

The Contingent Approach to Landscape Aesthetics *

Kwon, Sang Zoon

Prof., Dept. of Landscape Architecture, Cheong Ju Univ.

조경미학에서의 우연적 접근

權 尙 俊

淸州大學校 理工大學 造景學科 教授

요 약

본 연구는 경관선호에 관한 평가방법을 서술적으로 구명하면서 기존의 경관선호에 관한 평가방법이 자연적 요소를 많이 포함한 경관의 평가를 정확히 하는데 따르는 문제점을 제시하고 경관의 우연적 국면에 따라 경관선호의 우연성(Contingency in Landscape Preference)을 개관하면서 경관평가의 우연성(Contingency in Landscape Evaluation)에 의한 우연적 경관평가방법(Contingent Approach in Landscape Evaluation)의 가능성을 시사했다.

최근까지의 경관평가방법을 크게 분류하면 총체적(Universal) 접근방법, 개성적(Idiosyncratic) 접근방법, 조화적(Contrastic) 접근방법 등으로 나눌 수 있다.

그런데 경관성에서의 우연성을 강조함으로써, 앞의 세방법만을 가지고서는 경관의 실제 파악이 어렵기 때문에 새로운 방법이 강구되어야 한다. 이의 한 대안으로 경관선호에 대한 평가를 우연적 접근방법으로 해결함으로써 평가영역과 평가요소를 확장시킬 수 있다. 따라서 수학적 매트릭스가 가능하다는 시사를 본 연구에서 구시하면서 새로운 평가방법으로 우연적 경관평가방법을 제시했다.

우연적 경관평가방법은 우연적 경관성에 의한 심미성을 고려하여 종합적으로 분석할 수 있으나 우연적 영역을 의도적으로 설정하지 않는 한 현실적으로 재정적 혹은 시간적 제약성을 지니고 있다. 그러나, 경관선호의 정도에 관한 평가보다는 경관의 본질을 구성하는 모든 요소를 고려한 평가가 경관선호평가에 대한 종합성을 반영할 수 있다.

경관평가의 모호성에도 불구하고 경관의 본질은 우연성에 의존한다고 본다면 우연적 경관평가방법은 크게 무리가 없다. 결국 경관은 생명성을 지니고 있기 때문에 현상으로만 볼 것이 아니라 동시적이면서 산재적이며 상황적 다양성으로 간주해야 하며 그러한 관점을 강조한 것이 우연적 경관선호 및 경관평가에 대한 접근이라 할 수 있다.

* 1987년 7월 22일 접수된 논문임.

본 논문은 1986년도 문교부 해외파견교수로 미국 O.S.U에 체재하면서 연구한 것의 하나임.

Introduction

Landscape aesthetics is often regarded as conceptual and subjective. But we need to evaluate landscapes that effect our behavior in a total environment, because the precise evaluation is a parameter that precludes a right attitude toward the ecosystem. There are two aspects(universal or idiosyncratic) in landscape evaluation. Most of the methodologies in the evaluation modify the economic value, emphasizing pragmatism.

Landscape evaluation has properties related to the purposive goals and the considerations of landscape preference. Although the landscape is both heterogeneous and homogeneous, the early approaches to landscape evaluation have failed to consider the substance of landscape.

This study contemplates the contingency of landscape aesthetics, explores the contingent approach to landscape preference and evaluation, and establishes the contingent components in landscape preference and evaluation. The study applies experimentally the contingency theory in business administration to the landscape evaluation.

Issues and Problems in Landscape Evaluation

1) Landscape Evaluation

Evaluation is defined in two specific terms—analysis and assessment. Analysis is a process by which the landscape is broken down into components. Assessment is a process of synthesis which expresses a composite value based on such factors as size, age, quality and location. Valuation procedures are based upon professional judgement, public preference, values of the elite, economic valuation, etc. Evaluation is a procedure which informs decision makers about the trade-offs among available alternatives (Fabos, 1979). Evaluations of the landscape quality are undertaken in different approaches. This is a fundamental theoretical divergence of opinion over the question of whether landscapes have an intrinsic or objective beauty which may in some ways be measurable or comparable, or whether

