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Thomas R. Herzog
Grand Valley State University, herzogt@gvsu.edu

Stephen Kaplan
University of Michigan

Rachel Kaplan
University of Michigan

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THE PREDICTION OF PREFERENCE FOR FAMILIAR URBAN PLACES

THOMAS R. HERZOG *is Associate Professor of Psychology at the Grand Valley State Colleges, Allendale, Michigan. His research interests include visual information processing, figural aftereffects, and the perception of urban and natural environments.*

STEPHEN KAPLAN and RACHEL KAPLAN *teach in the Psychology Department at the University of Michigan. He is also Professor of Computer and Communication Sciences and she is also Associate Professor in the School of Natural Resources and the Doctoral Program in Urban and Regional Planning. Their research has focused on environmental cognition and preference as well as participatory planning as a problem-solving process.*

The experience of living in the city has been a continuing source of fascination to students of environmental design. Milgram (1970) has argued convincingly that the urban experience can be one of overload, of more information than a human can handle comfortably and well. Lynch (1960), concentrating more specifically on the visual/spatial aspect of the city, finds it a place where one could potentially get lost. People cope with this possibility by constructing internal models of the landmarks, paths, and other critical elements of the city. Presumably this visual/spatial environment is coded in terms of affect as well. People must have differential preferences for different

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aspects of their city, but, as Craik (1973) has pointed out, little is known about these reactions. The purpose of this study was to explore these preferences.

The problem inherent in such an undertaking is that of generality. The guidebook to any city can point out what are presumably the preferred places. But this information is too specific. It tells us very little about what to expect in some other city, or in cities in general. At the other extreme, there is the proposal that environmental preference is a function of optimal complexity (e.g., Wohlwill, 1970, 1973; Berlyne and Madsen, 1973) or even ambiguity (e.g., Rapoport and Kantor, 1967). This may be too general. Surely content makes some difference in preference; two places equatable in terms of complexity would seem unlikely to achieve the same level of preference if one is a park and the other an urban intersection (see Kaplan et al., 1972).

Thus, the problem becomes one of charting a course between the particularism of the guidebook and the vagueness of the single-variable theory. The proposed strategy for achieving this involves looking at *categories* of preference. The idea that people perceive their environment in a categorical fashion has been discussed convincingly in Appleyard's (1970) insightful "Notes on urban perception and knowledge." The possibility of identifying the content categories that underlie preferences is based on developments in the area of dimensional analysis (see R. Kaplan, 1972). The attempt to steer an intermediate course in terms of generality should not be construed as a claim that the categories of urban experience uncovered in any one study such as this one have generality across different populations and across different cities. They may have such generality to varying degrees, but this cannot be ascertained without further studies in different settings.

The idea that complexity is the critical factor underlying preference may be too general not only in the sense that it ignores content, but also because it ignores other variables that also appear to be important in preference. A number of possible candidates are discussed in S. Kaplan (1975). Perhaps of

particular interest in the urban context is the factor of familiarity. Certainly the resurgence of support for historic preservation suggests that this variable may be operative. Data collected in controlled experiments also support the role of this variable in enhancing preference. Zajonc (1968) has reviewed a number of studies indicating that mere repeated exposure to a stimulus enhances an individual's attitude toward it. (On the other hand, it is also possible that familiarity can reduce preference—"familiarity breeds contempt"—as one might be cognizant of more aspects of the situation.)

In the present study, both familiarity and complexity ratings were obtained. This not only permitted the comparison of the relative contribution of these variables, but also provided an opportunity to determine whether the pattern of prediction might vary from category to category. If we knew that either of these variables is more salient in predicting preference in some settings than in others, applications could be focused accordingly.

This study, like many concerned with the determinants of environmental preference, utilized photographs as stimuli to be rated (e.g., Calvin et al., 1972; Peterson, 1967; Zube et al., 1974). However, when dealing with an environment familiar to the participants, one might ask how vital the photographs were. Might the names of the places not suffice? This has clear methodological implications: Research would indeed be simplified if photographic material was unnecessary. On the other hand, the theoretical implications are at least as striking. The more similar the reactions are to names of places and photographs of these places, the more likely it becomes that both serve to call up some mental image or representation that accounts for the subsequent rating. In addition to these two conditions—simply naming places and the use of the photograph of the place—the study included a further condition involving instruction to image the named place.

