the researcher and doctoral committee determined it would be useful to test the scales using two different settings on the CSU campus with previously determined levels of sense of place. The sites were selected due to the importance of their environmental characteristics and meanings to individuals enrolled in the undergraduate program. The capacity of a building or setting to influence perception of a campus setting's sense of place are known to significantly influence the people who experience them (Greene 1996b; Banning 1994). The settings were also selected due to their built characteristics.

In addition, the research design included two different experimental methods in order to compare the effects of visual perception versus multisensory perception. Research indicates that viewing visual images results in valid measures of perception (Shuttleworth 1980; Porteous 1982; Taylor, Zube, and Sell 1987; Nelessen 1994), but the question remained as to how much the response levels would differ using visual images compared to site visits.

Reliability and correlational research were used to evaluate the degree to which the scale variables (items) were associated with each other. The relationships among variables and their capacity to generate sense of place were evaluated by combining multiple items into scales, computing the reliability of the relationships of the combined-item scales, and evaluating the variance of scale scores between settings. The relationships between variables were the focus of this research, making the methodology choice the proper one. Multi-mean comparison testing (Analysis of Variance) was used to determine the degree to which the dependent variables (domains, scales, items) differed due to settings and experimental methods.

The three qualitative questions were included in the survey based on grounded theory research methodology with the goal of using a wide range of methods to draw out complete and thorough data. This method is based on individual experiences and emphasizes meaning, adding richness to the survey research (Wyman 1985; Gunter 1987; Henderson 1991). The questions asked respondents to identify (1) specific places that came to mind; (2) thoughts or feelings that came to mind when thinking about sense of place; and (3) if they wanted to add any other comments to the survey.

2. Population, Sample, and Sampling Design. The nature of the study was an initial effort to develop a set of sense of place scales, with a goal of achieving high internal validity. Individuals are the unit of analysis and the subjects were undergraduate students from the College of Natural Resources taken from within the larger Colorado State University student population. To obtain a large representation of Natural Resources students, 400 subjects were sought: 200 from a field-based course held at Colorado State University's Pingree Park mountain campus, and 200 from general Natural Resources courses held on-campus. To ensure consistency among respondents, all respondents at the field campus participated in the slide-viewing method of setting analysis, and all respondents on-campus visited the settings and engaged in the multisensory evaluation.

C. Data Collection

During the month of May, 1999 the researcher contacted the Director of the Pingree Park program, Dr. Rick Laven, Department of Forest Sciences, to schedule formal survey data collection in June and July, 1999. The researcher discussed the survey purposes with the course instructors and outlined the data collection procedures.

The survey was presented with written instructions on recycled 8 1/2 by 11-inch white paper using single sides of seven individual sheets (see Survey Instrument — Appendix B). A minimum of general information and instructions were presented in class regarding the nature of the survey and how the students were being requested to participate. The first page of the survey contained introductory remarks, a definition of

sense of place, and brief instructions. The first page was reviewed with the students prior to site evaluation.

Students evaluating the sites in the field (Methods X_1/X_2) were divided into two groups in their classrooms and each walked to one site from the classroom accompanied by either the researcher or the course's Graduate Teaching Assistant.

Students evaluating the sites by viewing the slides (Methods X_3/X_4) were shown twenty representative slides of the site in their darkened classroom. Each slide was presented on the screen for twenty seconds. Total viewing time was seven minutes.

Following the site visit or slide viewing, respondents were asked to complete the written survey and rate ninety descriptive items on a seven-point Likert-type scale. Scale ratings were interval measures ranging from +3 (strongly agree) to -3 (strongly disagree) with a mid-range value of 0 (neutral), and an option for "unclear" or "don't know" responses.

The survey statements asked respondents to evaluate the level to which they agreed or disagreed with the statement of how the place was in terms of the descriptor item (e.g., "for me, this place is *safe*"). Every other line was shaded for clarity and ease of filling out the survey (see Survey Instrument — Appendix B).

Following the statement ratings, respondents were asked to rate how familiar they were with the site, to describe thoughts and specific places that came to mind in thinking about sense of place, and to respond to eleven demographic questions. The final question asked respondents to add any other thoughts or comments. The average time for filling out a survey was seventeen minutes.

D. Data Analysis

The computer software Statistical Package for the Social Sciences (SPSS) was used for all data analysis. A minimum acceptable significance level of $p \leq .05$ was used for all analyses. After the data set was cleaned and checked for errors, descriptive statistics were computed to explore basic the characteristics of the variables and analyze demographic data.

In order to satisfy *Objective 1*, developing a psychometric scale measuring sense of place, reliability analysis was conducted on the known fifteen scales. Cronbach's alpha with a value of $\alpha \geq .60$ was determined to be the minimum acceptable for scale reliability. Correlation analysis was run between the scales and items. Exploratory factor analysis was conducted on all ninety items to discern any interesting underlying relationships not anticipated through the scale development process.

In order to test *Objective 2*, determining differences across the two settings and the two different experimental methods, a two by two analysis of variance (ANOVA) was used. Results and interpretations are discussed in Chapter IV.

Qualitative data were analyzed using thematic analysis leading to key words and themes. These were used to determine categories or patterns of themes grounded in experience that had not been brought out by the quantitative questions. Results and interpretations are discussed in Chapter IV.

CHAPTER IV

RESULTS

This chapter reports the results of the data analysis described in Chapter III. The first section presents the survey response rate and descriptive statistics. In the second section, results of the reliability test of scale construction are presented. The third section focuses on the relationships between variables and the settings and experimental methods and reports results of the hypothesis testing. Finally, the fourth section discusses the qualitative results.

A. Survey Response Rates and Demographic Statistics

The written survey was conducted according to the plan described in Chapter III. Surveys were completed by 373 respondents, the majority of whom were Colorado State University undergraduates (96%); several instructors, teaching assistants, and administrators also participated in the survey. Students attending specific classes in the College of Natural Resources were asked to participate as part of their course work, none were turned away, and 100% of the surveys distributed during the classes were completed. The researcher determined that 100% of the survey responses were valid as

all participants were willing to participate and had no previous involvement in any part of the research.

Ethnically, 93.7% of respondents were white, 1.9% were African American, 1.9% were Asian, 1.3% were Hispanic, 0.5% were Native American, and 0.7% did not answer. Regarding age, 51.5% were ages 21 and under; 46.5% were ages 22 through 39, and 2% were ages 40 and over. Gender reporting indicated 53.4% of the sample were male and 46.1% were female, and 0.5% did not answer.

Hometown locations varied, with 38% of respondents coming from hometowns within Colorado. Regarding city size, 43% grew up in small cities or less developed areas, and 57% grew up in medium cities or more developed areas. Results showed 88% of respondents' majors at CSU were natural resources-related.

Regarding the experimental method used in the survey, 51.7% of respondents evaluated the sites in the field and 48.3% viewed slides of the sites; regarding location, 50.1% evaluated the low sense of place site (Clark Plaza), 49.9% evaluated the high sense of place site (Oval).

B. Scale Reliability and Construction

The study achieved *Objective 1*, which was "to develop a set of psychometric domains, scales and items that measure sense of place." Ninety items, developed through the triangulation process of the literature review of past research, focus groups and expert panel, and pilot test, were combined into fifteen summated scales and four domains. The

research supports the existence of the four perceptual domains, two of which are Setting-related (Physical and Sociocultural) and two of which are Individual/ Personal-related (Affective and Functional). Within the four domains are fifteen scales comprising ninety items that, when tested through scientific observation and ranked in a written survey using a Likert-type scale, effectively measure a setting's sense of place (Table 3.3, previous chapter).

Using Reliability Analysis, the robustness of the four domains was examined and shown to be highly reliable with a Cronbach's alpha of .85 or above (Table 4.1). Of the scales, fourteen of the fifteen were found to be reliable at .74 or above. One scale had a moderate reliability, Refuge ($\alpha = .61$) but this was considered a priori to be an acceptable reliability (minimum $\alpha \geq .60$).

Mean score values for all domains and scales had a total range of 1.52 points ranging from -.16 (Transcendental Scale) to 1.36 (Memory Scale). The low mean score of -.16 on the Transcendental Scale indicates perceptions of "neutral" to "slight disagreement" with the items contributing to the Transcendental Scale in the two settings. Those items were: *inspirational, magical, sacred, a spirit of place, feel alive, feel inspired, feel connected to a higher power, feel fulfilled, feel a sense of romance, feel strong emotions.* Results of the literature review and focus groups indicate that these items are important indicators of sense of place, leading the researcher to conclude that neither site on campus lent itself to the perception of those items, particularly with the make up of this sample.

Table 4.1. Reliability Analysis for 4 Domains and 15 Sense of Place Scales

Domains and Scales[1]	Cronbach's Alpha	Overall Mean Score[2]	Standard Deviation
Physical Setting Domain	**.89**	**1.02**	**1.19**
Natural Setting Scale	.74	1.04	1.33
Built Environment Scale	.85	.73	1.57
Character Scale	.89	1.28	1.02
Cultural Setting Domain	**.85**	**.87**	**1.07**
Inherent Sociocultural Scale	.82	.89	1.20
Transactional Sociocultural Scale	.86	.86	1.09
Affective Individual Domain	**.91**	**.60**	**1.15**
Significance Scale	.84	.89	1.29
Existential Scale	.87	.27	1.39
Memory Scale	.76	1.36	.97
Aesthetic Scale	.93	.65	1.55
Transcendental Scale	.93	-.16	1.39
Functional Individual Domain	**.88**	**.78**	**1.02**
Purposive Scale	.74	.95	1.48
Informational Scale	.75	1.02	.94
Prospect Scale	.82	.05	1.39
Refuge Scale	.61	1.07	.93
Well-being Scale	.95	.84	1.30

[1] Each of the scales and domains were summated from individual items (Table 3.4).
[2] Variables were coded on a 7-point scale ranging from "Strongly Agree" (+3) to "Strongly Disagree" (-3).

The high mean score of 1.36 for the Memory Scale indicates respondent perceptions of "slight agreement" toward "moderate agreement" with the items contributing to that scale: *familiar, well-known, memorable, feel a sense of connection, feel like I know it well, feel a sense of nostalgia.* This is reasonable as respondents had noted that they were familiar with the two settings on campus.

Mean scores for each domain were: Physical Setting Domain: 1.02; Cultural Setting Domain: .87; Affective Individual/Personal Domain: .60; and Functional Individual/Personal Domain: .78: all indicating a "slight" level of agreement with the items and scales contributing to those domains (values between zero and +1 indicate respondents agreed slightly with that item; values between +1 and +2 indicate moderate agreement, and values above +2 indicate strong agreement).

Standard deviation values ranged from a low of .93 for the Refuge Scale to a high of 1.55 for the Aesthetic Scale. The limited *range* of mean scores and standard deviations indicates a potential need for scale refinement into smaller increments or a need for more widely varying sites.

The domains and scales were analyzed for differences in reliability between gender, age groups, and locations where respondents grew up (Table 4.2). There were no significant differences between any of the two groups analyzed. All scale reliabilities were within .09 points and all domains were within .04 points, indicating consistency of scales and domains as measures of sense of place between groups (zumBrunnen 1999).

Table 4.2. Reliability Analysis for 15 Sense of Place Scales and 4 Domains by Gender, Age, and Size of Location Where Respondents Grew Up

	Cronbach's Alpha					
	Gender		Age		Grew Up	
Domains and Scales[1]	**Male**	**Female**	**21 & Under**	**22 & Over**	**Rural/ Small City**	**Med. City/ Suburb**
Physical Setting Domain	**.88**	**.89**	**.86**	**.90**	**.89**	**.88**
Natural Setting Scale	.69	.77	.73	.72	.71	.75
Built Environment Scale	.83	.87	.84	.85	.82	.87
Character Scale	.88	.90	.87	.89	.90	.89
Cultural Setting Domain	**.85**	**.84**	**.82**	**.86**	**.84**	**.85**
Inherent Sociocultural Scale	.84	.80	.78	.84	.83	.81
Transactional Sociocultural	.85	.87	.83	.86	.88	.83
Affective Individual Domain	**.91**	**.91**	**.90**	**.93**	**.91**	**.92**
Significance Scale	.82	.85	.81	.85	.85	.82
Existential Scale	.87	.87	.85	.89	.87	.87
Memory Scale	.72	.80	.74	.78	.74	.78
Aesthetic Scale	.92	.94	.92	.93	.93	.93
Transcendental Scale	.93	.94	.93	.93	.93	.93
Functional Individual Domain	**.88**	**.89**	**.87**	**.89**	**.87**	**.90**
Purposive Scale	.72	.77	.72	.73	.76	.72
Informational Scale	.73	.78	.68	.77	.75	.76
Prospect Scale	.80	.84	.81	.82	.82	.82
Refuge Scale	.56	.65	.58	.63	.57	.63
Well-being Scale	.95	.94	.95	.95	.95	.95

[1]. Each of the scales and domains was summated from individual items (see Table 3.4).

Correlation analysis was conducted among the four domains and the fifteen scales and all values were found to be significant at $p < .001$ (Tables 4.3 and 4.4). Correlation values among scales ranged from .36 (Memory and Natural Setting) to .88 (Aesthetics and Well-being). The low correlation score between Memory and Natural Setting indicates that the two scales are measuring different areas of indicators related to perception of place. Conversely, the high correlation between Aesthetics and Well-Being indicates some overlap in the items, but still clearly identifies distinct scales well below indications of perfect correlation.

