

경관의 미학적 경험에 있어서 감정과 인지의 상호작용

이 영 경

미 텍사스 A&M 대학 조경 및 도시계획학과

Affect and Cognition Interface in Aesthetic Experiences of Landscapes

Yi, Young-Kyoung

Ph. D. in Department of Landscape Architecture and Urban Planning,

Texas A&M University, College Station, Texas, U.S.A.

ABSTRACT

본 논문에서는 사람이 환경을 통해 경험하는 미학적 경험(aesthetic experience)을 체계화시킨 이론적 모델(a conceptual model of affect and cognition interface in aesthetic experiences of landscapes)이 간단히 소개되며, 이 모델을 검증하기 위한 연구가 중점적으로 다루어진다. 제시된 모델은 경관의 미학적 경험을 감정(affect)과 인지(cognition)와의 상호작용(interface)으로 설명하고 있으며, 세가지 요소(사람이 환경에 대하여 갖고 있는 목적 : tasks, 사람의 모든 과거경험에 근거한 지식일체 : schematic knowledge, 환경의 독특한 상황 : environmental situation)를 미학적 경험의 주요인자로 제시한다.

이 모델을 검증하기 위한 연구에서는 앞에서 소개된 미학적 경험의 세가지 요소(사람의 목적, 지식, 환경상황)를 과학적이고 계량적으로 처리할 수 있도록 세부요소로 분류정의(operationalization)하였다. 구체적으로, 사람의 목적은 환경을 평가하는 세가지 목적, 즉 경치평가(scenic beauty judgment), 들놀이 목적으로서의 평가(picnic preference judgment), 주거목적으로서의 평가(living preference judgment)으로 분류되었고, 이 세가지 환경평가는 미학적 경험의 지표로 사용되었다. 사람의 지식은 국적에 근거한 문화적인 지식(cultural schema : 한국인과 텍사스인)과 직업에 근거한 사회적인 지식(social schema : 농부, 비농부, 조경학과 학생)으로 분류되었으며, 환경상황은 환경의 아름다움(beauty : 아름다운 경관과 아름답지않은 경관)과 환경의 의미(meaning : 긍정적인 의미가 있는 한국경관, 긍정적인 의미가 없는 한국경관, 긍정적인 의미가 있는 미국 텍사스경관)로 분류되었다.

연구결과를 보면, 이론적 모델에서 소개된 세가지 요소들(사람의 목적, 지식, 환경상황) 모두가 경관의 미학적 경험에(경치평가, 들놀이 선호도, 주거지 선호도) 중요한 역할을 하는 것으로 밝혀졌으며, 이 연구결과는 제시된 이론적 모델을 뒷받침하고있다. 특히, 가장 흥미로운 연구결과를 요약하면 첫째, 사람의 문화적인 지식은 단독으로 미학적 경험에 영향을 주는 것이 아니라 다른 요소들(특히 사회적인 지식과 목적)과의 상호작용을 통해 미학적 경험을 형성한다는 것이 밝혀졌다. 둘째, 환경의 아름다움은 다른 세부요소들(환경의 의미, 사람의 목적과 지식)보다 미학적 경험에 주는 영향이 큰것으로 나타났으며, 모든 사람들에게 비슷한 미학적 경험을 발생시키는 것이 밝혀졌다. 다시말하면 모든 사람들은 그들의 문화적인 국적과 사회적인 직업의 차이, 목적의 차이, 또한 환경의 의미의 차이에 상관없이 아름다운 경관(High-beauty landscape)을 주거지나 나들이 장소로서 선호했으며, 아름답다고 평가했다. 반면에, 사람들이 갖고 있는 문화의 차이, 직업의 차이, 목적의 차이, 그리고 환경의 의미의 차이에 따라 경관의 미학적 평가가 달라진 것으로 나타났다.

