

A METHODOLOGY FOR SIMULTANEOUSLY  
OBTAINING AND SHARING INFORMATION<sup>1</sup>

Rachel Kaplan<sup>2</sup>

People's perceptions of and preferences for particular environments have increasingly become the object of study. One may wish to know what environments people consider scenic, how they view particular practices such as strip mining or clearcutting, what feelings they have about the countryside. One wants to know what people notice, what they care about, and how they might view changes. Do they experience the environment differently depending on their background or situation, on their familiarity with the setting, or are these largely idiosyncratic reactions?

Two kinds of issues must be faced when people's perceptions and preferences are studied. One of these involves how the environment under consideration is presented or represented. The other issue deals with the dependent variable--the basis for the inference one makes about people's reactions. Both issues present numerous problems which have a direct impact on the utility of the results. While there is surely no one right way to approach either of these issues, there seem to be a variety of ways that create unnecessary problems.

The purpose of this paper is to illustrate through several diverse studies the advantages of a particular approach to these two issues. The approach is simple and straight forward; the results have been both useful and enlightening. Some of the requirements of the method will be discussed after a brief description of the approach and the sample studies.

PHOTOQUESTIONNAIRE

The common procedure utilized in the studies discussed here is a photoquestionnaire. The pictures, all black-and-white and only about 5 x 8 cm in size, are printed (offset) with eight photos to the page. The studies have varied in number of pages of pictures ranging between

<sup>1/</sup> Paper presented at the symposium on environmental esthetics at the Ninth Annual Meeting of the Environmental Design Research Association, University of Arizona, Tucson. April 10, 1978.

<sup>2/</sup> Author, Associate Professor, School of Natural Resources, University of Michigan, Ann Arbor.

three and six. Participants are encouraged to look over all the photographs before responding. As such, the collection of pictures conveys information about the kind of environment under study. The studies all included verbal items in addition to the photographs, but these are not pertinent to the discussion here.

Participants are asked to rate each of the photos on a five-point scale to reflect their preference for the scene. The instructions all say something like "please indicate for each picture how much you like it." Each of the photographs has the numbers 1 to 5 immediately below it, and the participant circles the appropriate value according to instructions. The task is simple and presents no difficulties. (Two of the studies also included familiarity ratings for each of the photos.)

The studies reviewed here share one other feature: The participants in each case had at least some familiarity with the kinds of scenes pictured. That is not to say that all scenes were known to the participants; in fact, in several cases unfamiliar scenes were intentionally included. In each study the photographs were predominantly of the immediate environment of the participants at the time they were responding to the photoquestionnaire.

SOME SAMPLE STUDIES

The first study discussed here was carried out for an agency and as such can be considered "applied." But that study, as well as the three doctoral dissertations which constitute the other examples, cannot be classified in terms of application. All of them were carried out in the field as opposed to the laboratory, with "real people" as opposed to subjects, and had professional groups interested in utilizing the results.

At the same time, all four studies were designed to increase available knowledge about environmental esthetics. While practical results were important, insights into the theoretical underpinnings of this area were no less salient. The informational framework discussed at various times in the context of landscape preference (R. Kaplan 1977b, S. Kaplan 1975) provided the orientation for each of the studies. While the description of the studies here does not include

the results, each has found the informational properties to be powerful predictors of landscape preference.

#### Study 1: Storm drain in a residential area

In Michigan each county has an elected drain commissioner. In the local county some citizens lodged complaints about the open storm drain overflowing into their gardens. The drain in question is about 5 miles long and passes through residential areas representing a wide spectrum of economic conditions. Not surprisingly, the same waterway is an attractive creek in some areas and a shoddily fenced-off eyesore in some other areas. The drain commissioner hired a landscape architect/planner to propose modifications and improvements to the drain, and research was designed to determine the residents' perception of this local feature of their environment.

It was decided words would be insufficient for such a task. As is true of so many environments, one experiences them in a nonverbal way. Strong feelings can be expressed without much difficulty; distinct activities carried out in such a setting can be described; but beyond that, "perceptions of a drain" would not make for easy conversation! Pictures seemed a necessary feature of the study. They could also serve to elicit reactions to potential changes in the drain, thus permitting insight into how modifications would be viewed in addition to perceptions of existing conditions.