scenic beauty is a value that can only be subjectively attributed to an area or specific landscape(Shuttleworth, 1980). The methodological argument which results from this divergence concerns the measurability of landscape quality. That means the value of the landscape is not the same even though the measurability could be obtained through precise methodology. To date, the majority of landscape planning evaluation techniques which have adopted the so-called 'objective' approach to the assessment of scenic beauty have been based on little more than the intuitive assumptions of the persons conducting the studies as to the role of specific landscape properties in determining landscape quality. But we can not evaluate landscape precisely without considering the idiosyncratic aspect that landscape has been idealized according to individual satisfaction and values related to literary tastes, physical requirements and pleasurable associations (Jacques, 1980). Furthermore, we have to consider not only the characteristics of a homogeneous unit of the total environment but also the situational change of the landscape. The portion of the landscape which we observe can be expressed as a half sphere, but what we observed is only a portion(aspect) of this sphere. We should never disregard the intuitive assumption and changeable situation within the characteristics of landscape.

The word evaluation is used to describe a procedure which compares two or more alternatives. As a result, it can summarize the cost/benefits of alternative futures, the degree to which the various alternatives would affect the landscape resources, and/or the goals and objectives which are achieved by the alternatives (Fabos, 1979). Although the value of landscape is absolute in terms of the total environment, the evaluation of landscape is not an absolute value, but a relative one. The landscape per se does not lose the value as a scenery or environment, unless the ecosystem goes into adharma(disharmony). It implies that we can know only the relative value of a landscape in a special situation, because we cannot obtain the absolute value in the ecosystem

2) Universal vs. Idiosyncratic

Although landscape aesthetics is often regarded as subjective, specialists differ widely with regard to this topic (Abello et. al., 1986). Some authors, for example Kaplan (1979), emphasize the universal character of the landscape aesthetic primary elements, whereas others believe that idiosyncratic aspects clearly predominate any consensus component and that in practice landscape aesthetic appraisal is entirely subjective (Jacques, 1980). Universal aspects seem to show the attitude taking relative value in the landscape, while objectively analyzing the factors which have influence on the visual effects in the landscape. We may be induced to accept an approach that may have a lot of merits: adaptability to landscape evaluation compatibility, manipulation for combination of scenery, and easiness of analyzing at a glance. Furthermore, we can get the information that is inferred and help persuade the landscape designer or at least explain the phenomena of a complicated situation and scenery if some propositions are given. On the other hand, we can not disregard the idiosyncratic aspects. Jacques (1980) thought that assumptions upon the appraisal of the aesthetic value of landscape must be consistent with the findings of other disciplines in a particular psychology. The statement that a landscape has "an intrinsic quality of beauty" is highly questionable. Though the objective of landscape appraisal is, of course, to gether information about the landscape, we can never disregard that emotional states influence the visual effects. More specifically, an individual's experiences in terms of his degree of visual contact with nature or the urban scene may influence his feelings (Ulrich, 1979). Idiosyncratic aspects determine the individual satisfaction which is derived from landscape, emphasizing subjectivity. So landscape designers regard the value of landscape as the individual emotion and associational influences rather than "intrinsic qualities" of the landscape (Jacques, 1979). Although this takes into account that landscapes have been idealized according to

literary tastes, physical requirements and pleasurable associations, this aspect can not have the same valuation when we survey it under the same situation and condition. Since the individual satisfaction derived from the landscape is temporarily obtained under defined satisfaction and association, this satisfaction can not be regarded as a representative value of the landscape.

Even if we build the same scenery at different places, we will experience the view in different ways. Therefore, landscape evaluation can not be the value of an individual satisfaction derived from the view as well as can not be explained without considering the situationality and ambiguity of landscape as well as influences from the senses other than and in addition to visual. If we consider that some situations have distinct positive or negative effects on individual variables such as well-being, cultural differences, and emotional states, these methods will produce varying results based upon the situation (Ulrich, 1979). But the coexistence of universal and idiosyncratic aspects has been observed in many studies, and it is important to try to assess the relative importance of consensus and idiosyncratic factors and the degree of variance in individual evaluation of the most common appreciated characteristics. Abello (1986) discussed consensus and contrast components in landscape preference. His approach found that the subject's variance in the relative evaluation of appraisal characteristics might have very different origins. However, owing to the limited variables in landscape aesthetics, this allows one to treat landscape as a simple aspect. This ambiguity can be applied to a landscape preference system that considers the separating of the attitude which is a much more universal, or idiosyncratic aspect.

3) Problems of Landscape Evaluation

When we evaluate the landscape objectively or measure the visual effects quantitatively, we will encounter a number of abstract problems.

Firstly, we need to address the general problem of how to isolate and identify "preference

promoting" as concerned with objectivity, efficiency, and representativeness.