I. Introduction

Many investigators believe that the field of landscape research is dominated by an empirical methodology at the expense of a convincing theoretical base (Appleton, 1975; Wohlwill, 1976; Stokols, 1978; Purcell & Lamb, 1984). Zube et al. (1982) attribute the lack of a theoretical foundation in the field to the wide range of disciplines and further criticize that the different disciplines have produced various theories, but no general unifying theory.

The coexistence of various theories has caused two critical problems in the field of landscape research, which consequently limits future growth of the field. First, almost all the existing theories have emphasized only the theoretical question of "why" people aesthetically prefer certain landscapes over others without the complementary emphasis on "how" such preference responses are processed in person/landscape interactions. Second, the existing theories have developed three conflicting explanatory perspectives for the "why" question. They are evolutionary, arousal/information, and cultural learning perspectives (Ulrich & Simon, 1986).

Based on the above background, a study was conducted to develop a theory of landscape experience (a conceptual model of affect and cognition interface in aesthetic experiences of landscapes). The study was also directed to empirically assess the theoretical model. The primary purpose of this paper is to present the results of the empirical examination of the model. Thus, the conceptual model is briefly summarized here. Detailed explanation of the model is shown in Yi (1992), pp 53-91.

II. The Conceptual Model and Its Proposition for Landscape Experience

The model is illustrated in Figure 1. As explained, the conceptual model was developed on the basis of the two theoretical problems that were derived from the existing theories of landscape experience. Thus, the model not only explains why people aesthetically prefer certain landscapes over others but also addresses how such aesthetic experience is processed. The model embraces the three explanatory perspectives (evolutionary, arousal/information, cultural learning), so that it could explain both the similarities and differences in people's aesthetic experiences of landscapes.

In the model, "environment" is used instead of "landscape" because the former is more conceptually inclusive than the latter. In addition, the model identifies aesthetic experiences with affective experiences. To briefly summarize the model, a person's aesthetic experience of landscape is produced by the cognitive activities that are currently processed. That is, physiological arousal, together with various cognitive evaluations, produces a conscious affective (or aesthetic) state in keeping with the current intentional state of a person, this current intentional state being formulated by the person's tasks and by environmental situation.

Specifically, a person interprets environmental information in terms of the schematic expectations associated with her or his tasks in order to analyze the impact of the environment on task performance. Then, the person experiences the affect corresponding to the nature of the cognitive interpretation. This suggests that a person's schematic expectations are the most determining factor of the