METHOD

Subjects. The sample consisted of 121 introductory psychology students, of both sexes, at Grand Valley State Colleges.

Participation in the study partially fulfilled course requirements. Ten groups of from seven to 24 subjects (Ss) were run. This sample included only those students who were familiar with most of the settings included in the study.¹

Stimuli. The settings consisted of 86 scenes from the city of Grand Rapids, Michigan and the surrounding area. The two major selection criteria were that each scene contain some specific object or structure that could be identified by name and location and that each scene be sufficiently well known that its familiarity to the majority of the sample of college students would be probable. Accordingly, most of the prominent structures in downtown Grand Rapids were included, as were well-known suburban retail stores, places of entertainment, and so on. Very little industry and no slum scenes were included. On the other hand, because of the nature of the sample, virtually every building on the campus was included. No private homes were included, and few scenes showed people.² In terms of function, the buildings included the following categories: 19 civic and governmental buildings, 19 educational buildings, nine religious buildings, seven retail stores, seven business or office buildings, six theaters, three hospitals, three factories, and three restaurants.

Procedure. All Ss rated each of the 86 scenes for familiarity, preference, and complexity, in that order. All ratings utilized a five-point scale ranging from 1 = "not at all" to 5 = "a great deal." Familiarity was defined as how well known the scene was to the rater. Extensive firsthand personal experience was suggested as the criterion for the highest rating; secondhand information from newspapers and television was sufficient to avoid the lowest rating. Preference was defined as "how much you like the scene for whatever reason." Complexity was defined as "intricateness, or the opposite of simplicity." No further guidelines or definitions were provided. Each scene was identified by name and location (nearest intersection) for all groups.

There were three experimental conditions based on the method of presenting the scenes. In the Slide condition, presentation consisted of showing a color slide of each scene and stating its name and location. In the Label condition, only the name and location of each scene were provided. In the Imagery condition, the name and location were provided, and the group was instructed to imagine the scene as vividly as possible for about 15 seconds before rating it. In all cases, about 20 seconds elapsed between the naming of scenes. A brief rest was allowed after half the scenes had been presented. Two random orders of presentation for the 86 scenes were used, with half the groups in each condition exposed to each order. The final sample size for the Slide, Label, and Imagery conditions were 74, 22, and 25, respectively.³

RESULTS AND DISCUSSION

CLASSIFICATION OF SCENES

The familiarity ratings for each scene were used both to eliminate those people who were unfamiliar with many of the places and to eliminate a certain number of scenes which were unfamiliar to many people. Sixteen scenes were rated as "not at all" familiar by at least 20% of the samples of each condition and were thus eliminated from the analyses.

The remaining 70 scenes were subjected to a nonmetric factor analysis, the Guttman-Lingoes Smallest Space Analysis III (Lingoes, 1972). A nonmetric procedure was used because it deemphasizes the precise numeric value of correlations in favor of an approach focusing on relative magnitudes. In many psychological domains, it is the relative magnitude that is likely to be replicable. We have found results using this procedure to be extremely stable across different samples (R. Kaplan, 1972).

The dimensionalization of the scenes was based on the preference ratings made by the participants in the Slide condition. It is important to point out that this procedure involves grouping of *scenes*, based on the pattern of preference

ratings. While factor analytic techniques have been used quite extensively with photographic or slide displays (e.g., Calvin et. al., 1972; Little, 1969; Peterson, 1967), the dimensions in these studies were based on the ratings, as opposed to the visual displays, being treated as "items." As R. Kaplan (1975) has pointed out, the results of such analyses are dimensions of response items (e.g., semantic differential scales) and do not deal directly with content.