Secondly, in terms of the landscape characteristics as a heterogeneous integral of the aspects of scenery, we need to consider the following points: totality, complexity of composition, sequence, situation, and emotion.

1) Deciding totality involves locating a visual point from which we can analyze the characteristics of a landscape most objectively.

2) Evaluating complexity of the landscape entails considering complex composition factors by analyzing the simple factors.

3) Making an evaluation of sequence includes analyzing one phase (aspect) of the possible sequential landscape.

4) Evaluating a landscape situation means visualizing and abstracting the representative landscape according to the observations of time, season, etc.

5) Evaluating the emotion of the landscape is made possible by assessing the landscape facet which has the visual priority within the non-visual senses.

Lastly, we have to evaluate the landscape by assessing the intended purpose, because we need to see the landscape as an homogeneous unit of the total environment(Fabos, 1979). In order to assess the intended purpose we have to solve the following problems: preservation, ecosystem, amenity, and land use.

1) Preservation involves the problem of producing the maximum value for preservation of the natural factors.

2) Ecosystem has the problem of inducing the value which can be analyzed under the environmental impact assessment. This assessment has an abstract conception in the relationship between the human and natural environment.

3) Amenity yields the problem of planning landscape as an aesthetic activity within a human life.

4) Land use presents the problem of finding the value of land according to the kind of activity engaged in by participants rather than spectators.

Finding the Contingency in Landscape aesthetics

1) The Contingent Aspects in the Landscape

1) Landscape as a heterogeneous integral of the aspects of scenery

Many persons define the landscape in a number of different ways. At one extreme of the continuum, landscape is described as natural scenery, the visual quality of our surroundings, what we see(Fabos, 1979). At the middle point between the Fabos' position and the other extreme of the continuum, we can say that landscape is a heterogeneous integral of all aspects of scenery and sensory quality of our surroundings which we sense. The meanings of this definition have the following characteristics.

Firstly, landscape is the integral substitution and totalized element of spacial composition. The observed facet of landscape has a changing character according to the spectator's visual location. The substance of landscape can not be seen or felt in part, but can be felt as a whole. Landscape has many phases. If we see a landscape at a fixed distance, the aspect of observation is restrained to a part of a half sphere which can be seen.

Secondly, landscape stimulates all of our senses. The various pattern or compositions of the stimulative factors influence the visual perception greatly(Arnheim, 1974; Koffka, 1935). When we see the landscape as an aesthetic activity, landscape provides hedonic value to the individual. The hedonic value can be expressed as a function of arousal or stimulation. Generally, naturalness provides individual pleasure which has a linear relationship with arousal that affects not only the visual itself but also non-visual(Berlyne, 1971; Eysenck, 1973).

Thirdly, landscape is a result of sequential experience. The importance of sequence experience was insisted by Thiel(1961), Halprin(1965), and Abernathy and Noe(1966) in the area of visual effectiveness. In a spatial aspect, landscape is not a finite separated scene. We can feel the landscape in the process of reaching out to it. Our feeling

about a landscape can be changed according to the direction or the way we approach it (Abernathy and Noe, 1966). The feeling about a landscape can be changed according to how long we have consequently experienced the landscape (Thiel, 1961). Furthermore, the quality of a landscape changes according to viewer's speed. If human beings move within an environment, the environment moves around them (Halprin, 1965).

Fourthly, landscape is a result of changing situations. The landscape changes as well as our stimulation processes which feels landscape change according to our observational position. As landscape changes according to time and season, lighting and the seasonal character of landscape also changes. Stimulation processes change according to the time of observation and the mood of the viewer. Every time a viewer sees the landscape, his response to stimulus from the landscape may be different, because he is in a different situation and time. Psychologically, the response appeal differs according to the order or the degree of the length of stimulus.

Fifthly, landscape has a visual diversity. There are many characteristics which express the visual quality - congruence, expectancy, surprise, novelty, familiarity, simplicity, complexity, etc. (Im, 1983). It can be said that complexity, structural properties, focality, depth, ground surface texture, threat/tension, deflected vistas, and water are the factors of visual properties which influence aesthetic preference and interest (Ulrich, 1981). These factors have characteristics which express the visual variability of any situation.

2) Landscape as a homogeneous unit of the total environment

According to Fabos' definition, landscape is referred to as a homogeneous unit of the total environment, e.g. metropolitan, or coastal landscape. I can refer the defined landscape to present an intentional interpretation as follow.