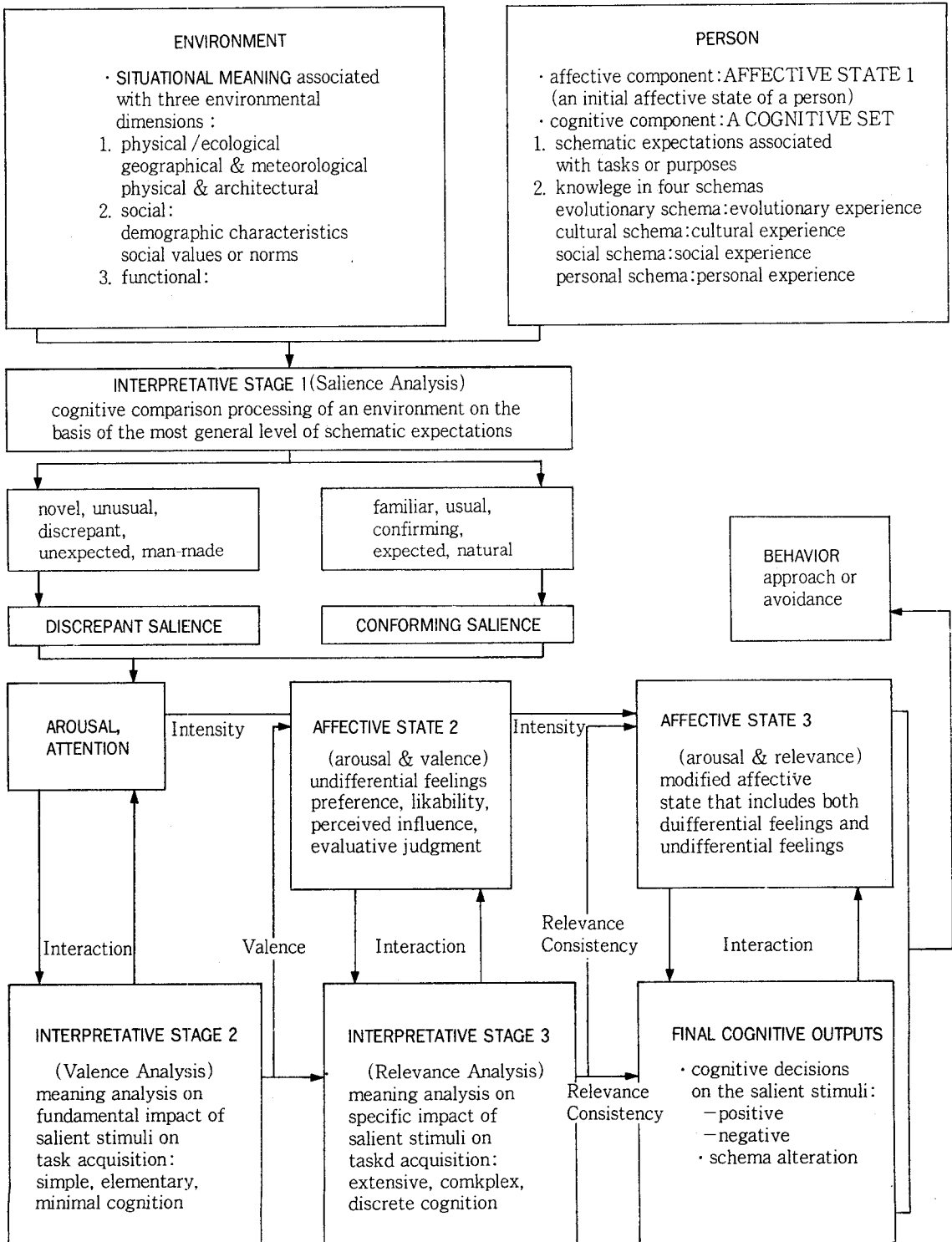


Figure 1. Conceptual model of affect and cognition interface.

person's aesthetic experience of environment. According to the model, the expectations are primarily dependent on three factors : *a person's tasks (purposes), the content of schematic knowledge, and the nature of environmental situation.*

The content of schematic knowledge is determined by a person's past experience. Schema generate personal theories of how the world is operating and of how a person should behave or respond to the world (Purcell & Lamb, 1984). The model characterizes a person's schematic knowledge in terms of four kinds : evolutionary, cultural, social, and personal.

The evolutionary schema store the evolutionary experiences of a human being, and therefore the contents should be similar for all human beings. In contrast, the other three schemas contain unique personal knowledge associated with a person's socio-cultural and personal experiences. Thus, the model proposes that similarities and differences in people's expectations depend upon the content of the schema activated for a current interaction. It is proposed that evolutionary schema lead to similar expectations, whereas the other three schemas lead to different expectations.

A person's tasks or purposes govern person/environment interactions by activating relevant schematic knowledge. In other words, a person constructs expectations on the basis of her or his tasks in keeping with the current situation where the tasks are to be pursued. This argument leads to the proposition that different tasks activate different layers of schematic knowledge, generate different expectations, and lead to different cognitive interpretations.

An external environment also has critical impact on the construction of expectations. The model proposes that an environment

consists of three informational dimensions : physical & ecological, social, and functional. These dimensions establish a unique situational meaning for the environment and significantly influence a person's affective, cognitive, and behavioral responses.

In short, what the model proposes is that affect and cognition interface in person/environment interactions is mediated by three factors : a person's tasks, schematic knowledge, and environmental situation. That is, the basic assertion of the model is that the three factors determine the quality of a person's aesthetic or affective experience of environment through cognitive interpretations.

