

#### 14. PERCEPTIONS OF URBAN RESIDENTIAL LANDSCAPES: ROLE OF LANDSCAPE DESIGN IN ENHANCING PEOPLE-PLANT RELATIONSHIPS

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##### ABSTRACT

The physical attributes and psychological factors associated with a person's home are potentially important components in enhanced quality-of-life. This study solicited the reactions of 155 people to fifteen residential landscape scenes in the United States. Approximately 50% of the participants were nurserymen and landscape designers from the Midwest United States, 20% were Midwest U.S. residents with recent experiences with landscape design services, and 30% were college students of various academic backgrounds representing approximately forty countries from around the world. Participants imagined themselves viewing, as well as being in, each scene, and provided lists of words and phrases that described their reaction to the visual aesthetics, spatial arrangement and "feel" of each scene. Qualitative analysis of responses indicated that a substantial number of reactions were emotion-based (happy, bored, sense of mystery or invitation, etc.) rather than judgement-based (plants too formal, more color needed, etc.). In addition, positive responses appeared to generally coincide with the "better-designed" landscapes included in the survey. Using these results as a starting point, further assessment will identify connections to existing people-plant research and landscape preference theories, as well as identify word use frequencies and patterns to assist scale development for future focused surveys.

Keywords: Focus groups, environmental perception, quality-of-life, landscape design

##### INTRODUCTION

Quality-of-life (QOL) has been examined from many perspectives in recent years, and has become a key component in efforts to quantify societal happiness and fulfillment. QOL in urban and suburban areas has received significant attention from researchers in light of the complexities of urban living and the high rates of growth in suburban areas (Baldassare and Wilson, 1995). Residential environments have received a substantial share of QOL and preference assessment due in part to the acknowledged importance of housing in QOL perceptions (Saegert, 1985; Weichhart, 1983; Weidemann, 1985). In addition, a wide variety of information correlating human well-being with exposure to plants and nature has been developed.

Studies addressing human and plant/nature connections have indicated that:

- the presence of nature in urban areas has been shown to be a vital restorative factor for human mental and physical well-being (Kaplan, 1983; Kaplan, 1984; Ulrich, 1979);
- vegetation affects people's emotional reactions to urban areas (more positive feelings when viewing tree-lined city streets), and raised expectations of QOL for the area (Sheets and Manzer, 1991);
- residential satisfaction is strongly related to the availability of nearby nature, as is life satisfaction (nature availability was second only to marital role as an important factor in a national survey) (Kaplan, 1992);
- urban places with vegetation are liked better than those without (Herzog, 1989; Sheets and Manzer, 1991);
- people viewing nature scenes experienced a general increase in positive emotions (Sheets and Manzer, 1991; Ulrich, 1979);
- gardens can serve to "compress" nature into small areas, creating high levels of fascination (a restorative factor) and providing people with important connections to nature and experiences with life cycle and other natural processes (Kaplan, 1973);
- individuals involved with community gardening have increased their self-esteem, enjoyed economic and psychological benefits, increased social interaction, and were able to meet self-actualization needs (Waliczek et al, 1996).
- urban forests play a role in building stronger urban communities, reducing violence, and enhancing sense of safety (Kuo et al, 1998; Kuo and Sullivan, 1996)

Studies addressing design-related issues have discussed the following:

- landscape trees were shown to increase sale prices for houses by 3.5%-4.5% (Anderson and Cordell, 1988);
- the four visual attributes of upkeep, ornateness, openness and clarity, which closely correlate to sound design principles, were shown to be associated with visual environmental preference (Nasar, 1983);
- plant arrangement in a "parkland" setting and the context created by the vegetation is more important to people's experience of the landscape than the presence of the individual plants (Kaplan, 1992);
- landscape vegetation plays a role in noise reduction (screening of noise source), moderating temperatures and winds, landscape ornament/decoration, addition of smells/fragrances, generating natural sounds, screening of glare and unsightly features, space definition, and adding visual diversity/interest (Swardon, 1988); and
- neighborhood scenes consisting of wide empty turfgrass areas lacking trees and shrubs were given a moderately low preference when compared to scenes with more vegetation (Kaplan, 1983).

The outdoor component of housing, however, which includes the surrounding yard and garden areas, has received limited study, as has the role of the design of these spaces. Instead, factors such as room size, quality of building structure or heating system, and relative building costs, have been assessed (Campbell *et al* 1976).

Neighborhood and community considerations for aesthetics, tidiness, parks, etc. have also been included in QOL studies but typically do not overlap into the private outdoor spaces within a neighborhood (Campbell *et al* 1976, Marans 1976).