Figure 1: Representative Scenes from the Cultural Dimension

The dimensional analysis of the 70 scenes yielded five dimensions. Dimensional composition was determined by including all those scenes with a factor loading greater than .40 on a given dimension and no loading greater than .35 on any other dimension. Some scenes from each of the dimensions are shown in Figures 1 through 5.

The dimension with the greatest number of scenes included six churches, an art museum, the academic center of a business

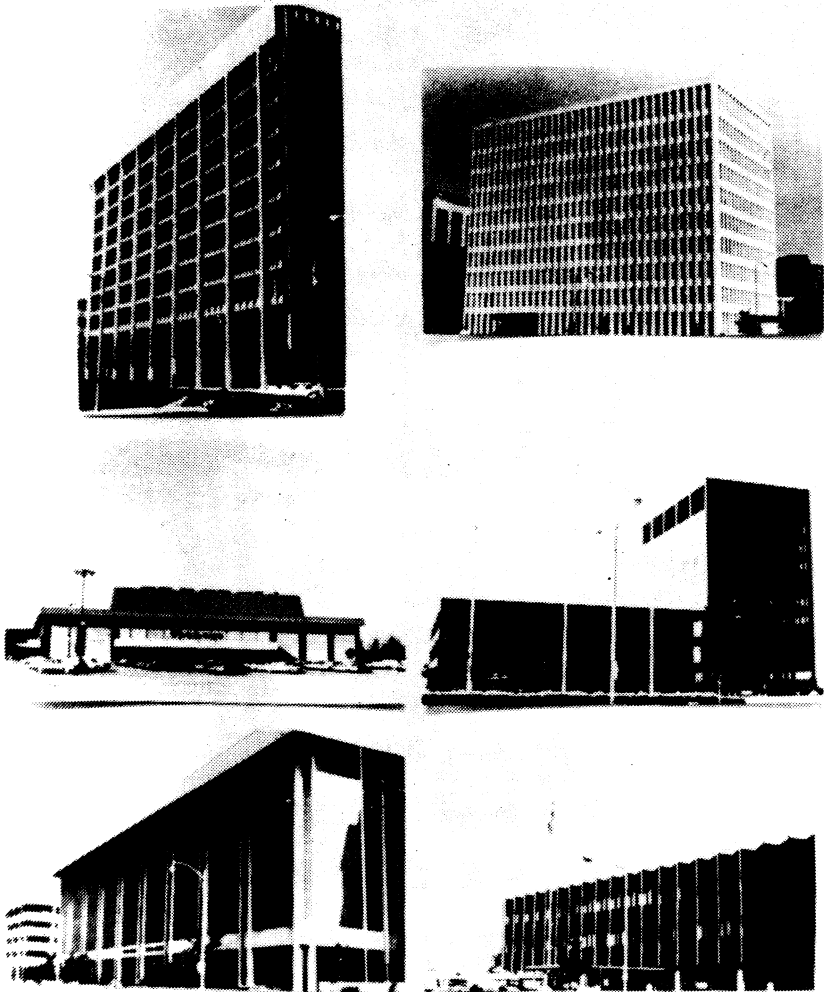


Figure 2: Representative Scenes from the Contemporary Dimension

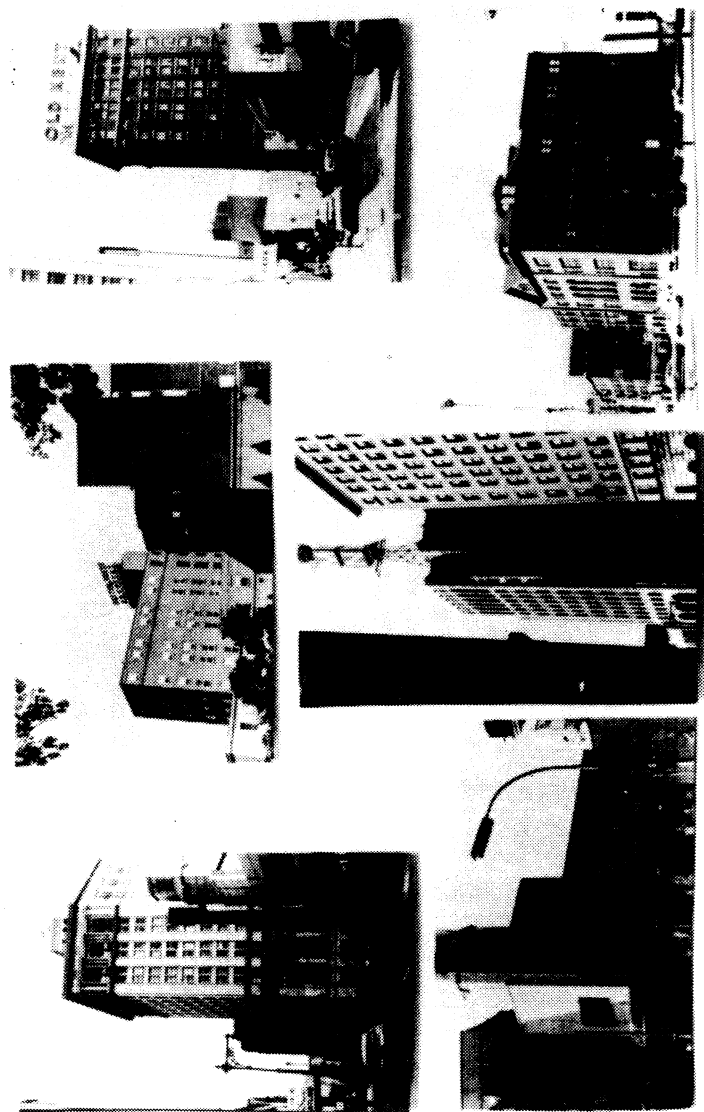


Figure 3: Representative Scenes from the Commercial Dimension

college, a hall of justice, a college library, a downtown memorial park, and a rather run-down suburban retail store which loaded opposite in sign to the rest of the scenes. This cluster was named the Cultural dimension.

The second dimension consisted of 11 structures of varied function (e.g., downtown bank buildings, stores, a city library, a theater, an airport terminal, post office), having in common only that the buildings were of contemporary design—and hence named the Contemporary dimension.

The third dimension consisted of 10 scenes (see Figure 3). Five were older downtown commercial buildings. The rest