III. METHODS

A quasi-experimental design was used to examine the effect of the three factors (tasks, schematic knowledge, environmental situation) on people's aesthetic or affective experiences of landscapes.

1. Operationalization and Manipulation

A person's schematic knowledge was operationalized by selecting subjects in terms of their cultural and social schemas. Cultural schema were manipulated by selecting and comparing persons from two very different cultures (Koreans and Texans). Social schema were manipulated by selecting persons from three professions or occupations (farmers, nonfarmers, and landscape architecture students).

A person's tasks were operationalized as affective judgments, which were manipulated by two conditions : 1) the degree of association with the socio-cultural concerns that the task requires, and 2) the presence /absence of

activities that the task requires. That is, aesthetic experiences were identified with affective judgments with different tasks. For the study, three types of tasks were examined (*residential, recreational, and aesthetic*). Both the residential (living preference judgment) and recreational (picnic preference judgment) tasks were operationalized as activity-specific, whereas aesthetic task (scenic beauty judgments) was operationalized as activity-neutral. It was proposed that both living and picnic preference judgments (activity-specific tasks) would be more associated with socio-cultural concerns than would be scenic beauty judgments (activity-neutral).

Environmental situation was operationalized by two characteristics : *beauty (high and low) and meaning (Korean-positive, Texan-positive, Korean-neutral)*. High and low beauty was manipulated by seven environmental characteristics that were suggested to produce universally positive affects in human beings due to their beneficial effects on evolutionary survival. The seven characteristics were : 1) depth of a view, 2) focality, 3) ground texture, 4) a balance between complexity and coherence, 5) deflected vista and an absence of danger, 6) accessibility, and 7) natural elements. Meaning was manipulated by selecting environments that were laden with positive meanings for one set of subjects (i. e., Bub-Ju temple and Sam-Ga Reservoir for the Korean subjects, and Texas A&M University for the Texan subjects) but unknown to the others.

Thus, the study consisted of three dependent variables (three affective judgments with different tasks : scenic beauty, picnic preference, living preference judgments) and four independent variables (cultural schema, social schema, landscape beauty, landscape meaning). The study built on the tradition of using photographs as environmental surro-

gates, and thus used photographs (both slides and color prints) and verbal questionnaire. All the photographs were taken by the investigator using Nikon camera (AF 8008) with 35mm wide lense.

2. Environmental Stimuli and Subjects

In order to avoid other irrelevant meanings symbolized by artificial features, environments were represented by natural landscapes which lacked human-made structures. Natural landscapes were selected to reflect combinations of meaning (Korean-positive, Texan-positive, Korean-neutral) and beauty (high and low). Thus, the landscape selection was a 2×3 factorial design with two variables, beauty (2 values) and meaning (3 values). As a result, there were six landscape sets for the study. In order to have reliable data, 3 landscapes were selected for each of the six landscape sets. Therefore, a total of 18 natural landscapes were used as environmental stimuli.

Subject selection was manipulated by a hierarchical design. Subjects were first selected from two cultural group conditions, Korean and Texan, based upon context of residency. Second, within each cultural group, subjects were again selected based upon professions : farmers, nonfarmers, and landscape architecture students. As a result, there were six subject groups : 40 Korean farmers, 60 Korean nonfarmers, 44 Korean landscape architecture students (Seoul City University), 49 Texan farmers, 63 Texan nonfarmers, and 36 Texan landscape architecture students (Texas A&M University). Detailed information is shown in Yi (1992), pp 102-109.

3. Questionnaire Development

The questionnaire consisted of seven types of questions: scenic beauty, picnic preference, living preference, familiarity with the depicted landscape, special meaning that a subject attributes to the depicted landscape, reasons for the special meaning, and demographic information. All the questions except for the two concerning demographic and reason for the meaning were constructed on a bipolar scale of seven points ranging from 1, "not at all" to 7, "very much." All the questions were carefully worded in Korean, so that the same constructs could be used by both Koreans and Texans. For example, picnic preference was worded in Korean as "들놀이 선 호도."