The ninety items were further analyzed using exploratory factor analytic techniques in an effort to evaluate the possibility of other domains or scales that had not been previously brought out. No new themes or scales emerged. A rotated factor matrix for two factors showed factor loadings on Factor 1 (Eigenvalue = 10.34) consisting of the three Physical Setting scales, the Aesthetic scale, and the Well-being scale. The second factor loadings (Eigenvalue = 1.06) consisted primarily of the Significance, Existential, and Memory scales. The Transactional Sociocultural, Informational, and Prospect scales were also included in Factor 2, with contributing values greater than .69. This confirms the conceptualization of perception of sense of place as the interaction of Setting Factors and Individual/Personal Factors, with the added insight of the role that Physical Setting contributes to perceptions of Aesthetics and Well-being.

An area that proved to be interesting in the survey results were those individual items determined by respondents to be unclear. Respondents were given the opportunity to respond to items that were unclear by circling a set of double question marks (??) in

Table 4.3 Correlations Among 15 Sense of Place Scales[1]

Domains and Scales		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Physical Setting Domain																
Natural Setting Scale	1	1.0														
Built Environment Scale	2	.72	1.0													
Character Scale	3	.78	.75	1.0												
Cultural Setting Domain																
Inherent Sociocultural Scale	4	.67	.69	.72	1.0											
Transactional Scale	5	.60	.54	.69	.74	1.0										
Affective Individual Domain																
Significance Scale	6	.64	.61	.70	.72	.69	1.0									
Existential Scale	7	.55	.53	.64	.69	.75	.72	1.0								
Memory Scale	8	.36	.45	.45	.54	.60	.61	.62	1.0							
Aesthetic Scale	9	.82	.81	.86	.77	.67	.76	.68	.46	1.0						
Transcendental Scale	10	.75	.68	.77	.70	.73	.77	.78	.51	.85	1.0					
Functional Individ. Domain																
Purposive Scale	11	.65	.71	.69	.76	.69	.65	.65	.46	.75	.68	1.0				
Informational Scale	12	.58	.49	.60	.66	.72	.62	.58	.56	.57	.59	.62	1.0			
Prospect Scale	13	.57	.53	.60	.62	.71	.65	.73	.44	.67	.81	.64	.55	1.0		
Refuge Scale	14	.65	.61	.72	.61	.65	.61	.59	.40	.68	.69	.58	.62	.58	1.0	
Well-being Scale	15	.80	.72	.88	.73	.74	.75	.74	.50	.88	.86	.70	.60	.70	.74	1.0

[1] All correlations significant at $p < .001$

Table 4.4. Correlations Among 4 Sense of Place Domains[1]

Domain		D1	D2	D3	D4
Physical Setting	D1	1.0			
Sociocultural Setting	D2	.76	1.0		
Affective Individual	D3	.82	.85	1.0	
Functional Individual	D4	.85	.88	.91	1.0

[1] All correlations significant at $p < .001$

addition to the 7-point scale. Items that showed up for more than 6% of respondents as "unclear/don't know" were:

For me this place...

is understandable (11.5%)
offers civility (9%)
generates respect for the individual (8%)
makes way-finding seem intuitive (7%)
is ordered (6%)

This would indicate unfamiliarity with several general concepts which theorists and designers use to describe a setting or the goals they wish to achieve when designing or managing a setting. Throughout the scale development process, both the literature and focus groups indicated that the items of civility and respect were important for individuals to feel preference for settings. In addition, in order for individuals to find a setting legible or provide information, it needed to be understandable, ordered, or make way-finding intuitive. However, it is evident that the meaning of the terms or the phrasing is not clear to the sample population. Clearly, future research should describe the concepts these items are intended to measure.

C. Relationship Among Variables and Test of Hypotheses

The purpose of *Objective 2* was to test the scales within the context of two urban campus settings that varied in degree of sense of place using two different experimental methods. In order to test this, the following null hypotheses were proposed:

H_{01}: There are *no significant differences* between scale mean scores of two different *settings* purported to have either high or low sense of place.

H_{02}: There are *no significant differences* between scale mean scores of two different settings purported to have either high or low sense of place when using two different *experimental methods.*

Analysis of Variance (ANOVA) was used to analyze differences between the two settings and the two experimental methods. Regarding null hypothesis H_{01}, statistically significant differences were found to exist between the scale mean scores of the two different *settings* purported to have high (CSU Oval) or low (Clark Plaza) sense of place, leading the researcher to REJECT null hypothesis H_{01} (Table 4.5). Figures 4.1. and 4.2. provide graphic representations of the mean domain and scale scores and the significant differences in responses to the settings.

In each instance of scale and domain rating, scores for the Oval were significantly higher than scores for the Clark plaza. Mean scores for the Clark Plaza ranged from -.84

Table 4.5. Mean Score Values and Significance Levels for 15 Sense of Place Scales and 4 Domains for Two Urban Campus Settings Purported to have Low or High Sense of Place

Scales and Domains[2]	Mean Scores[1] Low (Clark)	High (Oval)	Mean Difference	F Statistic[3]
Physical Setting Domain	**.31**	**1.74**	**1.43**	**245.3**
Natural Setting Scale	.30	1.78	1.47	193.4
Built Environment Scale	-.14	1.62	1.76	186.2
Character Scale	.76	1.81	1.05	150.7
Cultural Setting Domain	**.50**	**1.25**	**.75**	**53.9**
Inherent Sociocultural Scale	.37	1.41	1.04	89.5
Transactional Sociocultural	.63	1.09	.45	17.0
Affective Individual Domain	**.06**	**1.14**	**1.08**	**110.4**
Significance Scale	.35	1.43	1.08	79.3
Existential Scale	-.15	.69	.84	37.8
Memory Scale	1.22	1.50	.28	7.8[4]
Aesthetic Scale	-.27	1.58	1.85	229.9
Transcendental Scale	-.84	.51	1.35	127.1
Functional Individual Domain	**.37**	**1.21**	**.84**	**82.7**
Purposive Scale	.36	1.55	1.19	74.3
Informational Scale	.81	1.24	.43	20.4
Prospect Scale	.27	.37	.64	22.0
Refuge Scale	.75	1.40	.65	54.4
Well-being Scale	.19	1.50	1.30	141.2

[1.] Variables were coded on a 7-point scale ranging from "Strongly Agree" (+3) to "Strongly Disagree" (-3).
[2.] Each of the scales and domains were summated from individual items (Table 3.3.).
[3.] Values significant at $p < .001$
[4.] Value significant at $p < .005$

Figure 4.1
Mean Domain Scores for Two Settings

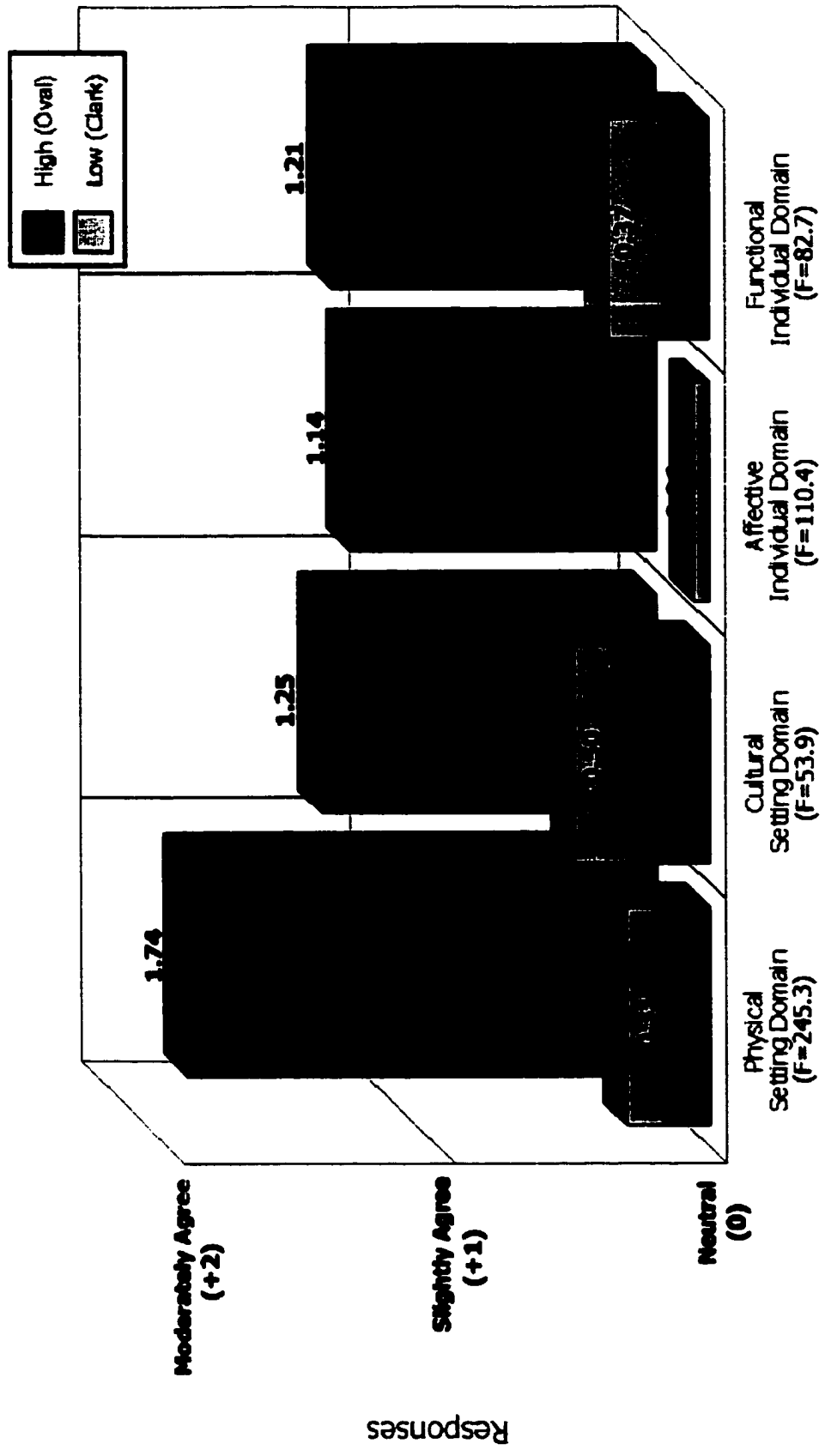
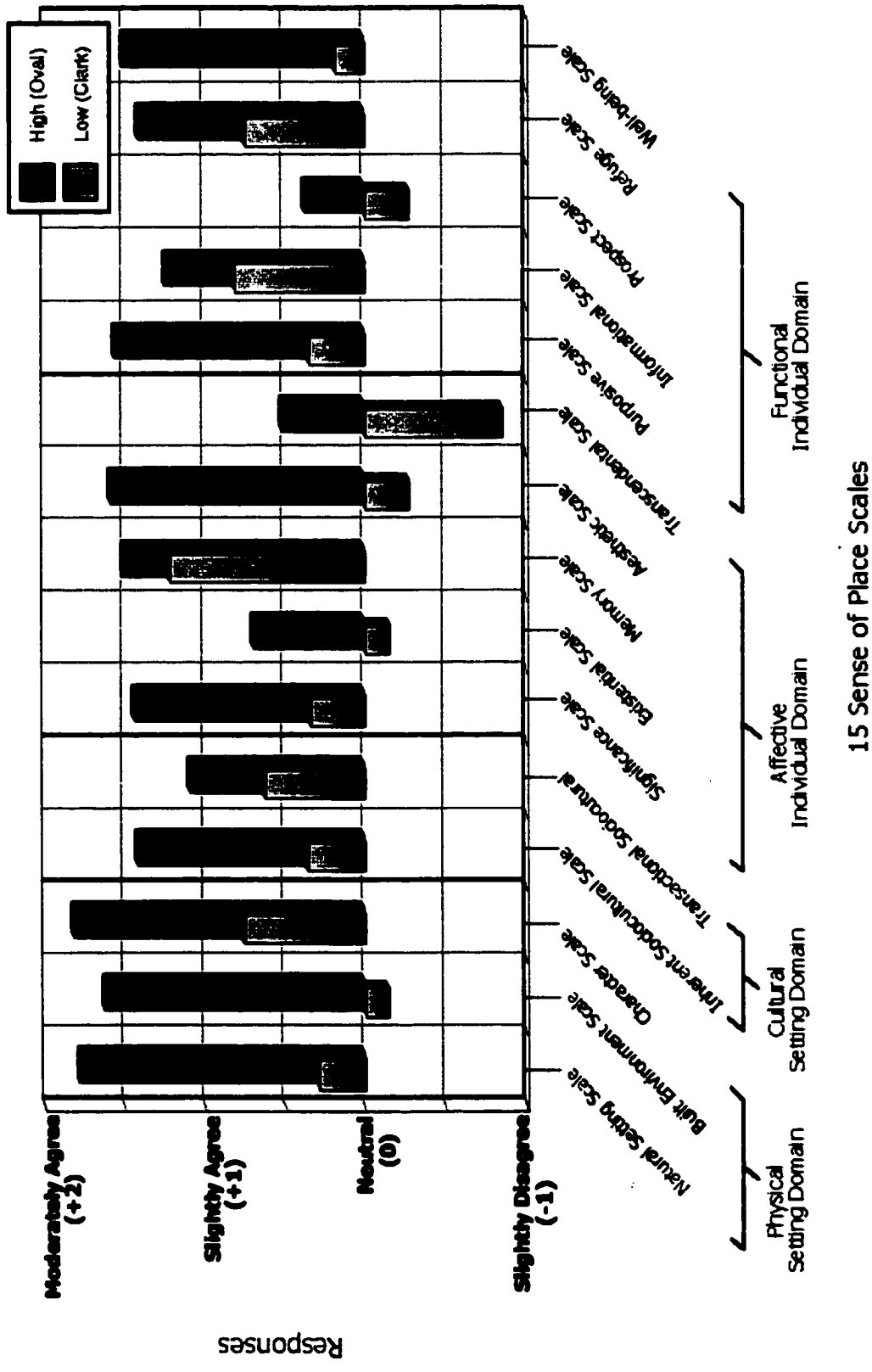


Figure 4.2
Mean Scale Scores for Two Settings



(Slightly Disagree) for the Transcendental Scale to 1.22 (Slightly Agree) for the Memory Scale. Mean scores for the Oval ranged from a low of .37 (Neutral) for the Prospect Scale to 1.81 (Moderately Agree) for the Character Scale. Mean differences ranged from a low of .28 for the Memory Scale (very little difference between settings) to a high of 1.85 for the Aesthetic Scale (significant difference between settings). This would indicate 1) that the respondents had no trouble recalling either site from memory, and 2) that their responses to the items indicating aesthetic preference were significantly different between the two sites, the Oval being the more pleasing of the two. Significance levels were highest for the Physical Setting Domain and Scales. Even though the *range* of scores from high to low was not wide, the differences were found to be statistically significant and not the result of chance.