Perhaps the most important component in establishing a theoretical relationship between landscape design and QOL is the role that a landscape can potentially play in meeting human needs. Csikszentmihalyi (1991) believes that the enjoyment achieved in everyday life is the key to QOL. He defines our ultimate enjoyable experiences as "flow" experiences, where concentration is intense, the sense of time is distorted, self-consciousness disappears, skills are required and stretched, an ultimate goal is strived for, and the unpleasant aspects of life are forgotten. Many of the relationships and activities that people describe relative to landscapes and gardens (Lewis 1996, Relf 1992) reflect these characteristics. Maslow's hierarchy of human needs model (Maslow 1987), which has served as a structure for QOL theory development (Sirgy 1986) and community gardening/QOL research (Waliczek *et al* 1996), reflects a progression of five levels of development as humans reach their full potential (and assumed life satisfaction). They include physiological, safety, social, esteem, and self-actualization. Table 1 briefly summarizes the relationship of landscape-associated issues with the development levels, As illustrated, the characteristics and potential activities associated with landscape interaction are highly diverse and cover the full range of human needs, including the higher levels that are considered more difficult to achieve. They include physiological, safety, social, esteem, and self-actualization.

Maslow (1987) also believed that satisfaction of cognitive need (the need to know and understand the world around us) and aesthetic need (beautiful surroundings satisfy a proven human craving for beauty) are important in the process of meeting human hierarchical needs. Many of the principles deemed important for successful landscape design (i.e., order, unity, balance, use of texture and color, etc.) (Booth 1990, Simonds 1998) are directly associated with the satisfaction of cognitive and aesthetic needs, which further strengthens the theoretical relationship between QOL and design.

In order to conduct studies which accurately define these relationships, it is important to first understand how people perceive and relate to typical residential landscapes. The purpose of this survey was to identify the types and frequency of words that participants used to communicate their initial reactions to designed landscapes. By assessing this information, word scales used for more detailed future studies can be developed which will best represent the kinds of reactions that participants experienced.

## MATERIALS AND METHODS

A total of 155 people in three groups participated in the landscape survey. The first group consisted of 27 homeowners in the Midwest United States with recent experience in having a landscape designed and installed. Seventy-nine people participated in the second group, which consisted of a variety of nursery and garden center professionals in the Midwest United States. The third group included 49 viewers and included university students in all areas of study from approximately 35 countries.

Table 1. Comparisons of landscape issues and Maslow's hierarchy of needs

Level	Hierarchy description	Needs met by landscape
High	Self-actualization (doing what an individual is "fitted" for, self-fulfillment, being true to own nature)	context for inherent human desire to connect with nature, nurture living things
	Esteem (self-respect, high self-evaluation, achievement, adequacy, appreciation}	creation of beauty, chance to be creative, pride in ownership, reflection of personality for public display
Moderate	Belongingness/Love (relations with people in general, having a place in the community or family)	setting for family activities and outdoor entertaining
	Safety (security, stability, protection, freedom from fear, anxiety and chaos, preference for the familiar, need for structure and order)	sense of privacy, extension of "home comforts" and security from an indoor setting to an outdoor setting
Low	Physiological (food, thirst, sex, touch, sleep, activity)	exercise, sensory stimulation, food, proximity to water

Fifteen designed residential landscape scenes were shown to each group (Figure I). The landscapes were widely varied - large and open vs. small and intimate, naturalistic vs. distinctly human-made, front-yard vs. back-yard, mature vs. "new," and "good" quality vs. "poor" quality. Design quality was defined in this study to include effective use of basic design elements (form, line, color and texture) and principles (order, unity, and rhythm, including accent, enframement, repetition, etc.). Designs were also informally judged on appropriate use, selection and location of plants and effective response to apparent functional issues. Each landscape was given a relative "weak" or "strong" rating based upon the collective judgement of design criteria. In addition, some scenes reflected a viewpoint outside the landscape, and some were photographed from within the landscape.

Each scene was shown for one minute, and the participants were asked to write down 'Several words on a pre-formatted answer sheet which described their thoughts and feelings about the scene. In looking at each scene, participants were asked to consider both their feelings/reaction to viewing the scene, as well as their reaction to projecting themselves into the landscape.

A content analysis was performed on the responses to identify the most widely-used words, which were then divided into five categories derived from the "type" of response correlated to the words used by the participants. Table 2 lists the five categories Used for sorting and the frequently-used words (a minimum of ten responses). The words were assessed for all participants and also by group.