In order to maximize both the validity and reliability of the questionnaire, four considerations were given to both questionnaire development and experimental procedure. First, the seven questions were carefully structured in the questionnaire. Second, researcher surrogates were used. Third, the location of the depicted landscape was given to the subjects. Fourth, interview protocols were developed. Detailed information on questionnaire development and experimental procedures are shown in Yi (1992), pp 109-121.

IV. RESULTS AND CONCLUSIONS

1. Statistical Analysis and Manipulation Check

A four-way analysis of variance (ANOVA) model was used to examine the effect of the four independent factors (cultural schema, social schema, landscape meaning, landscape beauty) on the three dependent factors (scenic beauty, picnic preference, living preference judgments). The four-way ANOVA

was run on a Macintosh II computer using the statistical program, "Clear Lake Anova."

Cultural schema and social schema were treated as between-subjects factors, and landscape meaning and landscape beauty were treated as within-subjects factors. The level of significance was set at 0.03 instead of using conventional 0.05. After finding significant effects, the effects were specifically examined by several post-hoc tests such as "simple effect," "Tukey," and "contrast" tests.

The results of the four-way ANOVA showed that the total effect sizes of the model were all high for the three affective judgments (the range varied between 0.38 and 0.48). This suggests that the manipulation of the study was successful.

2. Results and Discussions

The major finding of the empirical test of the model is that the four factors (landscape beauty, landscape meaning, tasks, schematic knowledge) are important determinants of aesthetic experience of landscape (scenic beauty, picnic preference, living preference judgments).

It has also been found that there are both similarities and differences in aesthetic experiences of landscapes among different people. Specifically, landscape beauty contributes to similarities, and the other three factors (schematic knowledge, tasks, landscape meaning) lead to differences. People have similar preferences for high beauty landscapes, regardless of the differences in their socio-cultural identities and tasks, and meanings they have in landscapes. At the same time, people's preferences are different because of their socio-cultural identities, the tasks they undertake, and the meanings they attribute to landscapes.

The effect of landscape beauty overwhelmed the effects of the three factors. This suggests more similarities than differences in aesthetic experiences of landscapes. This finding partly supports the Hull & Revell's finding (1989) which revealed more cultural similarities than differences in the two cultural group's (native Balinese and Western tourists) scenic beauty evaluations of Bali landscapes.

To summarize several interesting findings of the study,

1) Landscape beauty is a dominant environmental factor of person/landscape interactions. The positive effect of landscape beauty is consistent through different cultures, professions, tasks (viewing, picnicking, living), and various landscape meanings (Korean-positive, Texan-positive, Korean-neutral). Different people similarly evaluated high beauty landscapes as more scenic and as more desirable both to live and to have a picnic in than low beauty landscapes.

2) Landscape meaning is a second important environmental factor of person/landscape interactions. Positive meaning evokes positive experiences. However, this effect depends upon both personal (tasks) and landscape factors (landscape beauty and the nature of positive meaning). Specifically, this effect was larger for the low beauty landscapes than for the high beauty landscapes. This finding supports the suggestion made by Hull & McCarthy (1989) that positive meaning (unthreatening wildlife in a scene) has more positive effects in scenic beauty judgments of Australians for low beauty landscapes than for high beauty landscapes.

Also, the effect was larger when the task associated with landscape experiences (i. e., picnic preference) corresponds to the nature of the positive meaning that a person

attributes to the landscape (i. e., tourism, recreation, or leisure). That is, the positive meaning associated with recreation had more positive effects on the residents' picnic preference judgments than other judgments, and therefore led to more cultural differences between the Koreans and Texans in picnic preference.

3) A person's task plays a role in person/landscape interactions. Landscape experiences associated with activity-specific tasks (picnic and living preference) were more influenced by cultural schema, and thus resulted in cultural differences. In contrast, landscape experiences associated with activity-neutral task (scenic beauty judgments) were more influenced by evolutionary and thus resulted in cultural similarities.