(1) The importance of the landscape preservation should be emphasized. If a landscape loses naturalness it becomes meaningless. Even though most development activity results in damage to

nature, it does create man-made natural settings. The first purpose of landscape is to preserve the naturalness.

(2) Ecological compatibility (fit) between uses and ecosystems should be considered for evaluation of a landscape. It should be noted that those environments where the issues are compatible from the ecosystem are more acceptable to the viewer (Fabos, 1979).

(3) Amenity should be pursued. Landscape is an aesthetic activity which can rebuild the human environment. We can improve the quality of the environment through aesthetic activity. It gives us amenity in our life.

(4) Landscape is a system of land use in which human beings can undertake their activities as needed.

Every land has its own personality. Human activity is restrained by the land's personality (Lynch, 1972). The approach to landscape aesthetics needs concrete and practical activities.

2) Contingency of Landscape Preference

According to the definition of landscape as an heterogeneous integral of the aspects of scenery, landscape preference can be attained by observation of the landscape. Therefore, landscape preference tends to have a contingency because of the following points.

Firstly, we can observe only a portion from among the whole of the landscape. Even though a landscape expresses itself in many phases (aspects), the activities of observation are restricted to a portion of it. These various phases of a landscape consist of the different physical materials.

Secondly, because of the characteristics of the five senses, the observation of landscape has a fault in that the observation depends on the visual dimension. We could expect the landscape preference to be conveyed not only via the eye to the brain, but also via the auditory, olfactory, and tactile senses. The statement that a landscape preference influences only visual quality is highly questionable without considering the satisfaction

of other sensations.

Thirdly, the observation of landscape is difficult, if we view it sequentially. The quality of an environment is changing according to spatial or time changes(Halprin, 1965). The perception of the visual environment is one of an activity process which is related to time(Thiel, 1961). The space, facet, objects, and events which make up the human environment can not be perceived simultaneously. These are experienced according to the flowing of time(Thiel, 1961). Therefore, landscape is constantly changing during the process of visual experience.

Fourthly, the perception of landscape is accomplished during a specific situation of ongoing change. Individual variables are different, and individual valuation and preference are changing, according to the emotional state, education, culture, sex, age, and temperament. Furthermore, since the visual and seasonal varieties act coefficiently, landscape preference is a result of specific meeting of these changing situations.

Fifthly, landscape appears as a chance of a facet among the visually diversifying landscapes.

Even if we consider only these five characteristics, the landscape preference has conditions of permutation($5! = 120$).

3) Contingency of Landscape Evaluation

Landscape evaluation should provide information on the value of alternatives according to the intended purpose. We can consider the following contingencies when we explain the activities which have such an intentional purpose.

1) Landscape evaluation is based on the special artificial rebuilding of the natural landscape in view of preservation.

2) Landscape evaluation pursues a specific ecosystematic goal.

3) Landscape evaluation pursues amenity which is useful for all human groups.

4) Landscape evaluation pursues effective land use for people. Since there are numerous variables which can be produced as a value of each purpose, landscape evaluation expresses the value of the

permutation conditions. The absolute evaluation about landscape is impossible without defining all the relationships within the ecosystem.

Contingent Approach in Landscape Evaluation

1. Assumption

As Dubin(1976) stated, every theory is contingency theory, because for a proposition of the "law of interaction to hold, assumptions must be made from starting premises, boundaries, and system states. To develop a contingent approach in landscape evaluation, we can assume that the premises, boundaries, and system states.

Table 1. Table comparing previous model with contingent approach by factors.

Application		Leopold (1969)	Iverson (1975)	Helliwell (1979)	...	Remarks
Space	Scale Large Small	○	○	○		* Landscape preference ○ More-considered Stong factors ○ Average-considered factors
	Limit Open Close	○	○	○		
Domain	Urban Large Small			○		• A little-considered week factors Vacant area can be covered by conting- ent factors
	Location Country City Nature	○	○			
Time	Observation Long Short		○			
	Season					
	Hour					
Factor	Physical Many Few	○	.	○		
	Ecological Many Few	.		.		
	Human Many Few	○				
Opinion	Professional					
	Public					
	Elit					
Condition	Sensation Visual non visual		.	.		
	Sequence Place Time	○	.			
	Situation Emotion Change			.		
	Economy					
	Culture		.			
	Wildness	.	.	○		

3) Contingent Components in Landscape Evaluation

The evaluation of landscape also has goals and opinion scales that can be valued by comparing alternatives. To evaluate the landscape, we may put dimensions of goals (preservation, ecological approach, amenity, land use) and opinion scales (professional, public, elite) in a matrix of contingent components, involving the contingent components in landscape preference and valuing by economic and other values (table 3).