Table 2. Content Analysis Sort Categories (words which appeared at least ten times)

Aesthetic Descriptors	Design Elements and Principles	Experiential Factors	Physical Elements	Other Responses
beautiful, nice, like	formal	open	landscape area	wide variety of unrelated terms, including dentist, Pope's, salesman, chicken, legos, etc.
plain, common	informal	closed	trees	
ornate, cluttered	modern	entrance	shrubs	
ugly, poor, dislike	historical	hot, warm	flowers	
empty, sterile	symmetrical, balance	cool, cold	generic plant listing	
old	color	positive spatial feeling	buildings and architecture	
new	texture	negative spatial feeling	deck, patio, walk	
	contrast	light, bright	water feature	
	lines and forms	dark	walls and fences	
	natural	small	construction materials	
	unnatural	large		
		maintained, tidy		
		not maintained		

## RESULTS AND DISCUSSION

Figure 2 summarizes the responses in each category for each scene and indicates the relative design rating given each landscape. Based upon the general design criteria Summarized previously, nine of the landscapes reflected "weak" or "poor" design and six reflected "strong" or "good" principles implementation. The overall consensus of viewers tended to agree with the design quality determination, although there were many specific instances where individual viewers disagreed. This was especially true in the reactions of the international students, some of whom were very unfamiliar with "typical" U.S. residential landscapes. The landscapes which generated the greatest difference of opinion included two weak landscapes (#7 and #10) and two strong landscapes (#9 and #11).

Both weak landscapes had some "clutter" (boxes, barbecue grill, etc.) which participants may have reacted to as part of the landscape. The strong landscapes included a very modernistic theme and a very natural theme, neither of which would be viewed as "standard" residential landscaping. These responses appear to support the previous comments that a substantial portion of landscape response is connected to issues that are not design related.

Several patterns were evident which bear discussion. First, there appeared to be the highest frequency of similar term use among the landscapes which reflected good design principles and are more typical of residential designs (#2, #6, #8, #14). This may suggest that people in general react more similarly to good design than poor design. The landscapes considered either poorly designed or reflecting more naturalistic principles (#4, #7, #10, #11) generally received a more varied response (the highest "other category" responses).

Second, the discussion of design principles was generally a lower portion of responses. The strong landscape designs received more responses than the weak designs. but the overall response in comparison to the other categories was relatively low. In contrast, the aesthetic descriptors and experiential factors in many cases constituted the highest percentages of responses (after the "other category" was taken into account. This appears to indicate that the largest portion of responses to the landscapes were aesthetically- or experientially-related. In an indirect way this result has ramifications for good design (following design principles is expected to increase the aesthetic and experiential quality of landscapes). In addition, however, aesthetics and positive or stimulating outdoor experiences are also important to the potential for enhanced quality-of-life.

Third, it was evident that there were similarities and differences between the groups in their responses to the landscapes. As summarized in Table 3, the Nursery Industry and University Student groups appeared to have more in common than did either group with the Focus Group viewers. The nursery and university viewers appeared to have more agreement in their use of terms (fewer responses in "Other Categories") and were relatively similar in responses within categories (Aesthetic Descriptors and Experiential Factors the highest, followed by Design Elements and Physical Elements). This seemed surprising in light of the diversity between the viewer groups, but this may also point out the potential for similarities between diverse viewers in reaction to landscapes. The Focus Group viewers reacted to physical elements in the landscapes at a much higher rate than the other groups and were much more varied in their responses (approximately 50% did not fit in the assigned categories and were combined in the "Other Categories" listing). This result may have been influenced by the nature of the focus group setting and the focus on landscape design experiences that the viewers had prior to viewing the landscapes.

In summary, the following can be noted:

- \_ Reactions to landscapes vary with different audiences, yet some important commonalities appear to exist, especially in reactions to landscapes designs which follow standard design principles;
- \_ Aesthetic and experiential factors occur in all landscapes and are generally used more often to describe reactions to landscapes than are descriptions of the physical landscape elements or the design principles (present or lacking) that are observed;

- \_ There appears to be a general consensus on the comparison of "strong" vs. "weak" design regardless of viewer background;
- \_ Landscapes which contain personal items or "clutter" or are non-traditional (include sculpture or unique element, naturalistic themes) are generally judged across a broader range of landscape design quality than are more neatly-maintained and traditional landscapes; and
- \_ Good landscape design logically plays an important role in enhancing people-plant relationships in outdoor settings, but it appears that the combined benefits of the design (enhanced aesthetic and experiential settings) rather than the design elements or principles constitute the focus of people's reaction to residential landscape settings.

Table 3. Comparison of Viewer Group Response Rates

Group	Aesthetic Descriptors	Design Elements	Experiential Factors	Physical Elements	Other Categories
Focus Groups	13.1%	9.9%	11.8%	26.7%	49.8%
Nursery Industry	28.5%	21.1%	25.2%	17.3%	30.9%
University Students	26.0%	18.9%	22.7%	15.3%	37.6%
All Viewers	26.2%	19.1%	23.0%	17.8%	34.8%

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