The few pretests conducted were most instructive. Several residents who live right along this open storm drain had no idea what interviewers were inquiring about when told the study was about the Swift Run Drain, or the creek that is near their home. As soon as they glanced over the pages of photographs, however, they understood what it was about. The creek, or drain, or whatever it was for them, was a nameless part of their immediate environment; yet they knew it well.

The photographic portion of the questionnaire consisted of 4 pages with a total of 32 scenes (see fig. 1). These included views of the drain all along its course, photos of drains in other parts of the city, and a few scenes from other states. Participants, in all cases residents whose dwellings bordered on the drain, were asked to indicate both how similar their view of the waterway near their home is to what is in the picture and how much they would like that waterway to look like that picture. The photo-questionnaire thus served the dual function of providing information about the environment and eliciting responses from the participants.

The preference ratings are a source of much more information than likes and dislikes, *per se*. Examining the most and least liked pictures can certainly be instructive. Beyond that, however,

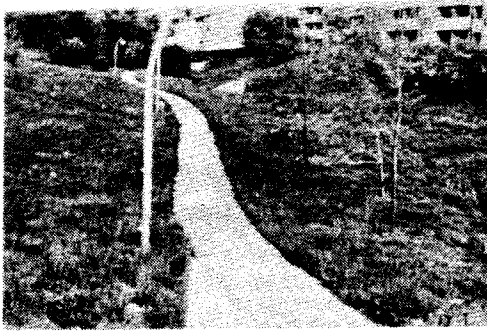
the preference ratings can also show what are perceived as similar types of environments. Then, by examining the preferences for these dimensions or themes, one is in a much better position to anticipate problems in proposing changes, or for that matter, in deciding to leave certain areas unchanged. In the case of the Swift Run Drain, water was not always perceived as an amenity; there are waterscapes that are distinctly unpreferred.

The questionnaire also included verbal analogues to some of the pictured dimensions. The differences in reactions to the visual and verbal formats are informative. I think it is fair to say the verbal descriptions were more likely to lead to stereotypic responses. Thus for residents in the area where the drain had most problems, the thought of piping it underground provided one easy way to eliminate the mess. Photographs representing various versions of a covered drain, however, were not viewed as favorably. On the other hand, appreciation of particular pond-like arrangements need not conjure up the health hazards a few people mentioned in reaction to the verbal description of a body of water left natural, marshy. These findings suggest one can easily be misled by relying on either visual or verbal material alone. Each approach provides some insight into the domain being sampled. A more extensive discussion of the study can be found in R. Kaplan (1977a).

#### Study 2: Natural landscape in the urban context

The CUNA Mutual Insurance Society office in suburban Madison, Wisc., was the site of Tomas Gallagher's (1977) doctoral dissertation study. The 15 acres of land around the four-story CUNA building are in part maintained as an ornamental landscape with mowed expanses and diverse trees, but major portions of it have been converted to a prairie and woodland restoration, or natural landscape. Gallagher was interested in studying people's preferences for these two distinctly different kinds of landscapes. He desires to introduce more natural landscapes within urban areas, and yet as a landscape designer he was aware such arrangements are not always met enthusiastically. His study involved a test of the informational framework in predicting landscape preferences; his goal was to identify approaches one might use to "achieve public acceptance of natural landscape proposals" (p. 20).

The CUNA landscape experiment is widely known, and CUNA permits use of the grounds for educational field trips. The natural landscape is visible from the CUNA building and the surrounding residential area. The CUNA management was most cooperative with Gallagher's study and permitted a random sample of their 800 employees to participate. In addition to the 137 CUNA employees, the study included a sample of homeowners and apartment dwellers who live immediately adjacent to the CUNA grounds.



1. Similar 1 2 3 4 5 2. Prefer 1 2 3 4 5



1. Similar 1 2 3 4 5 2. Prefer 1 2 3 4 5



1. Similar 1 2 3 4 5 2. Prefer 1 2 3 4 5



1. Similar 1 2 3 4 5 2. Prefer 1 2 3 4 5



1. Similar 1 2 3 4 5 2. Prefer 1 2 3 4 5



1. Similar 1 2 3 4 5 2. Prefer 1 2 3 4 5



Figure 1.--A sample page from the drain study photoquestionnaire.