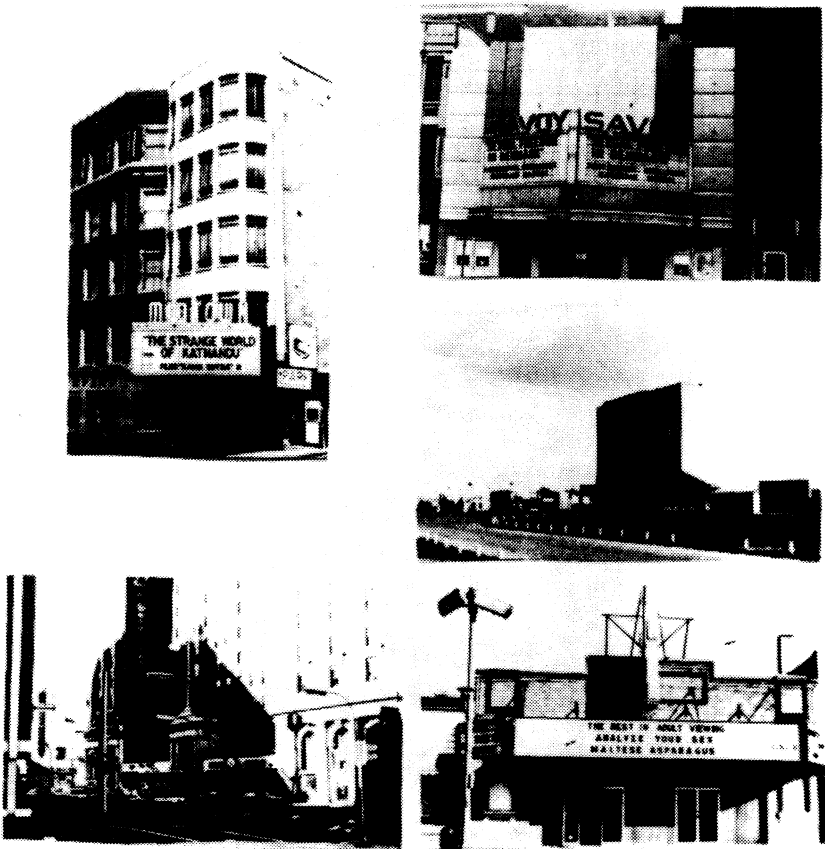


Figure 4: All Scenes from the Entertainment Dimension

consisted of two hospitals, a downtown retail store, an apartment building, and a downtown pedestrian island. All were older structures with the exception of the apartment building. This was named the Older Commercial/Service, or, for short, Commercial dimension.

The fourth dimension consisted of five scenes: two pornographic movie houses, one "straight" theater, one drive-in theater, and a downtown hotel with several lounges on the ground floor. This was named the Entertainment dimension.

The fifth dimension consisted of three of the original buildings on the campus where the study was conducted: two academic administrative buildings and a student center. This dimension was named Campus. Of the 11 other scenes from that college campus, two were included in other dimensions (the college library in the Cultural dimension and the recently-completed fine arts center in the Contemporary dimension), three had factor loadings between .35 and .40 on the Campus dimension, and the remainder were unrelated to this domain.

The very bases of these five dimensions provide some interesting insight into the pattern of preference ratings. These

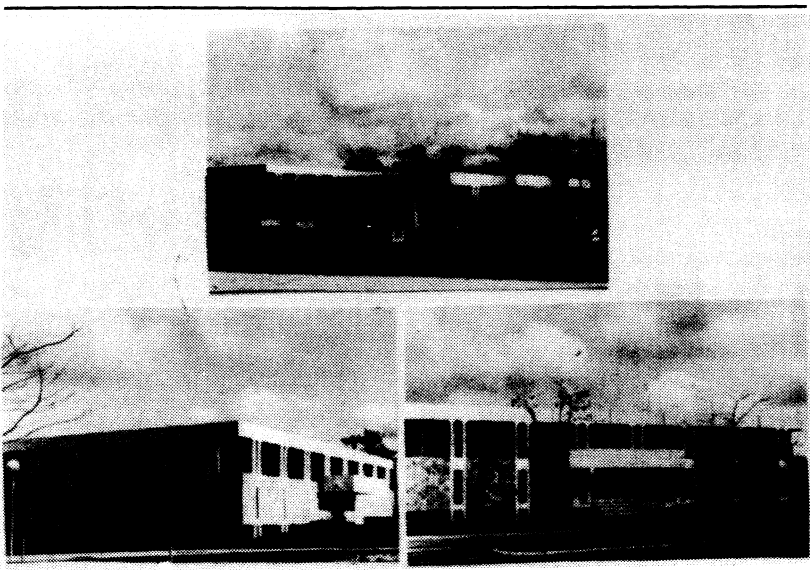


Figure 5: All Scenes from the Campus Dimension

groupings neither follow along functional lines exclusively, nor are they based solely on architectural characteristics. Rather, these dimensions reveal that the underlying pattern of ratings is based on a mixture of criteria.

In subsequent analyses these five content domains were utilized by computing for each subject a mean rating for each of the five dimensions. This was done for each of the three rating scales—preference, complexity, and familiarity. These “scale scores” are the bases for the results presented in the next two sections. First, focusing only on the Slide condition, the question of the prediction of preference is examined. How do the five content domains differ in terms of preference ratings, and how effectively can the two predictors account for this preference? Second, the question of the differences as a function of presentation method—comparison of the three conditions—is discussed.