This finding corresponds to previous research findings concerning cultural similarities and differences in aesthetic experiences of landscapes. The previous research that used activity-specific tasks (living preference) in investigating the impact of culture found significant cultural differences in preference evaluations of landscapes (Sonnenfeld, 1967). In contrast, both cultural similarities and differences were found when activity-neutral tasks (scenic beauty judgments, mere preference, aesthetic liking) were used as measurement constructs for landscape evaluations (Shafer & Tooby, 1973; Zube & Mills, 1976; Zube & Pitt, 1981; Buhyoff et al., 1983; Tips & Savadisara, 1986a, 1986b; Hull & Revell, 1989).

4) A person's schematic knowledge (cultural and social) also plays a role in person/landscape interactions. However, the effect of schematic knowledge depends on other personal factors (tasks, other schematic knowledge) and external factors (landscape meaning and landscape beauty).

It was found that the effect of cultural schema is not unitary, but is mediated by social schema (professional experiences) and tasks. Specifically, the effect of cultural schema was larger for both activity-specific tasks (picnic and living preference) and farmers than for activity-neutral task (scenic beauty judgments) and other social groups (nonfarmers and landscape architecture students).

The effect of social schema was significant in general, but varied depending upon cultural schema and tasks. The effect was significant on the three affective judgments for Korean culture, whereas it was significant only on the two judgments (scenic beauty and living preference judgments) for Texan culture. Also the effect was larger for activity-specific tasks (picnic and living preference) than for activity-neutral task (scenic beauty judgments) within Korean culture, whereas it was larger for activity-neutral task (scenic beauty) than for activity-specific task (picnic preference) within Texan culture.

Among the three professional groups, most significant social (professional) differences in landscape evaluations occurred between farmers and landscape architecture students. This finding partly supports previous research findings that the experiences associated with design profession has significant impact on landscape evaluations (Zube, 1973, 1974; Buhyoff et al., 1978; Verderber & Moore, 1977; Groat & Canter, 1979; Hershberger, 1980; Groat, 1982; Devlin & Nasar, 1989). In addition, this finding suggests that the experience associated with farming has significant impact on landscape experiences, perhaps due to the professions' close relationship to lands.

5) The whole effect sizes of the model for the three affective judgments varied from 0.38 to 0.48. This suggests that there still exist

considerable variance unexplained by the four factors in the model (i. e., 50 to 60% of variance is unexplained). Although the magnitudes of the effect sizes indicate that the four factors are significant indicators of person/landscape interactions, other factors must be considered to better explain people's aesthetic experiences of landscapes (i. e., age, location of childhood hometown, gender, etc).

In conclusion, the results demonstrate the importance of the four factors (landscape beauty, landscape meaning, a person's tasks, and schematic knowledge) in aesthetic experience of landscape, and thus support the affect and cognition interface in landscape experience proposed by the model.

However, it should be pointed out that the results also reveal that the two external factors (landscape beauty and landscape meaning) had larger effects on aesthetic experiences than did the two personal factors (tasks and schematic knowledge). Given this finding, it is suggested that the proposition of the model that regards both personal and environmental factors equally important in person/landscape interactions should be modified to acknowledge the larger effects of environmental factors, at least in aesthetic experiences of landscapes, even though the perception of those environmental factors are based upon person's internal factors.

In addition, the results have several implications for two related areas of the study : 1) future research of landscape experience ; and 2) practical field of design, planning, and management of landscapes. The implications are shown in Yi (1992), pp 250-259.