Regarding null hypothesis H_{02}, significant differences were found to exist between scale mean scores of the two different settings purported to have high or low sense of place when two different *experimental methods* were used (visual slide representation versus multi-sensory on-site evaluation), thereby leading the researcher to also REJECT null hypothesis H_{02} (Table 4.6). Figures 4.3. provides graphic representation of the mean domain scores for two settings using two different experimental methods and Figure 4.4. provides mean scale scores for two settings using two different experimental methods.

The research supports the alternative hypothesis that different experimental methods will have varying effectiveness in representing a setting. The results showed that respondents reacted to the sense of place item indicators more strongly when they

Table 4.6. Mean Score Values and Significance Levels for 15 Sense of Place Scales and 4 Domains for Two Urban Campus Settings Using Two Different Experimental Methods

	Mean Scores[1]			
Domains and Scales[2]	**Slides**	**Site Visit**	**Mean Difference**	**F Statistic[3]**
Physical Setting Domain	**.60**	**1.41**	**.81**	**75.9**
Natural Setting Scale	.56	1.49	.93	74.9
Built Environment Scale	.29	1.15	1.22	42.1
Character Scale	.95	1.56	.61	54.3
Cultural Setting Domain	**.59**	**1.14**	**.56**	**29.3**
Inherent Sociocultural Scale	.60	1.15	.55	23.5
Transactional Sociocultural	.57	1.13	.56	27.0
Affective Individual Domain	**.35**	**.84**	**.49**	**21.3**
Significance Scale	.74	1.03	.28	4.8[4]
Existential Scale	.03	.49	.45	10.4
Memory Scale	1.38	1.34	-.03	.11[4]
Aesthetic Scale	.19	1.07	.88	48.8
Transcendental Scale	-.61	.25	.86	50.6
Functional Individual Domain	**.46**	**1.09**	**.63**	**45.1**
Purposive Scale	.59	1.28	.69	23.5
Informational Scale	.92	1.11	.19	3.8[5]
Prospect Scale	-.38	.44	.82	36.0
Refuge Scale	.79	1.33	.54	37.0
Well-being Scale	.37	1.27	.90	65.9

[1] Variables were coded on a 7-point scale ranging from "Strongly Agree" (+3) to "Strongly Disagree" (-3).
[2] Each scale and domain was summated from individual items (Table 3.3.).
[3] All values significant at $p < .001$ except as noted.
[4] Not significant
[5] Values significant at $p < .05$

Figure 4.3
Mean Domain Scores for Two Settings
Using Two Different Experimental Methods

Figure 4.4
Mean Scale Scores for Two Settings
Using Two Different Experimental Methods

were in a setting, than when they viewed slides of the same setting. This supports the idea that sense of place is perceived more strongly when all five senses are involved.

Significance tests for differences between the variances of the two groups, slide viewing and site visits, were all significant at $p < .001$, except for the Informational Scale, which was significant at $p < .05$, and the Memory and Significance Scales (N.S.). The lack of significant differences between the site visit and the slide viewing for the Memory and Significance scales indicates that the sites were equally memorable or significant whether viewed on slides or visited. This is supported by responses asking about respondents' familiarity with the site: 58% were at least slightly familiar, 30% were moderately familiar, and 10% were very familiar with the site. A total of 98% of respondents were at least slightly familiar with the site, indicating they were able to access their memories of the sites equally when either viewing the slides or being at the sites. The lack of differences in significance between sites indicates indifference to both sites, potentially due to negative perceptions of the functions of the departments and offices housed within the facilities. The study achieved *Objective 2* to test the scales for differences between two urban campus settings using two different experimental methods. Taken together, the results of the analyses indicate support for the development of psychometric domains, scales, and items that measure sense of place when applied to a setting and when used to measure sense of place at a site by either visiting the site or viewing it on slides.

D. Qualitative Responses

As another measure of domain and scale validity, three qualitative questions were included in the survey. When responding to a question asking participants to note "a specific place which came to mind when thinking about sense of place," 96% of respondents answered the question. Two major categories emerged: 66% of all respondents identified some type of *natural setting* and 62% of all respondents identified an association with *home*. Examples of *natural settings* include:

> *General Features:* mountains, wilderness, dense forests, deserts, nature, oceans, beaches, the tropics, old growth forests, prairie, weather, high altitude, bluffs, lakes, rivers, hardwood forests, quiet, camping spots, alpine lakes, riparian meadows, habitats (nesting sites) for wildlife
>
> *Local Areas:* tundra near Cameron Pass, Horsetooth, Pawnee Buttes, Pawnee National Grasslands, Arthur's Rock, Poudre Canyon, North Park, Pingree Park, Laramie River Road, Grey Rock, Vedawoo, Niobrara River, Platte River, Pikes Peak area, Flattops, Medicine Bow, Routt National Forest
>
> *Specifically Named Regions:* Hawaii, Alaska, Colorado Rockies, Dolores River, a secluded canyon on the San Juan River, Matinoska Valley, Cape Hatteras, Baja, Great Basin, Utah Desert, North Carolina's Outer Banks, Prince William Sound, Big Sur, Atlantic/Pacific Oceans, Oregon, the Sierras, Boundary Waters
>
> *International Areas:* Isle of Skye, Nepal, Himalayas, mountains of New Zealand, Planet Earth, Belize
>
> *Towns:* Ouray, Telluride, Crested Butte, Boulder
>
> *Exceptional Descriptions:* by a quiet stream in the middle of nowhere, beside a pristine lake, enclosed in an enchanted forest, somewhere I can look at myself as I am compared to the natural earth, top of a mountain peak where I can see for miles, desolate places where the commoner doesn't go, watching a sunset or moon rise, on any river while fly fishing, any place in nature that is quiet and peaceful, watching nature's dynamic motion, serene mountains – snow covered with light flakes in the air, places that are outdoors with very little signs of

civilization, places with few people where there is little human impact on the land, a stretch of riffles on a river in Utah, a lake surrounded by Cypress trees where the water flows black and the lily flowers sprout by the hundred, a meadow in the middle of a snow capped mountain range where the grass meets the sky

Examples of settings associated with *home* include:

Specific Parts of Homes: my house, my bedroom, my dorm room, my own room, my porch, backyard, garden, house where I grew up, home that is stable, my chair in living room, in bed

Others' Homes: parents', grandparents', girlfriend's, boyfriend's, mother's, best friend's house, uncle's, aunt's, frat house, family home

Other Types of Homes: tree house, beach house, family cabin, family ranch, family farm, barn, childhood haunts

Natural Areas Associated with Home: my horse pasture, beaches back home, fields at home, lake/pond/stream/forests/camping spot near my house, park near my parents' house, favorite hunting spot

Other Places Associated with Home: neighborhood back home, hometown, school I went to, the local pub, the Rio, the produce section at King Soopers, my couch, my car, my bike, my board, the stage, a swimming pool, the ski slopes

When further asked, "what thoughts or feelings come to mind when thinking about sense of place," 98% of respondents answered the question, with 42% of those respondents referring specifically to feelings of "comfort" or being "comfortable," 18% to "peace," 17% to "belonging," 9% to "happiness," and 6% to thoughts or feelings of "home." Numerous additional comments related to thoughts or feelings associated with safety and security, connection, freedom, and beauty. Specific examples include:

"Feeling comfortable in the places you are and knowing those places"
"Comfort, a swell of emotion when you're there"
"Sense of place to me is when I feel at peace with myself and my surroundings.

Like nothing could possibly disturb my inner shell and that I could live and prosper at anything."

"A place that is home to you or a sense of knowing where you are and feeling comfortable there."

"Where the heart wanders free, spirit is high and a calming perspective comes into place; simple beauty that is harmonious with nature that is close to human touch but beyond words. Passionate, where your mind lets go."

"Someplace that has memories and good times associated with it. A feeling of comfort and safety are associated with it."

When presented with the opportunity to add final comments at the end of the survey, 21% of respondents made additional comments. Examples include:

"A sense of place causes all people from all cultures to feel belonging and joy"

"It seems we sense place but usually aren't aware of its influence on us. Slowing down and paying attention to what we sense (see, hear, etc.) and feel inside reveals a great deal. As does further study about that place."

"It's welcoming, a place that I can call home. Looking at the mountains makes me smile."

"I believe a lot of this has to do with how you feel about yourself."

"Locating and developing and enjoying a sense of place is important for overall well being I think."

"I think my sense of place will differ from the next person based on my own experiences and this will be the same for every other person. Likewise my sense of place will change due to each new experience I encounter."

"These places should stay sacred and be held close to our hearts because these are the places that make life so wonderful."

"If there is general agreement on the dislike of this specific place, will it be changed?"

"I feel that the sense of place is being lost with the track [*sic*] development going on. Because people with life in fences aren't living in the same community that— they are just geographically related."

"Not comfortable around man-made structures. I feel trapped."

"They seem to be disappearing in an ever-growing society."

"Some stuff on the negative side 'e.g., oppressive, fear, bewildering, humbling, threatening' these mean a lot to people. The front of the Admin. Building scares the hell out of me."

"A sense of place should make you feel safe and cared for and at ease with your surroundings."

"My idea of a sense of place is a place that I can call 'home' and not have to be rushed, like the world is today."

"This is a great topic for research."

The qualitative results and their implications are discussed in Chapter V.

CHAPTER V

DISCUSSION AND IMPLICATIONS

This chapter is presented in five sections with the first section summarizing the study's findings. Included are highlights of the problem and major factors influencing sense of place. The second section provides a discussion of the results. In the third section, a new model is presented. Implications for theory and application are discussed in the fourth section, and the fifth section presents conclusions.

A. Summary of Findings

The study resulted in significant findings in four areas. First, as a result of the extensive literature review in Chapter II, a simplified definition of sense of place was developed that is a synthesis of the interdisciplinary research and is highly accessible to the general public: sense of place is the *perception of meaning* associated with a site. Second, based upon focus groups and an expert panel, a set of psychometric domains, scales, and items were developed and tested through an extensive research strategy and found to be valid. Third, by using two different experimental methods, significant differences were found to exist between two different settings, showing that multisensory perception is stronger than single sense (visual) perception when evaluating a site for

sense of place. Fourth, based upon the results of the literature review and survey research, a new model was developed that supports an integrated, holistic approach to perception of place.

This research supports and unites literature and practice from four disciplines which have worked independently to generate understanding of place-related theory. Recent research has expressed the need for a more holistic approach to designing and managing landscapes (Driver 1996). The development of a bridge between the design and management processes is a significant step forward for all disciplines.

The research addresses our understanding of human interaction with the physical environment by showing that sense of place is a concrete phenomenon that can be assessed objectively and supports individual perceptions as valid. It provides empirical support for what has previously been conceptually believed and suggests no real departure from what the research literature has noted. It also provides a valid method for designers and managers to evaluate sense of place and determine factors that can be modified.

Issues of social importance considered by this research are based on an increasing dissatisfaction with the human-landscape relationship. With increased mechanization and technological complexification have come social issues of decline of community character, loss of significant cultural and natural landscapes, dissatisfaction with new development, and a disconnectedness from nature and others. As discussed in Chapter II, Ittleson (1973) noted that in the history of experimental psychology the overwhelming bulk of perception research has been carried out in the context of *object perception*, rather than *environment perception* (1973, 3). Ittleson suggests that while the

environment might appear to be an object of common sense, it is not, and in fact, it is so complex that there are many ways of examining the phenomena. This research provides a means of examining the environment and suggests methods for its better design and management.

B. Discussion of Results

Scale Development. The research achieved *Objective1*, which was to develop a set of psychometric domains, scales, and items that measure the construct of sense of place. Sense of Place (SOP) Scales have been developed and empirically tested for validity with significant results. It has been a driving goal of this research to determine whether a "subjective" construct with multiple definitions could be objectively defined and empirically evaluated. This study refutes the idea that sense of place is subjective — the results having shown consistent preferences for sites previously evaluated as having high and low sense of place.