All participants indicated their preference for each of the 32 photographs that were taken on the CUNA grounds. The four pages of photos represented the range of settings available in the landscape program there (fig. 2). Pictures were taken at eye level; some included the CUNA building in the picture. In addition to the participants' preference ratings, a panel of judges rated each photograph in terms of a number of predictor variables representing the informational framework underlying the study.

#### Study 3: Forest practices in a rural setting

Eddie Anderson's dissertation (1978) is also concerned with residents' perceptions of their nearby environment. The setting in this case, however, is a western Michigan rural county where commercial forestry is the principal industry. Most of Lake County is within the boundaries of either national or state forest land. The county's population is low (under 6,000), and unemployment is high (about 13%).

The scenes in Anderson's photoquestionnaire are of hardwood forests, pine plantations, and logged areas. They represent an unspectacular natural environment that is characteristic of the region (fig. 3). All but 2 of the 48 scenes depict local natural settings; they were selected to sample the variety of management practices in use in the region. Although lakes and streams abound in the county, waterscapes were excluded from the study.

One of Anderson's objectives was to compare the environmental preferences of various local groups: blacks and whites, high school students and older residents, those with longer term acquaintance with the area, and relative newcomers. The differences between management professionals and the local people are also of interest. In all, some 300 people responded to the survey. They were told the study dealt with the natural surroundings in their area and how "people relate their daily activities with the natural surroundings during both work and leisure time. We would like your help in finding out more about the role that the natural environment plays in the lives of local people."

Anderson found people were, by and large, happy to participate in the study. Many expressed delight with the picture-survey. Even though the photoquestionnaire was quite long (6 pages), people needed little encouragement to complete it and to continue with the remaining pages of questions.

#### Study 4: Visitors at a bog environment

The setting for William Hammitt's (1978) dissertation study is the Cranberry Glades Botanical Area in the Monongahela National Forest in West Virginia. Unlike those in the other studies, the participants in this case were not in their home or work environment, but rather visitors to the

bog. About 60 percent of them were residents of the same state, but for none of them are the Glades in their everyday environment. Hammitt asked some 400 visitors to complete his photoquestionnaire right at the end of their short hike on the bog trail. All were asked to indicate their preference for each scene, and some were also asked to rate the scenes in terms of how familiar they appear.

Included among the 24 photographs were scenes of the various habitats along the trail, scene of the boardwalk itself, and also some scenes the visitors could not have seen on that hike (fig. 4). Some of these were from the same area (e.g., an overview) and others were from a bog environment in another state.

Hammitt was interested in studying the role of familiarity in preference. He examined the preferences of first-time visitors versus repeat visitors, as well as the preferences of people who were shown photographs prior to their hike versus those who saw them only at the end. These comparisons led to some important insights about the role of a leisurely, recreational outing in people's experience of the environment. The photo dimensions, or themes, based on the preference ratings, also shed light on ways to manage and interpret such settings.

#### SOME COMMENTS ON THE APPROACH

The photoquestionnaire approach has shown itself to have many advantages. First, the method is meaningful to the participants. Not only do they have no difficulty with the task, they enjoy it and invariably express appreciation at being asked to participate. The photos need not be of a high quality, nor are color images necessary. By having the scenes printed, as opposed to projected, the task becomes self-paced and participants can go back and forth over the pages. The participants in the studies described represent a wide range of backgrounds, ages, and abilities. Looking at pictures is not too demeaning for a professional, nor too demanding for a child.

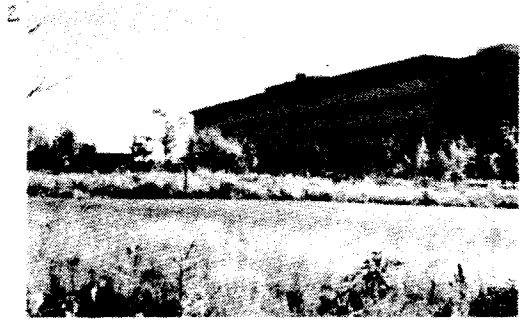
The procedure is inexpensive, manageable, and interesting for the participants, hardly trivial considerations if one takes citizen participation seriously. It is easy to ignore citizen input when the participants seem inarticulate, confused, or even hostile. Given the chance to participate in a meaningful way, citizens give insights and opinions that can be important components in decisionmaking.