THE PREDICTION OF PREFERENCE

When visually presented, the preferences for the five content domains are strikingly different ($F = 23.24$, $df = 4,92$, $p <$

TABLE 1
Mean Preference, Familiarity, and Complexity Ratings
for Each Presentation Method and Content Domain

Presentation Method	Content Domain					Mean
	Cultural	Contemporary	Commercial	Entertainment	Campus	
PREFERENCE:						
Slide	3.05	3.21	2.33	2.47	3.60	2.93
Label	3.28	3.52	2.76	2.82	3.44	3.16
Imagery	3.44	3.36	2.58	2.54	3.39	3.06
FAMILIARITY:						
Slide	3.54	4.06	3.81	3.85	4.88	4.03
Label	3.10	3.90	3.52	3.85	4.44	3.76
Imagery	3.02	3.73	3.31	3.45	4.49	3.60
COMPLEXITY:						
Slide	3.07	2.83	2.65	2.32	2.87	2.75
Label	3.22	3.31	2.89	2.45	2.92	2.96
Imagery	3.21	3.14	2.86	2.22	2.88	2.86

.001). The Commercial and Entertainment dimensions (means 2.3 and 2.5, respectively) were by far the least liked, while pictures of the Campus dimension received the highest preference (mean 3.6). The Contemporary and Cultural dimensions (means 3.2 and 3.1) were relatively high in preference, but not quite as high as the Campus pictures (see Table 1).

The five content domains were also significantly different ($p < .001$) in terms of the familiarity ($F = 26.50$) and complexity ($F = 9.21$) ratings for the Slide condition. Once again, the slides of the Campus received the highest familiarity ratings, but the familiarity for each dimension was relatively high (mean of 3.5 for Cultural domain was lowest). In terms of complexity, the Entertainment dimension received the lowest ratings by far (mean 2.3), and the Cultural dimension was rated most complex (mean 3.1). These complexity ratings correspond to the contrast between the rather drab, plain exteriors of the structures in the Entertainment dimension (Figure 4) and the ornate facades of the churches, included in the Cultural dimension (Figure 1).

The analyses of variance and comparisons of means provide some interesting insights into the differential appreciation of aspects of the urban scene. They cannot, however, reveal the role of familiarity and complexity in the prediction of preference. Is either of these variables particularly powerful in accounting for preference? Are the two better than either alone? These are questions involving correlational analyses. The results of these were, once again, strikingly different for the different content domains.

Across the entire set of 70 slides, familiarity and complexity each effectively accounted for a portion of the preference ratings ($r = .51$ and $.43$, respectively). Because the two predictors were uncorrelated ($r = -.06$), taken together they accounted for about 48% of the preference variance. This pattern of relationships, however, was not characteristic of the separate content domains. Since each of these five dimensions is based on relatively few scenes (ranging between 12 for Cultural and only three for Campus), it is important to exercise caution in interpreting these results. At the same time, the fact that the

pattern of relationships is quite different across these domains points to the need for caution in interpreting results based on relatively global prediction of preference.

Both the preference and the familiarity ratings were highest for the Campus dimension, but for these three scenes the correlation between the two ratings was strongly negative ($-.82$).⁴ The Contemporary dimension, also relatively high in mean rating on preference and familiarity, was the only other content area where these two ratings were negatively related ($-.49$). For each of the three other dimensions, greater familiarity was related to greater preference. This relation was moderate for the largest dimension, Cultural ($r = .53$), and particularly strong in the case of the two least preferred dimensions, Entertainment ($r = .96$) and Commercial ($r = .80$).

In the instances of these last two dimensions, where familiarity was a particularly strong predictor of preference, complexity was related to preference to a much smaller degree ($r = .49$ and $.37$ for Entertainment and Commercial, respectively). For the Campus dimension, complexity was as effective a positive predictor of preference ($r = .88$) as familiarity was a negative correlate. For the Cultural and Contemporary dimensions, complexity related to preference in roughly equal measure ($r = .65$ and $.57$, respectively).

These are complicated patterns of relationship. They suggest the need for considerable further research to establish their generality. While one would hardly expect to replicate the correlations given different raters, different scenes, and different locales, it would not be surprising to find that the prediction of preference is strongly affected by content domains.