Table 3. Matrix of Contingent Components in landscape evaluation

Dimension \ Alternative		I	II	III
Professional	preservation	Table 2*			
	ecological approach				
	amenity				
	land use				
Public	preservation				
	ecological approach				
	amenity				
	land use				
Elite	preservation				
	ecological approach				
	amenity				
	land use				

* valuing table 2, considering economic value and the other effected value

Conclusion

A contingent approach in landscape evaluation can comprehensively evaluate landscape aesthetics, even though there are a number of previous approaches in landscape evaluation. However, the contingent approach has some problems. The concept used in the approach presents a difficulty in that we can not value the contingent factors, unless the contingent parameters can be intentionally investigated.

There are financial problems in measuring the

landscape quality by considering a comprehensive method. But we should reevaluate environmental problems by pursuing landscape aesthetics through precise evaluation. we may emphasize the extent of the of landscapes identity, rather the degree of landscape preference. Although landscape evaluation is ambiguous, if we use the contingent approach, it would be more reasonable for us to appraise or to explain scenery.

Since landscape already has an innate vitality, we should regard the landscape not as phenomenal scenery but as spontaneous ubiquitous, and situational diversity.

BIBLIOGRAPHY

1. Abello, Rosa P., Fernando G Bernaldez, and Eladio F. Galiano(1985) "Consensus and Contrast Components in Landscape Preference. Environment and Behavior." Vol. 18, No.2, pp.155-177.
2. Abernathy, B. L. & Noe, S.(1966) "Urbanography" Progressive Architecture, April, pp.184-190.
3. Arbuthnot, Jack(1977) "The Roles of Attitudinal and Personality variables in the Prediction of Environmental Behavior and Knowledge." Environment and Behavior. Vol.9, No.2, pp.69-84.
4. Berlyne, D.E., Robbins, M.C. & Thompsor, R. (1974) "A Cross Cultural Study of Exploratory and Verbal Responses to Visual Patterns Varying in Complexity." In Berlyne, D.E.(Ed.) Studies in the New Experimental Aesthetics: Steps Toward an Objective Psychology of Aesthetic Appreciation. New York: John Wiley & Sons. pp.259-278.
5. Buhyoff G.J. & Wellman, J.D.(1979) "Seasonality Bias in Landscape Preference Research. Leisure Science. Vol.2, No.2, pp.181-190.
6. Buhyoff, G.J. & Wellman, J.D.(1980) "The Specification of a Non-linear Psychophysical Function for Visual Landscape Dimensions. J. of Leisure Research. Vol.12, No.3, pp.257-272.
7. Buhyoff, G.J. & Wellman, J.D., Harvey, H., & Fraser, R.A.(1978) "Landscape Architects' Interpretations of People's Landscape Preferences." J. of Environmental Management. Vol.6, pp.255-