#### Presentation of the environment

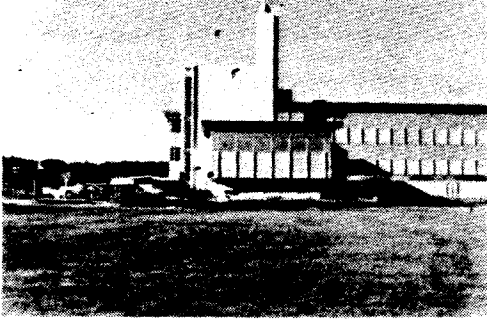
In any environmental assessment the issue of presenting or representing the environment must be considered. An important distinction here involves whether or not one is dealing with an existing environment or situation or one that is being proposed.



1 2 3 4 5



1 2 3 4 5



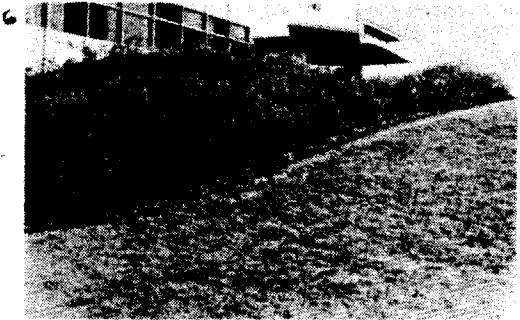
1 2 3 4 5



1 2 3 4 5



1 2 3 4 5

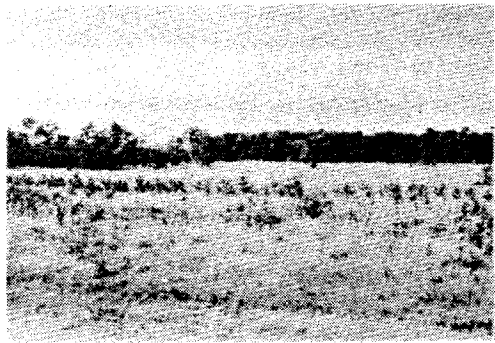


1 2 3 4 5

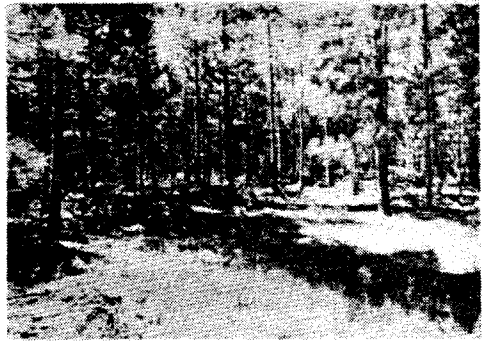


6

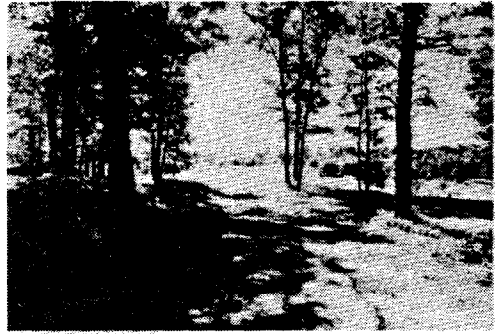
Figure 2.--One of the pages from Gallagher's photoquestionnaire.



1 2 3 4 5



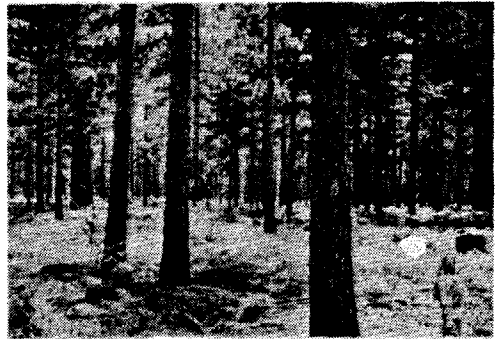
1 2 3 4 5



1 2 3 4 5



1 2 3 4 5



1 2 3 4 5



1 2 3 4 5



Figure 3.--An example of the photoquestionnaire in Anderson's study.