The extensive research which lead to the development of the four domains and fifteen scales was upheld by the results of the quantitative survey. Further research is required to determine their utility under different circumstances. It is likely that new scales will be added and existing ones modified. The importance of each scale will depend on the setting and the individual user's characteristics. Each domain is highly effective in capturing the characteristics of the setting and individual but there are many more layers which can be added to enrich the understanding of how setting and individual relate to form perception of sense of place. Future research would benefit from

balancing the number of items that form the individual scales in order to further increase reliability. In this case, the scales were formed after the list of items had been pared down to the minimum number of independent items, and the items were then grouped into scale categories. A review of the scales and items to ensure depth of coverage prior to survey implementation would be useful in future studies.

The results indicate that the fifteen scales covered a full range of items within the four domains. The most strongly perceived domains were the Physical Setting and Affective Individual/Personal domains. This supports the importance of nature and the built environment in appealing to the emotions and aesthetic senses, and the role of environmental design and planning in fostering pleasing environments. The scales that particularly supported that relationship were Aesthetics, and Well-Being. That is, there is value in fulfilling society's desire for places that are beautiful, meaningful, and comfortable. In particular, the importance of nature and its unique, ephemeral qualities are worthy of future research; studies which evaluate specific characteristics such as weather conditions, seasonality, and changes in vegetation through the year would yield interesting results, particularly for environmental designers.

The results showed no differences between perceptions of respondents from differing age groups, gender, or location of upbringing, indicating that the scales may be representative of general perceptions of the larger population. However, it would be useful to test the scales using a more diverse sample of age, ethnic, and cross-cultural groups. It is highly likely that the individual items one group finds valuable may differ from those of another, so it is recommended that scales be tailored to fit the demographics of the target population. For example, senior citizens would likely respond

more favorably to positive Functional scale items related to well-being (such as safety, serenity, comfort, and warmth) than other age groups.

Another group which may prove to be noteworthy in future studies is the appearance of outliers. Any individuals whose scores are significantly different from the normal distribution would indicate areas for further study. Specific examples include locations where individuals perceive themselves as outsiders or unwelcome, such as high schools, where that perception can potentially lead to psychopathology; or hospitals and care centers, where individuals are faced with healing in non-supportive, non-nurturing environments. This study emphasized the importance of comfort and the presence of nature in generating sense of place, and managers and planners would benefit from promoting those factors.

In addition, future research should consider familiarity as a variable which influences perception: resident versus visitor, long-term versus first time acquaintance, repeat versus single visitation, and familiarity over time as both the person and the place change with time. One item which researchers have noted may influence familiarity is memory, even though these results did not indicate a significant influence of memory on perception of the campus settings. Its influence in this study was low but other studies as noted in Chapters II and III may show significantly different results.

The limited *range* of scores for each of the individual items, scales, and domains suggests a potential need for scale refinement, perhaps to a 9-point scale. However, though the range from high to low was not wide, the differences were found to be statistically significant and not the result of chance. Even so, a scale designed to measure perception with greater levels of sensitivity would be useful. The limited range, in this

case, is most likely due to the lack of substantial differences between the settings. An example of two settings that would provide greater contrast and result in a wider range of scores would be a pristine, landscaped park and a neglected inner-city streetscape. The scale would provide a wider range of scores, but their usefulness in providing new insight would prove somewhat limited as researchers would have predetermined indications of the settings' positive and negative features. Ultimately, the scales could be transferred to other settings with modification of items. Their value lies in the structure they provide as a first step in objectively measuring the features contributing to sense of place.

Terminology used in the study is another area future researchers may want to consider carefully. This study showed several items that were important to the focus groups and in the literature, but which did not translate well to the written survey. Those items were not identified in the pilot test, possibly due to the education level of the graduate students taking the test, so a pilot test using respondents similar to the intended survey sample is recommended. Terminology should be simple, clear, and explicitly worded to measure the concept being evaluated.

Relationship Among Variables and Test of Hypotheses. The results achieved *Objective 2*, which was to test the scales within the context of two urban campus settings that varied in degree of sense of place using two different *experimental methods*. The results of the survey were consistent with the previous research, which determined the two *settings* used in the study had high and low sense of place, and the results supported the use of the scales as an evaluation tool to measure those differences.

The results also indicate, perhaps more importantly, the value of different

experimental methods. Previous research has shown that viewing slides or photographs is a valid method to gather perception information (Stokols 1979; Shuttleworth 1980) and although the results of this study support those findings, they further reveal that perceptions are more strongly held when developed from multisensory evaluation. This is significant in that it underscores the importance of providing opportunities to visit sites in any situation where important decisions are to be made. There is no substitute for assessing a site with all five senses with all the accessory factors that the surrounding area provides: noise, views, smells, weather, safety, and opportunities for interaction.

The implications of these findings are significant for both decision-makers as well as information specialists. Examples of the value of visiting a site over viewing slides (or video, photographs, or website) include college students selecting a university, senior citizens choosing a long-term care facility, local officials determining the appropriateness of a new shopping center, and foresters deciding the size of an area to cut. If viewing a representation of a site is the only option when making a decision, it can offer some information. However, the preferred alternative is a site visit.

Qualitative Results. The qualitative responses are decidedly rich and need to be used to further enhance scale development in future studies. As noted by Wyman in her analysis of "Nature experiences and outdoor recreation planning" (1985)

> examining this kind of data is like holding a multi-faceted object up to the light, turning it slowly in many directions and watching carefully to see what reveals itself. Each time I look at the material again, I find something I hadn't noticed before, or something I hadn't paid sufficient attention to. (186)

The qualitative results echo Wyman's remarks that there existed "tremendous

self-awareness" of respondents about their own perceptions, and that there was an "incredible variety in what might be considered a relatively homogeneous group" (1985, 186). As a result of both the self-awareness and the variety of responses, Wyman concluded that for educators, planners, and resource managers, the opportunities for more responsive involvement are obvious:

> Far from diminishing our role, we can shape expanded roles for ourselves in helping people to better see their own experiences for what they are. It gives us opportunities to do a better job in education, planning, and recreation. In education because so many "learning" areas offer opportunities for us to learn about the many ways people relate to their worlds–outdoor education, environmental education, literature, language, history, geography. In planning–because we know more about our own intentions, about who we plan for and about what really matters to them. And in recreation–our own, because there will be more congruity between what we enjoy and what we are prepared to do for others; and others, because we are able to trust people to be involved with and to appreciate outdoor recreation on their own terms. (1985, 187)

Those comments are as applicable to this research as to Wyman's and in fact overlap in the areas of education, planning, and recreation. Her comments reinforce the value of this research to multiple disciplines and the importance of emphasizing a transactional process in evaluating place.

The qualitative remarks from the survey that emphasized connections to the natural environment and home are most illuminating. They suggest to designers and managers that any opportunity to incorporate or emphasize those features is worth considering. It would appear that all efforts to provide open space, access to nature and incorporate the natural environment into settings would be highly valued.

In contrast, the emphasis on home does not suggest that attempts should be made to make every setting as homogeneous as possible in order to make settings "less

foreign." Instead, efforts should be made to bring out the uniqueness of individual settings in order to support their authenticity (Dovey 1985). By doing this, the local culture is validated and the inherent sociocultural essence of home is ascribed to the setting. In addition, provision of elements which provide the "comforts of home" would be appreciated; examples include features providing safety and security, "comfort stations" which include restrooms, drinking water and sitting areas, and well-maintained vegetation and landscaping. Results from the qualitative questions indicate that features associated with natural setting and home need to be further investigated for the design and management implications.

Methodological Issues. Certain methodological considerations may affect the results of this study and similar future studies in several ways. First, the survey sample from the College of Natural Resources may have had a more finely tuned awareness of the physical environment than the general population. Even as undergraduates it is likely that their perception skills are highly attuned to observing the environment around them. In that regard, the results of this study may be deeper than those from studies that sample the general population.

Second, the subjects participating in the visual experimental method (slide viewing) were at a Colorado State University field station at an elevation of 9000 feet and were out of their daily routines and settings. This may have influenced their responses when viewing slides of two on-campus settings, resulting in more negative responses than if the slides had been shown to students on campus. In part, these responses may be due to the makeup of the respondents: they have a significant interest

in nature (as Natural Resource majors), and most of them were away from the urban campus environment and had become highly sensitized to the natural mountain environment. It is possible that the results of the slide viewing would have been less negative if the slides had been shown to students on campus. Even so, the methodology does hold promise for comparisons between multisensory and visual perception.

Third, as mentioned previously, the two settings resulted in a limited range of scores in response to the scales. This could easily be remedied in future studies by selecting sites that have greater contrasting features. This would likely provide results more distinctly positive and/or negative.

C. Support for a New Model of Sense of Place

The formulation of the hypotheses for this study were based on the theories and models developed by earlier researchers explored in Chapter II. However, rather than further expanding the early models (Relph 1976; Steele 1981; Zube, Sell, and Taylor 1982; Greene 1996a), a simplification of the theoretical structure is proposed.

The early models present the transactional development of perception of sense of place as a linear process. The model being advanced here (Figure 5.1) supports perception of sense of place as any point of *intersection between individual and setting.* This implies existence of a relationship regardless of beginning, end, or points in between. It is a blending of the features of a location with the perceptions of the individual, the perceiver. Again, simplification of the construct has been a primary goal.

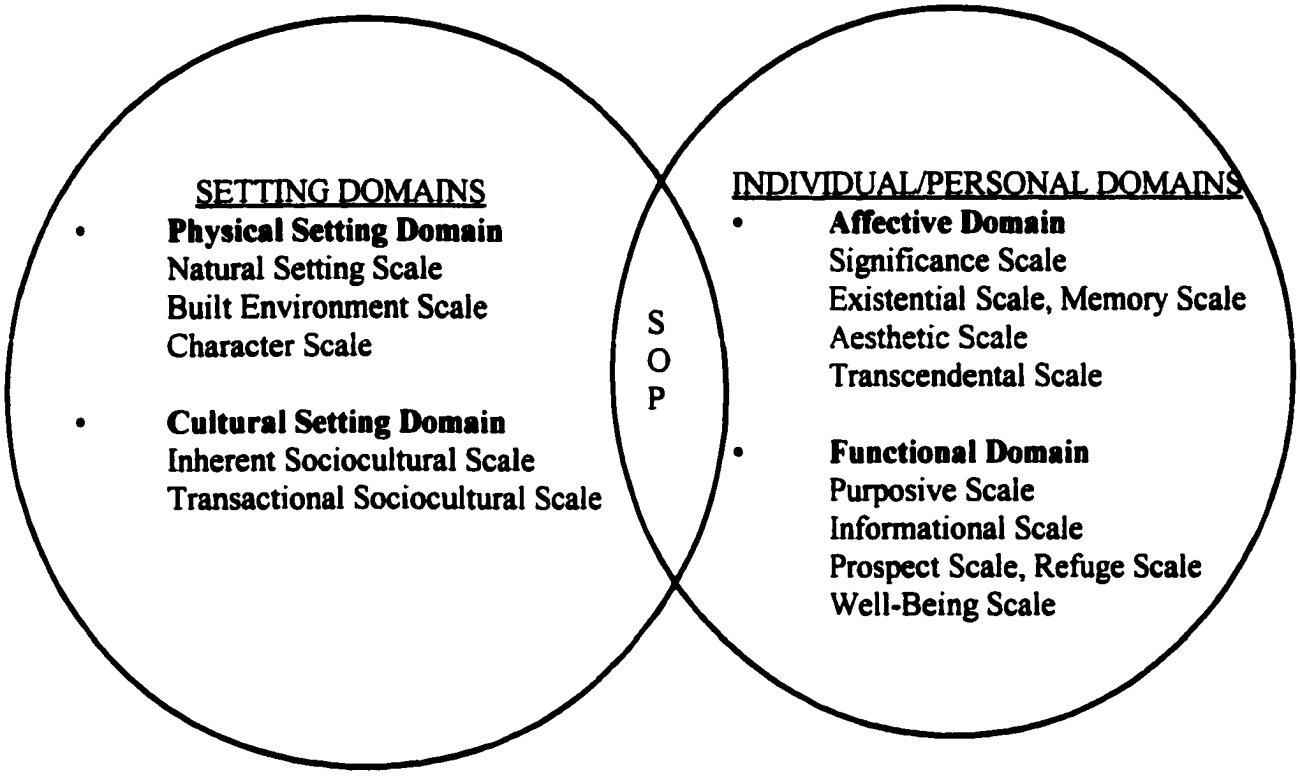


Figure 5.1 Bott's Model of Sense of Place Domains and Scales (2000)

This model supports perception as a series of overlapping factors in the shape of the "vesica piscis." According to Jonathan Hale (1994), the vesica piscis is "a shape in architecture that symbolizes life, that represents the materialization of spirit. That shape is a place where symbol and geometry, body and spirit come together. In this way, the shape is what architecture is" (76).

> The area where the circles overlap is the most important part of the pattern: it represents the place of harmony, awakening, grace. The vesica piscis is an emblem of unity achieved from duality. It represents the joining of the temporal and the spiritual – as architecture itself does (1994, 77).