- 262.
8. Clamp, Peter and Powell, Well(1982) "Prospect - Refuge Theory under Test. *Landscape Research*. Vol.7, No. 3, pp.7-8.
9. Correy, A.(1983) "Visual Perception and Scenic Assessment in Australia. *IFLA Yearbook*, pp.181-189.
10. Craik, Kenneth H. & Mckechnie, George E.(1977) "Editors' Introduction: Personality and the Environment. *Environment and Behavior*. Vol.9, No.2, pp.7-20.
11. Crystal, Joseph H.(1979) "Measuring Scenic Quality at the Urban Fringe. *Landscape Research*. Vol.4, No.1, pp.9-14.
12. Drazin, Robert & Andrew H. Van de Ven(1985) "Alternative Forms Fit in Contingency Theory." *Administrative Science Quarterly*. Vol.30, pp.514-539.
13. Dubin, F.(1976) "Theory Building in Applied areas." In Marvin Dunnette (Ed.), *Handbook of Individual and Organizational Psychology*: Chicago: Rand McNally, pp.17-39.
14. Fabos, Julius Gy.(1979) "Planning and Landscape Evaluation. *Landscape Research*. Vol.4, No.3, pp.4-10.
15. Flachsbar, Peter G.(1972) "Dynamics of Preference for Visual Attributes of Housing Environments. *Environmental Design Research*. Vol.1, pp.98-106.
16. Greenbie, Barrie B.(1982) "The Landscape of Social Symbols." *Landscape Research*. Vol.7, No.3, pp.2-6.
17. Helliwell, D.R. (1979) "The Assessment of Landscape Preference." *Landscape Research*. Vol. 4, No. 1, pp.15-17.
18. Hull IV, R. Bruce and Buhyoff, Gregory J.(1983) "Distance and Scenic Beauty: A Nonmonotonic Relationship. *Environment and Behavior*. Vol.15, No. 1, pp.77-91.
19. Im, Seung Bin(1983) "An Investigation of the Relationship between Visual Preference and Ratio Variables in Enclosed Urban Spaces. Ph.D. Dissertation, Environmental Design & Planning Program, VPI & SU.
20. Im, Seung Bin(1984) "Visual Preferences in Enclosed Urban Spaces. " *Environment & Behavior*. Vol. 16, No. 2, pp.235-262.
21. Iverson, W.D.(1975) "Assessing Landscape Resources: A Proposed Model. IN Zube, F.H., Brush, R.O., & Fabos, J.G.(Eds.) *Landscape Assessment*. Stroudsburg, Pennsylvania: Dowden, Hutchinson, & Ross, Inc., pp.274-288.
22. Kaplan, Rachel(1985) "Nature at the Doorstep Residential Satisfaction and The Nearby Environment." *J. of Arch. & Plan. Research*. Vol. 23.
23. Kaplan, S., Kaplan, R., & Wendt, J.S.(1972) "Rated Preference and Complexity for Natural and Urban Visual Material. *Perception & Psychophysics*. Vol. 12, No.4, pp.354-356.
24. Leopold, Luna B(1969) "Landscape Esthetics." In Coates, Donald R.(Ed.) *Environmental Geomorphology and Landscape Conservation*. Vol. III: Non-Urban. Stroudsburg, Pa: Dowden, Hutchinson, & Ross, Inc., pp.454-461.
25. Marsh, George Perkins(1965) *Man and Nature*, The Belknap Press of Harvard University Press, Cambridge. Massachusetts.
26. Mehrabian, Albert(1976) *Public Places and Private Spaces: The Psychology of Work, Play, and Living Environments*, Basic Books Inc. New York.
27. Nasar, Jack L.(1983) "Adult Viewer Preferences in Residential scenes. *Environment & Behavior*. Vol.15, No.5
28. Nasar, Jack L.(1981) "Visual Preferences of Elderly Public Housing Residents." *J. of Environmental Psychology*. pp.303-313.
29. Nasar, Jack L.(1984) "Visual Preferences in Urban Scenes: A Cross-Cultural Comparison." *J. Cross-Cultural Psychology*. Vol.15, pp.79-93.
30. Peterson, G.L.(1967) "A Model of Preference: Quantitative Analysis of the Perception of the Visual Appearance of Residential Neighborhoods". *J. of Regional Science*. Vol.7, No.1, pp.19-31.
31. Rapoport and Hawkes(1970) "The Perception of Urban Complexity" *JAIP* Vol.36, pp.106-111.
32. Rapoport and Kantor(1967) "Complexity and Ambiguity in Environmental Design". *JAIP* Vol.33, pp.210-222.
33. Rodendas, M., F. Sancho-Royo and F. Gonzaliz -

- Bernaldez(1975) "Structure of Landscape Preferences : A Study based on large clams viewed in their landscape setting". *Landscape Planning* Vol.2, No.3, pp.159-178.
- 34.Schomaker, John H.(1979) "Measurements of Preferences for Proposed Landscape Modifications". *Landscape Research* Vol.4, No.1, pp. 5-9.
- 35.Shuttleworth, Steve(1980) "The Evaluation of Landscape Quality". *Landscape Research* Vol.5, No. 3, pp.12-14.
- 36.Thiel, Philip (1961) "A Sequence Experience Notation". *Town Planning Review*. Vol.32, April, pp.33-52.
- 37.Ulrich, Roger S.(1983) "Aesthetic and Affective Response to Natural Environment". *Human Behavior and Environment*, Vol.6, pp.85-125.
- 38.Ulrich, Roger S.(1981) "Natural Versus Urban Scenes : Some Psychophysiological Effects". *Environment and Behavior* Vol.13, No.5, pp.523-556.
- 39.Ulrich, Roger S.(1979) "Visual Landscapes and Psychological Well-Being". *Landscape Research* Vol.4, No.2, pp.17-23.