COMPARISON OF SLIDE, LABEL, AND IMAGERY CONDITIONS

The results presented thus far have all been based on the Slide condition, where each scene was both identified by name and location and shown on the screen. The focus of this section

is on the comparison of these results with those obtained from the other two conditions. To a very large extent, the results were indistinguishable across conditions. With respect to neither preference, nor familiarity, nor complexity were the analyses of variance significant in terms of presentation method. In other words, those people who simply had scenes identified by place and name (Label condition) and those who also tried to imagine the named scenes had comparable ratings to each other and to the Slide condition sample.

In the case of preference ratings, there was greater range in mean ratings across the five dimensions for the Slide condition than for the other two conditions. The Commercial dimension's preference rating was significantly lower for the Slide condition than for the Label condition; the Campus dimension was no higher than the Contemporary and Cultural dimensions in the Imagery and Label conditions, while it was distinctly higher when viewed as slides. But these differences are small compared to the stability of the results across conditions and the consistently strong differences with respect to content for each of the presentation modes.

Another way of emphasizing this stability is to look at the correlations with respect to the same rating scale, across conditions. Taking the three presentation conditions pairwise, the correlations for preference ratings were consistently in the low .80s (for all 70 scenes). For familiarity, these correlations ranged between .81 and .86. The correlation of complexity ratings for the Label and Imagery conditions was comparably high, .87; when compared to the Slide condition, these two nonvisual modes correlated .64 and .66, respectively.

One obvious implication of these findings is that when dealing with familiar environmental settings, the use of photographs adds little not already conveyed by the place names. But this findings cuts both ways. In other words, it suggests that when one does present photographs of familiar places, the effect is to trigger the individual's concept or internal representation (S. Kaplan, 1973) of that place. Thus, the reaction is not to the presented stimulus per se but to a distillation of

experience and knowledge about the place depicted. A vivid illustration of this phenomenon is provided by Davis (1972) in his description of the different reaction to vacation photographs on the part of the individual who took them as opposed to the friends gathered to view them. Having had the experience of the place, which is then re-evoked by the picture, contrasts sharply with the experience of looking at the picture itself. Central to the cognitive map approach is the notion that people build in their heads internal models of their environment. The results of this study suggest that these internal models are effective not only in thought, but in perception as well. The experience of the familiar environment appears to have a profound internal component.

Since the pattern of results is largely unchanged across presentation modes, these additional samples attest to the stability of the findings. Given what is essentially a pair of replications of the basic study, there are grounds for somewhat greater confidence both in the role of familiarity and complexity in the prediction of preference and in the importance of considering content domains in experiencing patterns of preference.

CONCLUSIONS

It is probably premature to draw firm conclusions concerning the categories of visual experience in the city until data are available on other cities. On the other hand, it is already apparent that the basis for category definition will be neither form nor function alone. Thus, the Contemporary building dimension is based on form, while the Cultural dimension seems primarily functional. Other dimensions suggest various degrees of mix. The city, and people's experience of it, are neither simple nor unidimensional.

Complexity emerges here as a factor in what people prefer, but not a factor that can be viewed in isolation from other important influences. It also is not uniformly effective across all contents. Familiarity, a new variable in the study of the urban

visual environment, was on the whole as effective a predictor as complexity, although its variation as a function of content was substantially greater. Since the two predictors were not correlated overall, use of both considerably increases the amount of variance accounted for.

The role of familiarity may well be a source of comfort to supporters of the preservation movement. A related idea to that of familiarity is the concept of "affection" proposed by Acking and Sorte (1973). They consider it to involve "a feeling for the older and genuine." It may well be that these concepts are components of the sense of place, a difficult to pin down but vital component of the human environment.