Jean Shinoda Bolen (1994) notes that the vesica piscis is an ancient symbol imbued with meaning, a visual metaphor for "those moments when worlds overlap or interpenetrate and life is imbued with depth or meaning" (118). The symbol represents the intersection of "moments in and out of time when the visible and the invisible world intersect; when eternal values and the mundane world overlap; when the archetypal world and the tangible world meet" (1994, 119). Both Hale and Bolen describe sense of place as the perceived meaning associated with a site, and support the use of the vesica piscis as its model.

This model is particularly useful because it does not rely on causation as the linear models do. Instead, it supports the existence of sense of place based on the very existence of a person/place interface. It gives perception a much greater role because it represents sense of place as a highly complex set of factors, any of which can influence perception and, ultimately, behavior. It does not require a linear progression of the development of a "sensing" of a place, but allows sense of place to organically develop and exist in and of itself. It is similar to a conceptualization described by Hull and Vigo (1990) as layered elements, like the overlapping petals of a flower, that contribute to the organic development of sense of place.

D. Implications of the Research

Implications for Environmental Designers—Architects, Landscape Architects, and Planners. One of the goals of this research has been to bridge the gap between theory and practice. The results of this study show that people know intuitively what works, what feels right, what is aesthetically pleasing. They recognize natural and architectural beauty, harmony, well-being, comfort, and naturalness. They also value social and cultural features within a setting. Social scientists and designers need to foster these perceptions by 1) encouraging participation by the public at an early stage in design review and problem solving, 2) having concrete plans and alternatives available for discussion and, 3) presenting options in a comprehensible format (Kaplan and Kaplan, 1982).

In terms of policy formulation and planning, the attitudes of the design staff and resource managers should consider and respond to how sense of place is incorporated into the zoning and management frameworks. An open, receptive, inclusive organization will take steps to evaluate the unique characteristics of an area and plan specifically for those features. Significant natural and cultural features will be accorded a higher level of care and protection. Managers will take into account both the setting and the desired experience outcomes of visitors and zone sites to maximize the experiences while minimizing impacts to the site and others.

Future social science research regarding environmental design and the built environment will only be useful to designers, planners, and decision-makers if it has three qualities: it must be 1) reliable and valid; 2) responsive to the pragmatic needs of the designers; and 3) communicated in a manner that is comprehensible to non-scientists (Bell et al. 1990, 377). In addition, it must be participatory, because perception is

transactional and individuals have specific perceptions that influence design outcomes. Incorporating features that respond to requests to support the physical setting, please the aesthetic senses, and foster well-being will help ensure a design solution that succeeds in meeting the goals of the client and the public.

For example, in examining the sense of place of a large stand of old growth forest, very different features will have significance to long-time residents who utilize the trees as an economic resource than to residents outside the area with a long-range intrinsic value perspective. This can lead to weighty debate over the validity of perception, ownership of place, and the role of change shaping sense of place. As a result, significant ethical issues can develop: the question develops as to whose perceptions are right or most valid, and for whom a place should be managed—current residents, industry, tourists, government, or future generations. The recent pace of globalization and technological complexification have resulted in significant change to the physical and cultural environments of the world. Recognizing the importance of individual place identity has helped raise awareness and action toward preserving historical, cultural and natural resources. For decision makers, dialogue and public participation are critical in ensuring optimal decisions. The planning maxim is to plan "the greatest good for the greatest number of people," and in lieu of acceptable alternatives, democratic decision making with consideration of all provides the best method for preserving sense of place.

Implications for Social Scientists: Environmental Psychologists and Geographers. The result of the combination of factors in the development of a sense of place leads to a

behavioral component where an individual becomes willing to take action in support of a place. The development of this outcome component is one area wherein lies value of understanding sense of place. This is the point at which behavioral change will result from the development of an attitude or perspective. The person who develops a strong positive sense of place will develop identification or attachment and may then have intention of engaging in behavior to participate in, protect, or preserve it. The length to which sense of place can be encouraged, developed, or promoted by social scientists will result in the preservation of those places that contribute to the overall quality of life and well-being of society.

The quantitative results support existing research in environmental psychology and lend even greater support to phenomenology as a methodology in understanding the importance of nature in everyday life and the connection to home, safety, and comfort. The most interesting results in terms of environmental psychology are those that developed from the qualitative questions. The quantitative results support the existing research in environmental psychology, however, the qualitative results lend even greater support to understanding the importance of nature in everyday life and the connection to "home" and "comfort," which were overwhelmingly expressed.

The primary direction for social science researchers in the next decade should be in six areas: 1) development of an integrated, holistic, interdisciplinary approach to sense of place that recognizes emerging theory and research; 2) acknowledgment of a strong cross-cultural theory of sense of place; 3) support of a "language" that makes the fundamental concepts of sense of place accessible to the general public; 4) development of strategies toward sustainability, which provide for the needs of the current population

without jeopardizing the well-being of future generations (in terms of the built environment, that means provision of facilities and services that promote well-being—parks, affordable housing, housing for aging and special populations, provision of minimum infrastructure, facilities with renewable technologies, classical design and aesthetics, and preservation and adaptive re-use of historic structures); 5) continued development of environmental, cultural, and landscape assessment methods, and 6) formulation of strategies necessary for reducing or curtailing impacts.

Implications for Resource Management. Implications for resource managers exist in a number of areas. Regarding decision-making about resource issues, the study supports the need for taking the public and decision-makers literally *into the field* when evaluating issues and proposals. The results of the comparison between experimental treatments support the position that there is no substitute for being in the field. Whether it is building a dam, developing a new visitor center in a park, or locating a sign for a shopping center, the importance of experiencing the site with all five senses and perceiving the additional affective and functional associations that give a setting its meaning cannot be overstated. Perception involves all of the senses and it is nearly impossible to re-create an experience that encompasses all the sensory data attached to a site. Virtual reality is a step beyond current perception techniques, but it has not been developed to a level where it can adequately capture the experience of being in a place.

In addition, resource managers must take into account their users' motivations and expectations for an area when developing policies and management plans. Motivations and expectations will be significantly different for newcomers than for

experienced resource users. Sense of place for people who have a history with an area is based on significantly different factors than for first time visitors, and planning to meet the needs of both must be done. This is as true in resource management as it is in land use planning and tourism planning, and ultimately supports the need for public involvement in all aspects of planning and management (Mitchell et al. 1991).

Research will also help clarify the relationships between activity specialization and resource setting. It will help redefine the resource base from extractive to non-consumptive, recognizing the symbolic, affective, and spiritual values associated with natural resources and place (Williams et al. 1992). In particular, the research points to the need to work with natural resource managers to both preserve and protect fragile ecosystems and educate society on the issues of sense of place in those areas. Researchers should share knowledge on the causes of loss of place and suggest methods for maintaining and preserving place. They should work also toward making understanding, valuing, and preserving sense of place as a shared goal of society. Books along the lines of *A Pattern Language* (Alexander et al. 1977) and *Nature and the Human Spirit* (Driver et al. 1996) make that knowledge more accessible.

It may also be noted that while the Sense of Place scales developed in this survey have been limited to fifteen, it is likely that they will further develop just as the Recreation Experience Preference (REP) scales have expanded from the original fifteen to twenty-three (Manfredo, Driver, and Tarrant 1996). It is expected that as the scales are used under different circumstances, more items and scales will be added.

Two items that did not figure highly in the results of this study but may have significance for the travel and tourism industries were the concepts of romance and

adventure. It is apparent that neither group of items related to these concepts were strongly perceived by students when viewing the two settings on the university campus and it is obvious why they weren't. However, both came out in the focus groups and are essential to and readily apparent in the travel and tourism industry.

Romance was an item that came out of the focus groups as an indicator of sense of place, but not in the traditional sense of romantic love. It was discussed in the sense of historical nostalgia and memories associated with significant events, real or fictitious, and experiences larger than everyday life. Romance of place was linked with the ideas of adventure, passion, and love of life and with the romantic or legendary associations of people with places: explorers, artists, writers, heroes, and adventurers. *Adventure* was also mentioned by the focus groups and in the qualitative responses as respondents discussed dreams of travel to far away places which offered independence and self-reliance.

Both items have implications for the travel and tourism industry as demands shift into new areas and tourists' motivations evolve. Marketing analysts in the industry could use a set of sense of place psychometric scales geared specifically to their clients' niches in order to match trends in the industry, with romance and adventure being high on the list of motivations for particular locations. While travel industry market analysis evolves with changes in globalization and technology, SOP scales could serve as a valuable tool in deciphering the market trends of the global travel community.

E. Conclusions

This study has been successful in meeting the goal of simplifying sense of place in order to make it more accessible to people who need assistance in evaluating and expressing their visions of place. Simplification of the construct into its most basic components has clarified the definition: it is now possible to speak with certainty about the concept of sense of place and have shared understanding of its meaning.

The development of a set of scales that are valid indicators of sense of place and the development of a new model of those scales has resulted in a focal point from which to start when evaluating a site, and a language to assist decision makers, citizens, clients and students in articulating how and why a site is meaningful. The scales also serve as a focal point for future research into meeting the needs of assessment and planning.

This research has been timely in addressing concerns for a more holistic, systems-based approach to design, development, and management, and will be valuable in the future as designers and educators seek approaches that bridge the gaps between the independent place-oriented disciplines, between theory and practice, and between the public and professionals. This study has taken a meaningful step toward dialogue between the scientific disciplines of Geography, Environmental Design, Environmental Psychology, and Resource Management and will, it is hoped, lead to a broader understanding of the need for consideration of other perspectives in managing for greater sense of place.

The end result is that a mandate has been given for scholars, designers, planners, and managers to undertake a philosophy that 1) is inclusive and considers alternative

perspectives in a visioning process, recognizing that people will support programs which they feel a part of and take ownership in; 2) is holistic and supports the need for a systems-based approach, understanding that the person-environment relationship is dynamic and evolving, and that action taken in one area will have consequences in others; 3) supports education and training for planning and resource management which involves improved communication and cooperation; and 4) is fully aware of the elements which contribute to a positive sense of place and incorporates those elements into future planning and management.

With an understanding of the factors which contribute to a positive sense of place, planning and management strategies become apparent and straight-forward. The process of evaluating and measuring sense of place is a critical step toward promoting human-environment relationships and ultimately, improving quality of life.

APPENDIX A - ETYMOLOGY OF KEY TERMS

A) Natural

B) Recreation

C) Place

D) Experience

E) Landscape

F) Sense and/or Senses

I. According to *The Barnhart Concise Dictionary of Etymology* (Barnhart 1988) the selected words developed historically as outlined below.

A) **Natural:** *adj.* About 1250, borrowed from Old French *naturel, natural,* and directly from Latin *naturalis,* from *natura* NATURE; for suffix, see -AL. —n. Before 1325 *naturel* a natural ability or capacity; from the adjective. The meaning of a person with a natural gift or talent is first recorded in 1925. —natural history (1587) —naturalism n. Before 1641, action arising from natural instincts; later, close adherence to nature or reality in art or literature (before 1850); formed from English *natural* + *ism.* —naturalist *n.* 1587, one who studies natural rather than spiritual things; formed from English *natural* + *ist.* The meaning of a student of natural history is first recorded in 1600. —naturalize *v.* 1559, implied in *naturalized;* formed from English *natural* + *-ize,* and perhaps, in some instances, borrowed from Middle French *naturaliser,* from Old French *natural, naturel* natural + *-iser* -ize. —natural law (probably about 1425) —natural science (before 1393)

B) **Recreation:** *n.* Before 1393 *recreacioun* refreshment or curing of a person, refreshment by eating; borrowed from Old French *recreacion,* and directly from Latin *recreationem* (nominative *recreatio*) recovery from illness, from *recreare* to refresh, restore (*re*-again + *creare* to CREATE); for suffix see -ATION. The meaning of refreshing oneself by some amusement (as in *to read for recreation)* is found about 1400, and that of a means of refreshing oneself (as in *reading is her recreation*) in 1410. —recreate v. About 1425 *recreaten* refresh (oneself); probably borrowed from Latin *recreatus,* past participle of *recreare* refresh; and a later back formation from *recreation;* —recreational adj. (1656)

C) **Place:** *n.* Probably before 1200, borrowed from Old French *place,* and directly from Medieval Latin *placea, placia* place, spot, from Vulgar Latin *plattea,* from Latin *platea* courtyard, broad street, from Greek *plateia (hodos)* broad (way), feminine of *platys* broad. Derived forms from Latin *platea* include Middle Dutch *plaetse* (modern Dutch *plaats*), Middle High German *platz* (modern German *Platz*), Icelandic *plaz* (Swedish *plats,* Danish *plads,* Norwegian *plass).* Middle English *place* replaced Old English *stow* and *stede.* —v. 1442 *placen;* from the noun

D) **Experience:** *n.* About 1378, borrowed from Old French *experience*, learned borrowing from Latin *experentia* knowledge gained by repeated trials, experience, from *experientum* (nominative *experiens*), present participle of *experiri* to try, test (*ex* out of + a lost verb *periri* to go through, with surviving past participle *peritus* experienced, tested); for suffix see -ENCE. —v. 1533, to test, to try, from the noun. The sense of feel, suffer, undergo, is first recorded in 1588

E) **Landscape:** *n.* 1603, a picture of a land scene; borrowed from Dutch *landschap*, from Middle Dutch *landscap* region (*land* LAND + *-scap* -SHIP); cognate from Old English *landscipe* region (though no such term appears in Middle English); cognate of Old Saxon *landscepi*, Old High German *lantscaf* (Modern German *Landschaft*), and Old Icelandic *landskapr*. —v. 1927, from the noun. An earlier meaning of represent as landscape, depict, appeared in 1868

F) **Sense and/or senses:** *n.* Before 1382 *seanse* meaning; borrowed from Old French *sens*, and directly from Latin *sensus* (genitive *sensus*) perception, feeling, understanding, meaning formed from *sentire* perceive, know, feel. The faculty of perception or sensation (as in a *sense of touch*) is first recorded in English in 1526, and that of understanding, appreciation (as in a *sense of humor*), before 1540.—v. 1598, from the noun. —senseless adj. (1557)

II. *The Dictionary of Human Geography* (Johnston 1994) sheds further light upon the development of these words. The definitions are generally much longer than the definitions in *The Barnhart Concise Dictionary of Etymology* because this dictionary deals strictly with geographical terms. Due to length, most definitions are condensed here.