REFERENCES

1. Appleton, J. (1975). *The Experience of Landscape*. London : Wiley.

2. Buhyoff, G. J., & Leuschner, W. A. (1978). Estimating psychological hostility from damaged forest stands. *Forest Science*, Vol. 24 (3), 424-432.
3. Buhyoff, G. J., & Wellman, J. D. & Kock, N. E., & Gauthier, L., & Hultman, S. (1983). Landscape preference metrics: an international comparison. *Journal of Environmental Management*, 16, 181-190.
4. Devlin, K., & Nasar, J. L. (1989). The beauty and beast: some preliminary comparisons of 'high' versus 'popular' residential architecture and public versus architect judgments of same. *Journal of Environmental Psychology*, 9, 333-344.
5. Groat, L. (1982). Meaning in Post-modern architecture: an examination using multiple sorting task. *Journal of Environmental Psychology*, 3, 22.
6. Groat, L., & Canter, D. (1979). Does Post-modernism communicate? *Progressive Architecture*, 12, 84-87.
7. Hershberger, R. G. (1980). A study of meaning and architecture. In EDRA 1 *Proceedings of the First Annual Environmental Design Research Association Conference*.
8. Hull, R. B. IV., & McCarthy, M. (1989). Change in the landscape. *Landscape and Urban Planning*, 15, 265-278.
9. Hull, R. B. IV., & Revell, G. R. (1989). Cross-cultural comparisons of landscape scenic beauty evaluations: a case study in Bali. *Journal of Environmental Psychology*, 9, 1-15.
10. Purcell, A. T., & Lamb, R. J. (1984). Landscape perception: an examination and empirical investigation of two central issues in the area. *Journal of Environmental Management*, 19, 31-63.
11. Shafer, E. L., & Tooby, M. (1973). Landscape preferences: an international replication. *Leisure Research*, 5, 60-65.
12. Sonnenfeld, J. (1967). Environmental perceptions and adaptation level in the Arctic. In D. Lowenthal (ed.) *Environmental Perception and Behavior*. Chicago: Department of Geography, University of Chicago.
13. Stokols, D. (1978). Environmental psychology. *Annual Review of Psychology*, 29, 253-295.
14. Tips, W. E. J., & Savasdisara, T. (1986a). The influence of the environmental background of subjects on their landscape preference evaluation. *Landscape and Urban Planning*, 13, 125-133.
15. Tips, W. E. J., & Savasdisara, T. (1986b). The influence of the socio-economic background of subjects on their landscape preference evaluation. *Landscape and Urban Planning*, 13, 225-230.
16. Ulrich, R. & Simon, R. (1986). Recovery from stress during exposure to everyday environments. In Wineman, J., Zimring, C. (Eds). *The Cost of Knowing: Proceedings of the Seventeenth Annual Conference of the Environmental Design Research Association*. Washington, D. C.: EDRA.
17. Verderber, S., & Moore, G. T. (1977). Building imagery: a comparative study of environmental cognition. *Man-Environment Systems*, 7, 332-341.
18. Wohlwill, J. F. (1976). Environmental aesthetics: the environment as a source of affect. In I. Altman & J. Wohlwill (Eds), *Human Behavior and the Environment*. New York: Plenum Press.
19. Yi, Y. K. (1992). *Affect and Cognition Interface in Aesthetic Experiences of Landscapes*. Unpublished Ph. D. Dissertation, Texas A&M University, College Station.
20. Zube, E. H. (1973). Rating everyday rural landscapes of the Northeastern U. S. *Landscape Architecture*, 63, 370-376.
21. Zube, E. H. (1974). Cross-disciplinary

- and intermode agreement of the description and evaluation of landscape resources. *Environment and Behavior*, 6, 69-89.
22. Zube, E. H., & Mills, L. V. (1976). Cross-cultural explorations in landscape perception. In E. H. Zube (Ed), *Studies in Landscape Perception*. Amherst : Institute for Man and Environment, University of Mass.
23. Zube, E. H., & Pitt, D. G. (1981). Cross-cultural perceptions of scenic and heritage landscapes. *Landscape Planning*, 8, 69-87.
24. Zube, E. H., Sell, J. L., & Taylor, J. G. (1982). Landscape perception : research, application and theory. *Landscape Planning*, 9, 1-33.