1 2 3 4 5

no ? yes



1 2 3 4 5

no ? yes



1 2 3 4 5

no ? yes



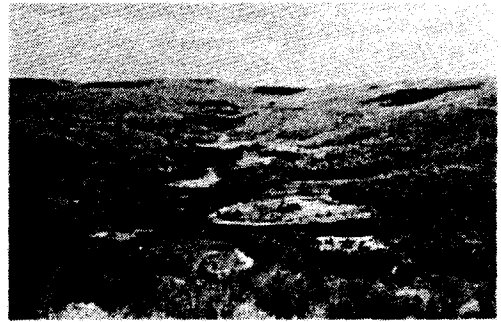
1 2 3 4 5

no ? yes



1 2 3 4 5

no ? yes



1 2 3 4 5

no ? yes



Figure 4.--Sample page from Hammit's bog study.

There is no single foolproof or accurate procedure for presenting an environment. One can lie with statistics, with words, and with pictures. But photographs do have several advantages. They lend themselves to presenting existing conditions in the study area and comparable areas elsewhere. One can also photograph simulations of an environment, creating visual images of possible alternative solutions. Furthermore, including a variety of pictures of the setting in question does not add much time or expense to the cost of conducting a study. The participants' impressions can be based on a range of examples rather than on one or two instances.

The four studies all used photographs of existing environments. A modification of the procedure described here was used in a study of a proposed downtown park, using photographs of models. In this case, 24 views of possible scenes and settings within the park were presented using 7.5 x 11.5 cm photographs mounted on 4 boards (28 x 33 cm). The scenes were generated from three alternative designs for the park, but participants were asked to react to the individual scenes rather than to the design alternatives. Participants could view the photographs and register their preferences at either the public library or bank lobby, both in the immediate area of the proposed park. For a fuller discussion of this study, see R. Kaplan (1978).

The presentation of the environment is of central importance. Although it is rarely acknowledged as such, the quality of the responses one obtains from participants is necessarily a function of their comprehension of the environment under study. If people are not certain what setting or changes are being discussed, they are put in a difficult situation. The maps and graphics that are so frequently part of public meetings are baffling to many people in the audience.

The selection of photographs must not be taken lightly. The photographs provide information about the setting or changes that are the subject of the study while at the same time being the object of participant reactions. The range of pictures selected must be extensive enough to reflect the full range of conditions present in the study area. In fact, not only is it possible to show and obtain information at the same time, effective sharing is essential if information obtained is to have any validity or usefulness.

Selection of photographs must thus entail two considerations: adequate sampling and the possibility of comprehension. The photoquestionnaire format can easily accommodate some 20 to 40 pictures. This permits judgments of possible alternatives and of a range of examples of each of the settings within the study. Rather than relying on a single instance of a dense woods or open bogmat, for example, there can be three or four instances of such settings. As with any measurement situation, one is on safer grounds

having several items represent people's reactions rather than relying on a single instance.

Comprehension is facilitated by having visual material, but all graphic material is not equally effective in communicating information. The problem of comprehension is particularly acute when communicating about environments not yet existent. But even for existing conditions, one can select photos that are difficult to understand, that provide too much detail, or that fail to communicate scale. It is hard for the professional to realize, but some graphic material is more confusing than helpful (S. Kaplan 1977). Pretesting the material with a group of nonprofessionals is essential.

Extensive sampling of the environment has one further advantage that should perhaps be mentioned. While the studies have direct application to field settings, they need not compromise the desire for more systematic and controlled approaches possible in the laboratory setting. In photographic form, the scenes are highly transportable and can be taken to the participant. But at the same time, by careful selection of the visual material, many hypotheses can be tested, and the basic knowledge of environmental preference can be advanced.

#### Getting the information

There are many ways to study people's reactions. Public participation often involves public meetings where those who wish speak their minds. One is often tempted to ask people what they like and why they prefer certain settings over others. These questions turn out to be much easier to ask than to answer. Given the frustration such a seemingly direct approach yields, some researchers opt to stay clear of asking anything. Instead, they record how places are used. These observations then are used as an indication of environmental preferences. While it might be safe to assume that a well worn path across the lawn suggests a place where some would like a walkway, some other inferences based on observations are more controversial. One highly regarded social scientist has been telling us that crowded sidewalks in New York City are an indication of preference. He even shows some pictures of people smiling. (He does not mention the crowded subways, however.)