A) **Natural:** see natural area, natural resources, and naturalism (407-408). Nature is defined as 1. The essence of something (as in Richard Hartshorne's *The nature of geography*, 1939). 2. Areas unaffected or unaltered by human action. 3. The physical world in general, as the totality of its phenomena or processes or as a topic of study. These three principal meanings in modern geography prompted Williams (1976) to suggest that nature is 'perhaps the most complex word in the language'. In any of these senses, 'nature' can also be used normatively as a standard of value; what is most 'natural' is judged to be best, a standard that has not lacked critics since at least the time of John Stuart Mill (1873).

The second definition — areas unaffected by human action — is akin to the notion of WILDERNESS: McKibben (1989) has written in this vein of *The end of nature*. With the onset of GLOBAL WARMING, he argues, 'nature' no longer exists 'now that we have changed the most basic forces around us.' Nature, in this sense, has been modified so pervasively and for so long, that (like wilderness), it is more often an imaginative construct than an historical or physical reality.

The third definition is the most significant and also the broadest in the questions it raises

regarding the human relation to nature. A long-standing debate centers on the extent to which the approaches of the natural sciences are appropriate to the study of social life. The question "to what extent is it proper to regard Man as a part of Nature or as standing apart from it?" is of central importance for the study of human-environment relationships. Glacken (1967) identified three views of the relationship: humankind in harmony with nature; dominated by nature; and dominating nature. The rise of ENVIRONMENTALISM has focused attention on the last of these three issues...Human relations with nature are determined by social relations and thus are historically specific. Failure to recognize this point, it is argued, vitiates the insights of Malthusianism or of environmental determinism and the more recent one of LIMITS TO GROWTH...Recent writings on the concept of nature have emphasized its standing as a negotiated construct and a complex web of often contested meanings.

B) **Recreation:** The generic term for leisure-time activities. Recreations are frequently indulged in away from home, and a major field of geographical research has been to model and explain the pattern of demand associated with recreational trips (Jackson and Burton 1989). Demand is related to variables such as disposable income, leisure time, age, education, and access to personal transport. However, there has only been limited success in constructing general predictive models, because a significant proportion of recreation demand is a direct response to the supply of resources and facilities, much of which is not market-drive (Pigram1983).

There have been several attempts to classify recreational activities based on the degree to which they are passive or active, formal or informal, or resource- as opposed to user-orientated (Patmore 1983). User-orientated recreation depends on good accessibility for a large population and is characteristic of urban recreation or activity on the rural-urban fringe. Urban recreation has received far less attention from geographers than country-side recreation, the latter being more resource-based with some aspect of the land or LANDSCAPE, such as a national or state park, forming the recreational goal (President's Commission on Americans Outdoors 1987).

Increases in rural recreation have heightened a number of land-use conflicts, including access to private and public lands, and the compatibility of recreation with other land uses, and has generated a general debate about the most appropriate landscape management strategies for minimizing ecological damage (Torkildsen 1983). Notions of CARRYING CAPACITY and the desirability of multiple land uses now play a large part in recreational planning, and attempts have been made to evaluate areas for their recreational potential (Wall 1989).

C) **Place:** A portion of geographical SPACE occupied by a person or thing. Agnew (1987) identifies three major elements of place: 'LOCALE, the settings in which social relations are constituted (these can be informal or instructional); location, the geographical area encompassing the settings for social interaction as defined by social and economic

processes operating at a wider scale; and SENSE OF PLACE, the local "structure of feeling"'.

Place, and in particular sense of place, was one of the key concepts used by HUMANISTIC GEOGRAPHY in the 1970s to distinguish its approach from that of positivist geographers. In particular, it was associated with the phenomenological approaches of Relph (1976) and Tuan (1977). Such a philosophical approach to place has been continued in the 1980s in the work of Seamon and Mugerauer (1985) and Black et al.

During the 1980s interest in the concept of place grew outside humanistic geography: economic, historical, and political geographers have all wanted to have a place to call their own. Entrikin (1991) has tried to mediate between the notions of place by arguing that '[t]o seek to understand place in a manner that captures its sense of totality and contextuality is to occupy a position that is between the objective pole of scientific theorizing and the subjective pole of empathetic understanding.'

See also PLACELESSNESS, the existence of relatively homogeneous and standardized LANDSCAPES which diminish the local specificity and variety of PLACES that characterized pre-industrial societies. This term is associated with HUMANISTIC GEOGRAPHY, particularly the work of Relph (1976) who, drawing upon Heidegger (1962), argues that in the modern world the loss of place diversity is symptomatic of a larger loss of meaning. The 'authentic' attitude which characterized preindustrial and handicraft cultures and produces 'SENSE OF PLACE' has largely been lost and replaced with 'inauthentic' attitude. As examples of placelessness, and the 'inauthentic' attitude which produces them, Relph offers tourist landscapes, commercial strips, NEW TOWNS and SUBURBS, and the international style in architecture.

D) **Experience:** not included in *The Dictionary of Human Geography.*

E) **Landscape:** A polysemic term referring to the appearance of an area, the assemblage of objects used to produce that appearance, and the area itself. According to Mikesell (1968), during the Middle Ages in England the term referred to the land controlled by a lord or inhabited by a particular group of people. By the early seventeenth century, however, under the influence of the Dutch *landschap* painters, the term 'landscape' came to refer to the appearance of an area, more particularly the representation of scenery. By the late nineteenth century, as Mikesell points out, the basis for the contemporary definition of landscape took shape as 'a portion of land or territory which the eye can comprehend in a single view, including all the objects so seen, especially in its pictorial aspect.'

The term 'landscape' was introduced into American geography in 1925 by Carl Sauer with the publication of his 'The morphology of landscape'. Sauer put forth the concept of landscape as an alternative to the currently popular form of geographical explanation known as 'Environmental Determinism' which sought to specify causal influences of the environment on humans. Sauer's 'landscape approach' sought to describe the

interrelationships between humans and the environment, with primary attention given to the human impact on the environment. Sauer downplayed the subjective aspects of the concept and stressed that landscape was an objective area to be studied scientifically through observation. Under this view, 'landscape' was defined as 'an area made up of a distinct association of forms, both physical and cultural.' Sauer's position was that geographers should proceed genetically and trace the development of natural landscape into a cultural landscape. The difficulty with this methodology was that it was seldom possible to reconstruct the appearance of the natural landscape on the Earth because the human impact had been pervasive for many millennia. In effect, all landscapes had become cultural landscapes. Thus, the study of landscapes by Sauer and his students (who constituted the so-called BERKELEY SCHOOL) became the study of cultural history.

In the 1950s, two scholars outside this Berkeley tradition became influential: J. B. Jackson and W. G. Hoskins. Jackson founded *Landscape Magazine* and wrote extensively on the meaning of the American landscape. Hoskins conducted detailed studies of landscape history and wrote *The making of the English landscape* (1955) which remains a classic in the genre.

The single most significant work to emerge from this new era of evaluating landscape was in 1971, titled *The interpretation of ordinary landscapes*, edited by David Meinig. It explicitly recognized the work of Sauer, Hoskins, and Jackson, and contained contributions from other such well known geographers as Pierce Lewis, David Lowenthal, Marvin Samuels, David Sopher, and Yi-Fu Tuan, and elegantly summarized the work of this period.

In the 1980s and 1990s new work has maintained connections with the older landscape traditions, yet diverges in explicitly applying social and cultural theory to landscape interpretation, and showing greater concern for both the sociocultural and political processes that shape landscapes. A number of different theoretical stances have been taken: Samuels (1979) and Kobayashi (1989) both explore EXISTENTIALISM as a basis for landscape interpretation. Cosgrove (1984) has redefined landscape as 'a way of seeing' rather than an image or object, representing an ideological perspective in which a particular class has represented itself and its property. Cosgrove (1984) and Daniels (1989) draw upon Marxian cultural criticism and together (Cosgrove and Daniels, 1988) apply the notion of ICONOGRAPHY drawn from art history to landscape interpretation.

Ley (1987) has employed postmodern architectural theory and theories of postindustrialism, while James and Nancy Duncan (Duncan and Duncan, 1988; Duncan, 1990) have applied poststructural notions of TEXT and intertextuality drawn from literary theory to the landscape, thereby incorporating landscape interpretation into the debate surrounding POSTMODERNISM. The thrust of this new landscape work over the past decade has been not only to theorize the concept of landscape but to show how it forms an important part of social, cultural, and political systems.

F) **Sense and/or senses:** Sense and/or senses were not included in the Dictionary of Human Geography. However, sense of place was included: 1. The character intrinsic to a PLACE itself. 2. The attachments that people have to a place. These are two distinct but interlocking perspectives.

In the first sense, certain places are regarded as distinctive or memorable through their unique physical characteristics or 'imageability', or through their association with significant events, real or mythical. Thus Ayers Rock, Jerusalem, and Grand Canyon, and even Chernobyl and Bophal, may be said to possess a strong sense of place, a uniquely significant meaning for large numbers of people who may have no direct experience of that place.

In the second sense, in everyday life individuals and communities develop deep attachments to places through experience, memory and intention. The most obvious attachments are to 'home', where above all, one feels 'in place' (Eyles, 1985). Commonly, people give physical expression to their collective attachments to place through construction of symbolic strictures (churches, monuments, etc.) that increase its more general distinctiveness.

In both cases, objective aspects of a place are conflated with subjective aspects of our experience of that place (whether direct or indirect), giving rise to the characteristic 'betweeness of place' identified by Entrikin (1991). In the past two decades conscious creation and promotion of place image has become a distinguishing feature of postmodern architecture and planning in consumption spaces (see POSTMODERNISM). The supposed 'authenticity' and 'heritage' value of former production spaces (docklands and textile mills, for example) is both emphasized by conserving the physical form and deployed to promote altered uses, while new places are created which draw upon references to 'other' places to enhance their own identity (Ley, 1989; Hopkins, 1990).

The etymology of place can also be traced to the Greeks; Walter (1988) provides the following insight:

> *Chora* stands out as the oldest Greek word for place, appearing in Homer and Hesiod. *Topos* emerged initially in the work of Aeschylus, that is, not until around 470 B.C. In antiquity, a writer could say *chorophilia* for love of place, but never *topophilia* (120).

III. Additional sources for clarification of perception, phenomenology, and existentialism have been included in Appendix 1: Christian Norberg-Schulz's, *Genius Loci*; Robert Irwin's *Being and Circumstance*; and David Abram's *The Spell of the Sensuous Perception and Language in a More-Than-Human World*

A. In *Genius Loci: Towards a Phenomenology of Architecture*, Christian Norberg-Schulz puts the concept of *Sense of Place* and *Genius Loci* into perspective. He defines the meaning of the built environment within the natural environment in everyday human existence, and like both Abrams and Irwin, credits the individual with the ability to perceive meaning. He, too, discusses the need for stepping back from an analytical, scientific perspective and allowing the psychic implications of the environment to provide meaning. Specifically regarding the built environment, he says:

> When we treat architecture analytically, we miss the concrete environmental character, that is, the very quality which is the object of man's identification, and which may give him a sense of existential foothold... First of all, I owe to Heidegger the concept of *dwelling*. "Existential foothold" and "dwelling" are synonyms, and "dwelling," in an existential sense, is the purpose of architecture.
>
> Man dwells when he can orientate himself within and identify himself with an environment, or, in short, when he experiences the environment as meaningful. Dwelling therefore implies something more than "shelter." It implies that the spaces where life occurs are *places*, in the true sense of the word. A place is a space which has distinct character. Since ancient times the *genius loci*, or "spirit of place," has been recognized as the concrete reality man has to face and come to terms with in his daily life. Architecture means to visualize the *genius loci*, and the task of the architect is to create meaningful places, whereby he helps man to dwell (Norberg-Schulz 1979, 5).

For clarification purposes, according to Norberg-Schulz, *genius loci* is a Roman concept:

> According to ancient Roman belief, every "independent" being has its *genius*, its guardian spirit. This spirit gives life to people and places, accompanies them from birth to death, and determines their character essence. Even the gods have their genius, a fact which illustrates the fundamental nature of the concept. The *genius* thus denotes what a thing *is*...
>
> During the course of history the *genius loci* has remained a living reality, although it may not have been expressively named as such. Artists and writers have found inspiration in local character and have "explained" the phenomena of everyday life as well as art, referring to landscapes and urban milieus. Thus Goethe says: "It is evident that the eye is educated by the things it sees from childhood on, and therefore Venetian painters must see everything clearer and with more joy than other people" (1979, 18).