Supporters of modern buildings, too, may take comfort in these findings. The preference for the Contemporary building dimension was strikingly high, sharing top preference with the Cultural and Campus dimensions, across all conditions. On the other hand, there is reason for viewing this apparent affirmation of modern buildings with some caution. The pattern of relationships between familiarity and preference within the various dimensions raises the possibility that the appreciation of these structures may not stand the test of time. Within the Contemporary buildings dimension there is a suggestion of a negative relationship between familiarity and preference; in other words, contemporary buildings seem to be preferred in proportion to their nonfamiliarity or novelty. This is a rather tenuous basis for preference over the long run. The two dimensions where older buildings are most heavily represented, Entertainment and Commercial, show the opposite pattern. Here familiarity is strongly and positively related to preference. Thus, there appears to be a meaningful interaction between familiarity and content. It would be most interesting to study what it is that makes certain designs gain in preference as they become familiar, while for others preference declines when the initial novelty begins to wear off.

There are several implications of the study for methodology, not only for preference, but for environmental cognition as well. There have been, for example, several studies of what is remembered in the urban environment. Appleyard (1969) has

studied the appearance factors that aid a building in "being known." Harrison and Howard (1972) have emphasized the role of meaning and location. Their findings are somewhat limited, however, by their open-ended verbal procedure for identifying why a respondent considered a particular feature to be "distinctive." The fact that people are inarticulate about certain visual/spatial components of the built environment does not preclude the possibility that such factors nonetheless play vital roles in an individual's "image of the city." At the same time, our finding that verbal labels may be a quite satisfactory substitute for visual material is noteworthy. Thus, when dealing with familiar environments, words appear to be considerably more appropriate as stimuli than as the responses the participants must supply.

In the final analysis, of course, this methodological point derives from a more basic theoretical issue that was underlined by the results of this study. The model of the environment people carry about in their heads is a great help in keeping from getting lost, but it serves a function far more general than that. The experience of the city—or any other familiar environment for that matter—is not direct, but is inevitably mediated. While a person may be hard put to describe his internal model, it can be evoked by a word, a picture, or, presumably, by the place itself. Further, the uniformity of reaction to these different ways of depicting a place suggests that the representation called up by the various methods is essentially the same, and that its impact on the individual's experience can be decisive.

NOTES

1. As the study entailed familiar urban places it was necessary to restrict the sample to subjects familiar with most of the scenes and to scenes familiar to most of the subjects. Thus, an additional 58 Ss included in the sessions were eliminated since each of them indicated a lack of familiarity with about a third of the scenes. Most of these Ss commuted from farther away than Grand Rapids and were not very familiar with the city. It is hard to justify any hard and fast cutoff point when eliminating data. The actual procedure we used to restrict the subject and stimulus samples was a complicated iterative process. The first step eliminated all scenes given a familiarity

rating of "1" ("not at all" familiar) on a five-point scale by half or more of the total sample and half or more of Ss in each presentation condition. Next, all Ss who rated half or more of the remaining scenes as "not at all" familiar were excluded. These two steps were repeated, alternately eliminating scenes and Ss, with a slightly lower cutoff criterion, namely .35. Finally, scenes rated "not at all" familiar by at least one-fifth of the Ss in each condition were deleted. In other words, the criterion for familiarity for scenes was somewhat more stringent than the criterion for Ss unfamiliar with some of the scenes. Any one scene plays a more important role in the interpretation of the results than does a single subject. While it may seem that one should use an even stricter criterion—perhaps 0% cutoff—this would have eliminated all scenes and subjects.

2. People can be powerfully distracting stimuli in scenes of this type. One scene consisted of an old, very tall office building in downtown Grand Rapids. At the edge of the parking lot in the foreground was an inadvertent speck, which turned out on examination to be a young woman in a miniskirt. A typical spontaneous reaction from male Ss was "Wow! Look at that chick in the miniskirt!" The scene loaded .51 on the Entertainment dimension and .37 on the Commercial dimension (see Results section). Clearly, the decision to exclude people from the scenes was a wise one.

3. The larger sample in the Slide condition was used in order to have a sufficient basis for dimensional analysis. This condition included 50 Ss, run as the last four groups, who were selected for their greater familiarity with the Grand Rapids area and were included only in the dimensional analyses.

4. It must be remembered that the three scenes comprising the Campus dimension were so familiar to the sample that these ratings had minimal variance. The correlation of familiarity and preference must thus be treated with some caution.

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