One approach to getting people's reactions is based on the preference ratings, using a five-point scale. People seem to have no trouble with this task. Indicating how much they like a scene is manageable and enjoyable. Because there are a number of scenes to rate, each one need not be belabored. Because they are not rating each scene for a multitude of adjectives, many more scenes can be included in the study.

As indicated earlier, the simplicity of the procedures does not limit the richness of resulting insights. Knowledge of the preferences of



particular scenes is valuable to a certain degree. If one only shows people a handful of pictures, then the preference for each is all one has to examine. With 20 to 40 scenes, however, the preferences for each item becomes less instructive. One quickly discovers scenes representing comparable environments from the professional's point of view, may be regarded as quite different in terms of the citizens' preferences.

By subjecting the preference ratings to dimensional analyses, one can determine much more than which scene is liked and which is not (R. Kaplan 1974, 1975). Validity and reliability are both enhanced by the use of many instances. The dimensional procedures provide an indication of the internal consistency of each factor or grouping. The Cronbach Coefficient Alpha value across these studies ranges from the 0.70's to the 0.90's. In fact, one can begin to get answers to the elusive question of why some settings are preferred. The patterns of preference ratings, as opposed to the particular examples, provide an indication of the underlying similarities among the scenes in the study from the perspective of the participant. To some extent these themes or groups parallel the basic categories used in a typical visual resource assessment. To the extent that they do not, they are particularly useful in extending our insight in the area of environmental perception and preference. For a discussion of the sorts of groupings of content obtained in these and related studies, see S. Kaplan (1978).

Using photographs hardly constitutes a new method, but the procedure described here has many attractive features even if novelty is not one of them. The interrelated problems of providing information about an environment and asking information about it are easily accomplished by using a variety of examples through photographs. The method is inexpensive and readily adapted to many problems of environmental assessment. The photoquestionnaire combines elements of laboratory slide rating experiments, surveys, and interactive participatory procedures. It is a method that is meaningful to participants and allows them to proceed at their own pace. The method lends itself to providing alternatives that can be compared in parallel and permits extensive stimulus sampling.

The procedure has been received enthusiastically not only by the participants; agencies involved in the studies have also enjoyed the process and received the results eagerly. After all, generating information that is both useable and useful is an urgent need in the area of environmental preference.

#### LITERATURE CITED

- Gallagher, T. J. 1977. Visual preference for alternative natural landscapes. Ph.D. diss., Univ. Mich., Ann Arbor.
- Hammitt, W. E. 1978. Visual and user preference for a bog environment. Ph.D. diss., Univ. Mich., Ann Arbor.
- Kaplan, R. 1974. A strategy for dimensional analysis. In *Man-environment interactions: Evaluations and applications*, D. H. Carson (ed.) Dowden, Hutchinson, and Ross, Stroudsburg, Pa.
- Kaplan, R. 1975. Some methods and strategies in the prediction of preference. In *Landscape assessment: Values, perceptions, and resources*. E. H. Zube, R. O. Brush, and J. G. Fabos (eds.) Dowden, Hutchinson, and Ross, Stroudsburg, Pa.
- Kaplan, R. 1977a. Preference and everyday nature: Method and application. In *Perspective on environment and behavior*, D. Stokols (ed.) Plenum, New York.
- Kaplan, R. 1977b. Down by the riverside: Informational factors in waterscape preference. In *River recreation manage. and res. symp.* USDA For. Serv. Gen. Tech. Rep. NC-28. North Cent. For. and Range Exp. Stn., St. Paul, Minn.
- Kaplan, R. 1978. Participation in environmental design: Some considerations and a case study. In *Humanscape: Environments for people*. S. Kaplan and R. Kaplan (eds.) Duxbury Press, Belmont, Calif.
- Kaplan, S. 1975. An informal model for the prediction of preference. In *Landscape assessment: Values, perceptions, and resources*, E. H. Zube, R. O. Brush, and J. G. Fabos (eds.) Dowden, Hutchinson, and Ross, Stroudsburg, Pa.
- Kaplan, S. 1977. Participation in the design process: A cognitive approach. In *Perspective on environment and behavior*, D. Stokols (ed.) Plenum, New York.