He describes the keys to understanding human identity as it relates to nature as the ability to find identification within the world based upon the character of a place, and the ability

for orientation within space in order to understand the relations or provide context for living. Simply stated, there are three basic ways to do this:

1. By making natural structure more precise, through visualization and building
2. By complementing what exists by adding what is lacking
3. By symbolizing understanding of nature such that experienced meaning is "translated" into another medium.

The results of these endeavors are the translation of nature into an ordered microcosmos or *imago mundi* which concretizes the world, and thus gives humans a foothold in the world. This leads to "dwelling," in the existential sense of the word, which facilitates the process of being:

Human identity is based on "dwelling"
To be is to dwell
Dwelling means to be at peace in a protected place
Concretization of the environment is the essence of dwelling
Art (including design, architecture and planning) helps humans to dwell
Human merits do not account for much unless one dwells poetically
Therefore, "poetry," in all its forms (including design) makes human existence meaningful
"Meaning" is the fundamental human need

Norberg-Schulz defines place:

> A concrete term for environment is *place*. It is common usage to say that acts and occurrences *take place*. In fact it is meaningless to imagine any happening without reference to locality. Place is evidently an integral part of existence.
>
> What, then, do we mean with the word "place"? Obviously we mean something more than abstract location. We mean a totality made up of concrete things having material substance, shape, texture, and color. Together these things determine an "environmental character" which is the essence of place. In general, a place is given as such a character or "atmosphere." A place is therefore a qualitative, "total" phenomenon, which we cannot reduce to any of its properties, such as spatial relationships, without losing its concrete nature out of sight.
>
> Everyday experience moreover tells us that different actions need different environments to take place in a satisfactory way. As a consequence, towns and houses consist of a multitude of particular places. This fact is of course taken into consideration by current theory of planning and architecture, but so far the problem has been treated in a too abstract way. "Taking place" is usually understood in a quantitative, "functional" sense, with implications such as spatial distribution and

dimensioning. But are not "functions" interhuman and similar everywhere? Evidently not. "Similar" functions, even the most basic ones such as sleeping and eating, take place in very different ways, and demand places with different properties, in accordance with different cultural traditions and different environmental conditions. The functional approach therefore left out the place as a concrete " here" having its particular identity.

Being qualitative totalities of a complex nature, places cannot be described by means of analytic, "scientific" concepts. As a matter of principle science "abstracts" from the given to arrive at neutral, "objective knowledge." What is lost, however, is the everyday life-world, which ought to be the real concern of man in general and planners and architects in particular. Fortunately a way out of the impasse exists, that is, the method known as phenomenology (Norberg-Schulz 1979, 8).

B. In *Being and Circumstance*, Robert Irwin expresses a philosophy toward perception of art and design with its roots in phenomenology. He basically states that each person has the opportunity to experience art as a participant - that the perceiver experiences the art and recognizes that the process of perception is an essential component of the experience.

Even a moment of observation will tell us that our sense perception presents us with something more complex (subtle), and a second moment of reflection will tell us that this election of *something* out of the whole complexity of the phenomenal requires an added, and very different process of election (Irwin 1985, 10).

Regarding inquiry into phenomena and the acceptance of other perspectives or points of view toward aesthetics, Irwin writes about the process of change:

Change as we experience it in our everyday lives is normally *homogenous*. As if scaling rungs on a ladder, we appear to progress upward, trading one idea for another in a series of closely-integrated steps. That is, as long as our most basic concepts (grounds) remain intact and continue to provide us with an orderly progression of answers for our practices, and so long as the grounds of our practices remain constant (successful) long enough, a set of curious transformations in our understanding will take place over a period of generations, allowing the grounds of our most basic assumptions, over extended time, to take on the character of hidden orthodoxies (concepts in effect become beliefs, contingent facts become truths, etc.).

Each subsequent generation comes to know the actual grounds of the ordinary concept less and less (this both as gain and loss) as each new generation is increasingly educated to the intricacies (sophistications) of "its" application as

form (practice), the successes of which lead us to a further belief in their eternal correctness. Such belief becomes, with reason, the ultimate opiate in our lives. So it is easy to understand our reluctance and major discomfort when, in fact, it is challenged (1985, 11).

The end result of Irwin's discussion is the point at which he describes how the individual's presence influences his/her perceptions (that person's *Being)*, and the context of the situation in which the person exists (*Circumstance*). From this perspective, then, the applicable notions of perceiving the natural (and social) environment for the user can be developed:

> Being and circumstance, then, constitute the operative frame of reference for an extended phenomenal art activity, which becomes a process of reasoning between our mediated culture (being) and our immediate presence (circumstance). Being embodies in you the observer, participant, or user, your complex genetic, cultural, and personal histories as "subsidiary" cues bearing on your "focal" attending (experiencing) of your circumstances, (again) in a "from-to relation."
>
> Circumstance, of course, encompasses all of the conditions, qualities, and consequences making up the real context of your being *in* the world. There is embedded in any set of circumstances and your being in them the dynamic of a past and future, what was, how it came to be, what it is, and what it may come to be.
>
> If all this seems a bit familiar, it should. No one "invents" a new perceptual consciousness. This process of being and circumstance is at most basic perceptual (experiencing) action, something we already do at every moment in simply coming to know the nature of our presence, and we almost always do so without giving the wonder of it a second thought. Once again this "oversight" speaks not of its insignificance; on the contrary, it speaks of its extraordinary sophistication. What I am advocating is simply elevating this process, this reasoning, to a role of importance that matches its innate sophistication.
>
> It should be noted that it is upon this "reasoning" process that all of our subsequent logics (systems) are instinctively patterned — although this generally goes unacknowledged. But with one modification (gain and loss): to cut the world down to a manageable size, our logics hold their components to act as a kind of truth, locking them in as a matter of style into a form of *permanence*. Conversely, the process of reasoning, our being and circumstance (which I am here proposing), is free of such abstraction and can account for that most basic condition (physic) of the universe — *change*.

C. The work of David Abrams, *The Spell of the Sensuous*, also focuses on the experience of the individual as a sentient being in a world where that perspective is largely

undervalued and often ignored. Abrams writes of his experiences traveling and studying other cultures with an interest in learning how others connect with the natural world and incorporate those elements into their daily lives.

Abrams examines the philosophies of phenomenologists Edmund Husserl and Maurice Merleau-Ponty in an effort to validate the subjective, qualitative methods of evaluation and perception. He writes about how early scholars Galileo and Descartes, set out to assign all phenomena a mathematical rationale, and the resultant void in theoretical understandingof the world as modern culture speeds toward the millennium.

> The chemical table of the elements, automobiles, smallpox vaccines, "close-up" images of the outer planets — so much that we have come to assume and depend upon has emerged from the bold experimentation of the world by the objective sciences. Yet these sciences consistently overlook our ordinary, everyday experience of the world around us. Our direct experience is necessarily subjective, necessarily relative to our own position or place in the midst of things, to our particular desires, tastes, and concerns... Despite all the mechanical artifacts that now surround us, the world in which we find ourselves before we set out to calculate and measure it is not an inert or mechanical object but a living field, an open and dynamic landscape subject to its own moods and metamorphoses (Abrams 1996, 32).

This sets the stage for a transition into perception as *participation*:

> If we wish to choose a single term to characterize the event of perception, as it is disclosed by phenomenological attention, we may borrow the term "participation," used by the early French anthropologist Lucien Levy-Bruhl. The brilliant forerunner of today's "cognitive" and "symbolic" schools of anthropology, Levy-Bruhl used the word "participation" to characterize the animistic logic of indigenous, oral peoples — for whom ostensible "inanimate" objects like stones and mountains are often thought to be alive, for whom certain names, spoken aloud, may be felt to influence at a distance the things or beings that they name, for whom particular plants, particular animals, particular places and persons and powers may all be felt to participate in one another's existence, influencing each other and being influenced in turn. (1996, 57)

Finally, Abrams relates this perspective to what has been produced in society in terms of constructed objects and the built environment. He begins by describing the complexity of nature, in which no two trees or weeds or ripples in a stream are the same, and how nature is "composed of repetitive figures that *never exactly repeat themselves.*"

> In contrast, the mass-produced artifacts of civilization, from milk cartons to washing machines to computers, draw our senses into a dance that endlessly reiterates itself *without variation.* To the sensing body these artifacts are, like all phenomena, animate and even alive, but their life is profoundly constrained by the specific "functions" for which they were built. Once our bodies master the functions, the machine-made objects commonly teach our senses nothing further;

they are unable to surprise us, and so we must continually acquire new built objects, new technologies, the latest model of this or that if we wish to stimulate ourselves... It is thus that so much of the built environment and so many of the artifacts that populate it, seem sadly superfluous and dull when we identify with our bodies and taste the world with our animal senses (Abrams 1996, 64-65).

APPENDIX B - DOCUMENT REDUCED FOR REPRODUCTION

SENSE OF PLACE SURVEY

Department of Natural Resource Recreation & Tourism, Colorado State University

- This survey is being conducted as part of research in the College of Natural Resources at Colorado State University. We want to learn how you perceive a particular place on campus in order to identify the characteristics that give it a "sense of place."

- The phrase, "sense of place" simply means **YOUR OWN PERCEPTIONS ABOUT A PARTICULAR PLACE**, which in this case, is a location on the CSU campus.

- We will be looking at things which influence your perceptions, like the architecture of the buildings and the presence or lack of trees, and how you feel about the place.

- We will show you a set of slides and **ASK YOU TO RATE HOW MUCH YOU AGREE OR DISAGREE** with a series of statements using a 7-point scale, ranging from "Strongly Agree (+3) to "Strongly Disagree" (-3). A mid-point rating (0) means your impressions are neutral, and the question marks mean you don't understand the statement (??).

- **FOR EXAMPLE**, we may ask you about how you feel when you are in the setting and whether you think it feels comfortable. If you agree strongly that it does feel comfortable, you would circle +3 for "Strongly Agree":

Statement:	Agree			Neutral	Disagree			Don't Know
	Strongly	Moderately	Slightly		Slightly	Moderately	Strongly	
This place makes me feel comfortable	+3	+2	+1	0	-1	-2	-3	??

Please note: **ALL ANSWERS ARE ANONYMOUS**, no names are being taken. Your responses will only be used to understand general trends about the factors that contribute to sense of place. Thank you very much for your participation, it is very important to us!

SLIDE PRESENTATION

Please rate how you feel the features shown in the slides influence your perception of the setting. If you **agree** with the statement, it will have a **positive** score (+1 to +3); if you **disagree**, it will have a **negative** score (-1 to -3). The more strongly you feel, the higher the number.

PLEASE CIRCLE YOUR RESPONSE !

STATEMENT	Agree			Neutral	Disagree			Don't Know
	Strongly	Moderately	Slightly		Slightly	Moderately	Strongly	
FOR ME, THIS PLACE IS...								
safe	+3	+2	+1	0	-1	-2	-3	??
clean	+3	+2	+1	0	-1	-2	-3	??
familiar	+3	+2	+1	0	-1	-2	-3	??
alive	+3	+2	+1	0	-1	-2	-3	??
peaceful	+3	+2	+1	0	-1	-2	-3	??
distinctive	+3	+2	+1	0	-1	-2	-3	??
comfortable	+3	+2	+1	0	-1	-2	-3	??
well-known	+3	+2	+1	0	-1	-2	-3	??
well-maintained	+3	+2	+1	0	-1	-2	-3	??
inspirational	+3	+2	+1	0	-1	-2	-3	??
warm	+3	+2	+1	0	-1	-2	-3	??
meaningful	+3	+2	+1	0	-1	-2	-3	??
beautiful	+3	+2	+1	0	-1	-2	-3	??
understandable	+3	+2	+1	0	-1	-2	-3	??
significant	+3	+2	+1	0	-1	-2	-3	??
natural	+3	+2	+1	0	-1	-2	-3	??
sunny	+3	+2	+1	0	-1	-2	-3	??
serene	+3	+2	+1	0	-1	-2	-3	??
reassuring	+3	+2	+1	0	-1	-2	-3	??

2

STATEMENT	Agree			Neutral	Disagree			Don't Know
	Strongly	Moderately	Slightly		Slightly	Moderately	Strongly	
FOR ME, THIS PLACE IS...								
memorable	+3	+2	+1	0	-1	-2	-3	??
interesting	+3	+2	+1	0	-1	-2	-3	??
harmonious	+3	+2	+1	0	-1	-2	-3	??
magical	+3	+2	+1	0	-1	-2	-3	??
non-threatening	+3	+2	+1	0	-1	-2	-3	??
aesthetically pleasing	+3	+2	+1	0	-1	-2	-3	??
balanced	+3	+2	+1	0	-1	-2	-3	??
simple	+3	+2	+1	0	-1	-2	-3	??
spacious	+3	+2	+1	0	-1	-2	-3	??
open	+3	+2	+1	0	-1	-2	-3	??
revitalizing	+3	+2	+1	0	-1	-2	-3	??
historic	+3	+2	+1	0	-1	-2	-3	??
authentic	+3	+2	+1	0	-1	-2	-3	??
valuable	+3	+2	+1	0	-1	-2	-3	??
pleasing to look at	+3	+2	+1	0	-1	-2	-3	??
made of materials which are appropriate in color	+3	+2	+1	0	-1	-2	-3	??
sacred	+3	+2	+1	0	-1	-2	-3	??
ordered	+3	+2	+1	0	-1	-2	-3	??
offers a sense of belonging	+3	+2	+1	0	-1	-2	-3	??
has obvious boundaries	+3	+2	+1	0	-1	-2	-3	??
made of materials which fit the setting	+3	+2	+1	0	-1	-2	-3	??
has good natural lighting	+3	+2	+1	0	-1	-2	-3	??
provides a sense of direction	+3	+2	+1	0	-1	-2	-3	??

STATEMENT	Agree			Neutral	Disagree			Don't Know
	Strongly	Moderately	Slightly		Slightly	Moderately	Strongly	
FOR ME, THIS PLACE...								
has a good amount of trees	+3	+2	+1	0	-1	-2	-3	??
has distinct landmarks	+3	+2	+1	0	-1	-2	-3	??
has a spirit of the people	+3	+2	+1	0	-1	-2	-3	??
is easy for me to find my way around in	+3	+2	+1	0	-1	-2	-3	??
provides opportunity for interaction with others	+3	+2	+1	0	-1	-2	-3	??
offers civility	+3	+2	+1	0	-1	-2	-3	??
generates respect for the individual	+3	+2	+1	0	-1	-2	-3	??
fits within the larger context of CSU	+3	+2	+1	0	-1	-2	-3	??
supports the activities of CSU	+3	+2	+1	0	-1	-2	-3	??
meets my expectations of a campus setting	+3	+2	+1	0	-1	-2	-3	??
supports my role at CSU	+3	+2	+1	0	-1	-2	-3	??
has attractive buildings	+3	+2	+1	0	-1	-2	-3	??
has well-defined spaces	+3	+2	+1	0	-1	-2	-3	??
makes way-finding seem intuitive	+3	+2	+1	0	-1	-2	-3	??
provides information	+3	+2	+1	0	-1	-2	-3	??
generates a positive sensory experience	+3	+2	+1	0	-1	-2	-3	??
has a distinct energy	+3	+2	+1	0	-1	-2	-3	??
has a spirit of place	+3	+2	+1	0	-1	-2	-3	??
offers shelter	+3	+2	+1	0	-1	-2	-3	??

STATEMENT	Agree			Neutral	Disagree			Don't Know
	Strongly	Moderately	Slightly		Slightly	Moderately	Strongly	
THIS PLACE MAKES ME FEEL...								
alive	+3	+2	+1	0	-1	-2	-3	??
in control	+3	+2	+1	0	-1	-2	-3	??
peaceful	+3	+2	+1	0	-1	-2	-3	??
comfortable	+3	+2	+1	0	-1	-2	-3	??
calm	+3	+2	+1	0	-1	-2	-3	??
a sense of connection	+3	+2	+1	0	-1	-2	-3	??
a sense of my identity	+3	+2	+1	0	-1	-2	-3	??
a sense of comfort	+3	+2	+1	0	-1	-2	-3	??
a sense of recognition	+3	+2	+1	0	-1	-2	-3	??
a sense of attachment	+3	+2	+1	0	-1	-2	-3	??
like there are opportunities here for me	+3	+2	+1	0	-1	-2	-3	??
a sense of history	+3	+2	+1	0	-1	-2	-3	??
a sense of ownership	+3	+2	+1	0	-1	-2	-3	??
a sense of awe	+3	+2	+1	0	-1	-2	-3	??
inspired	+3	+2	+1	0	-1	-2	-3	??
like I know it well	+3	+2	+1	0	-1	-2	-3	??
connected to a higher power	+3	+2	+1	0	-1	-2	-3	??
fulfilled	+3	+2	+1	0	-1	-2	-3	??
part of a community	+3	+2	+1	0	-1	-2	-3	??
a sense of romance	+3	+2	+1	0	-1	-2	-3	??
like exploring	+3	+2	+1	0	-1	-2	-3	??
a sense of belonging	+3	+2	+1	0	-1	-2	-3	??
serene	+3	+2	+1	0	-1	-2	-3	??

STATEMENT	Agree			Neutral	Disagree			Don't Know
	Strongly	Moderately	Slightly		Slightly	Moderately	Strongly	
THIS PLACE MAKES ME FEEL...								
a sense of nostalgia	+3	+2	+1	0	-1	-2	-3	??
a sense of appreciation	+3	+2	+1	0	-1	-2	-3	??
like I have options	+3	+2	+1	0	-1	-2	-3	??
strong emotions	+3	+2	+1	0	-1	-2	-3	??
a sense of mystery	+3	+2	+1	0	-1	-2	-3	??
a sense of refuge	+3	+2	+1	0	-1	-2	-3	??

Regarding the location you just reviewed, how familiar are you with it?

_____Very familiar
_____Moderately familiar
_____Slightly familiar
_____Not at all familiar

In thinking about "sense of place," what **specific places** come to mind for you? (These may be places anywhere).

In thinking about the phrase, "sense of place," what **thoughts or feelings** come to mind for you?

And finally, a few demographic questions about you:

1. Are you: ____Female _____Male

2. Age _____

3. What is your ethnic origin? (please specify) _____

4. Birthplace (City/State; add Country, if not U.S.):_____

5. Place where you grew up (or what you consider to be your home town):

_____

6. How would you describe the area where you grew up (your home town)?

_____Farm or Ranch
_____Rural or very small town (under 1,000 residents)
_____Small town (1,000 - 5,000)
_____Small city (5,000 - 49,000)
_____Medium city (50,000 - 99,000)
_____Large City (100,000 - 500,000)
_____Very Large City (over 500,000)
_____Suburb - within 15 miles of a Medium, Large, or Very Large City

7. Length of Residence There: _____ (Years)

8. Length of Residence in Fort Collins: _____(Years)

9. Please check the Education Level you are currently enrolled in:

_____Currently in Undergraduate/Bachelors Program
_____Masters Degree
_____Ph.D.
_____Other _____

10. Number of years you have completed in that education level: _____

11. Major: _____

12. Is there anything else you would like to add about your thoughts or ideas of **SENSE OF PLACE**?

THANK YOU VERY MUCH FOR YOUR HELP !!

APPENDIX C - SENSE OF PLACE SURVEY ITEM MEAN SCORES

Items were rated on a 7-point Scale from +3 (Strongly Agree) to -3 (Strongly Disagree)
** indicates values of zero (Neutral)

STATEMENT	Oval Visit n=98	Oval Slides n=88	Clark Visit n=95	Clark Slides n=92
FOR ME, THIS PLACE IS...				
safe	2.51	2.07	2.28	1.62
clean	2.63	2.30	1.55	1.12
familiar	2.06	2.51	2.14	2.62
alive	2.02	1.78	1.35	.85
peaceful	2.38	1.59	.97	**
distinctive	2.07	1.46	1.15	1.20
comfortable	2.36	1.66	.97	.47
well-known	2.01	2.01	1.96	2.47
well-maintained	2.58	2.42	1.54	1.36
inspirational	1.51	.63	-.35	-1.17
warm	1.76	1.15	.43	-.50
meaningful	1.33	1.03	**	**
beautiful	2.22	1.38	.24	-.84
understandable	1.29	.80	.64	.44
significant	1.49	1.32	.57	.51
natural	1.56	-.16	-.32	-1.67
sunny	2.09	1.81	1.24	.86
serene	1.84	.71	**	-1.17
reassuring	1.37	.49	.32	-.32
memorable	1.65	1.56	.71	1.18
interesting	1.52	1.17	.73	.13
harmonious	1.53	.62	**	-.85

STATEMENT	Oval Visit n=98	Oval Slides n=88	Clark Visit n=95	Clark Slides n=92
FOR ME, THIS PLACE IS...				
magical	.27	-.49	-1.28	-1.93
non-threatening	2.10	1.53	1.38	1.07
aesthetically pleasing	2.21	1.64	.18	-.84
balanced	2.05	1.06	.74	-.39
simple	1.69	1.02	.72	**
spacious	2.41	1.69	1.73	.45
open	2.37	1.58	1.55	.30
revitalizing	1.35	.51	-.21	-1.17
historic	1.94	1.71	.15	-.53
authentic	1.62	1.21	.27	-.52
valuable	1.92	1.70	.55	.29
pleasing to look at	2.43	1.68	.28	-.87
made of materials which are appropriate in color	1.94	1.47	.74	**
sacred	.27	-.58	-1.39	-1.91
ordered	1.43	.84	.57	.48
offers a sense of belonging	1.39	.62	.28	-.36
has obvious boundaries	2.28	1.63	1.05	1.01
made of materials which fit the setting	2.13	1.34	.65	-.40
has good natural lighting	2.57	1.85	1.69	.90
provides a sense of direction	1.29	.81	.48	.30
has a good amount of trees	2.55	1.76	.43	-.75

STATEMENT	Oval Visit n=98	Oval Slides n=88	Clark Visit n=95	Clark Slides n=92
FOR ME, THIS PLACE...				
has distinct landmarks	1.99	2.13	1.09	.99
has a spirit of the people	1.26	.87	1.23	.17
is easy for me to find my way around in	2.52	2.15	1.91	1.65
provides opportunity for interaction with others	1.40	1.27	2.03	1.85
offers civility	1.46	.93	1.18	.59
generates respect for the individual	1.05	.40	.40	**
fits within the larger context of CSU	1.79	1.15	1.24	.69
supports the activities of CSU	1.64	1.05	1.05	1.03
meets my expectations of a campus setting	2.38	1.78	.87	.15
supports my role at CSU	1.23	.61	.49	-.19
has attractive buildings	1.88	1.01	-.45	-1.36
has well-defined spaces	2.22	1.45	1.03	.57
makes way-finding seem intuitive	1.22	.54	.47	.59
provides information	.34	.18	.35	.55
generates a positive sensory experience	1.98	1.18	.49	-.29
has a distinct energy	1.71	1.12	1.0	.56
has a spirit of place	1.82	1.24	.70	**
offers shelter	.82	.55	1.51	1.01

STATEMENT	Oval Visit n=98	Oval Slides n=88	Clark Visit n=95	Clark Slides n=92
THIS PLACE MAKES ME FEEL...				
alive	1.71	.84	.66	-.22
in control	1.28	.61	.74	.15
peaceful	2.28	1.06	.49	-.61
comfortable	2.29	1.35	.98	.14
calm	2.28	1.20	.86	-.21
a sense of connection	1.39	.90	.44	.10
a sense of my identity	1.04	.79	**	-.48
a sense of comfort	1.98	1.01	.45	-.21
a sense of recognition	1.34	1.02	.71	.68
a sense of attachment	1.15	.69	.14	-.16
like there are opportunities here for me	.78	.45	.73	-.21
a sense of history	1.71	1.20	.25	-.57
a sense of ownership	.30	-.21	-.31	-.91
a sense of awe	.94	.00	-.90	-1.50
inspired	1.31	.17	-.30	-1.28
like I know it well	1.41	1.08	1.02	1.15
connected to a higher power	.21	-.93	-.95	-1.94
fulfilled	.91	-.15	-.28	-1.29
part of a community	1.39	.49	.84	.30
a sense of romance	.77	-.32	-1.11	-1.80
like exploring	.70	-.48	-.35	-1.25
a sense of belonging	1.28	.52	.47	-.20
serene	1.67	.39	-.12	-1.30

STATEMENT	Oval Visit n=98	Oval Slides n=88	Clark Visit n=95	Clark Slides n=92
THIS PLACE MAKES ME FEEL...				
a sense of nostalgia	.93	.37	.11	-.30
a sense of appreciation	1.98	1.40	.73	**
like I have options	1.10	.46	.80	**
strong emotions	.92	**	-.31	-.64
a sense of mystery	.33	-.50	-.46	-1.46
a sense of refuge	1.19	**	-.33	-.91

Regarding the location you just reviewed, how familiar are you with it?

	Oval Visit	Oval Slides	Clark Visit	Clark Slides
___3__Very familiar	1.82	1.43	1.65	1.28
___2__Moderately familiar				
___1__Slightly familiar				
___0__Not at all familiar				

And finally, a few demographic questions about you:

1. Are you: __172__ Female __197__ Male __4__ Missing

2. Age__22.72__

3. What is your ethnic origin? (please specify) Caucasian __327__ African American __7__
   Asian __7__ Hispanic __5__ Native American __2__
   Bohemian __1__ Missing __25__

4. Birthplace (City/State; add Country, if not U.S.):_____

5. Place where you grew up (or what you consider to be your home town):

   _____

6. How would you describe the area where you grew up (your home town)?

Freq.	%	
13	3.5	Farm or Ranch
29	7.8	Rural or very small town (under 1,000 residents)
45	12.1	Small town (1,000 - 5,000)

Freq.	%	
71	19.0	Small city (5,000 - 49,000)
53	14.2	Medium city (50,000 - 99,000)
49	13.1	Large City (100,000 - 500,000)
29	7.8	Very Large City (over 500,000)
77	20.6	Suburb - within 15 miles of a Medium, Large, or Very Large City
7	1.8	Missing

7. Length of Residence There: 16.07 (Years)

8. Length of Residence in Fort Collins: 3.50 (Years)

9. Please check the Education Level you are currently enrolled in:

354 Currently in Undergraduate/Bachelors Program
4 Masters Degree
2 Ph.D.
9 Other _____
4 Missing

10. Number of years you have completed in that education level: _____

11. Major:

324	86.9%	Natural Resources Related
43	11.5%	Other
6	1.6%	Missing

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