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Perceptions and Images of the Living Environment: Potential Applications to Planning

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PERCEPTIONS AND IMAGES OF THE LIVING ENVIRONMENT: POTENTIAL APPLICATION TO PLANNING

by

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CHAPTER I

PREFACE

The living environment, today, is confronted with many types of problems that are both physical and psychological in nature, and the perceptions and images of the occupants are a possible reflection of what is wrong. Therefore, there would seem to be a need to know what the people perceive in the environment, and how and why they perceive it. This paper, then, is intended to be a normative, investigative and suggestive inquiry into the possibility and need of eliciting perceptions and images of the environment from its users, providing planners with first hand information and an opportunity to permit citizen participation in the decision-making process. A great deal of emphasis will be given to reasons for eliciting perceptions and images, and these will be stressed several times throughout the paper.

Unfortunately, due to the controversy over methodologies, implications of elicited responses, and practical application of elicited information, no concrete solutions will or can be forthcoming. The best that can be accomplished is to state the problem and the need to know, discuss the three most frequently applied methodologies, with empirical research examples to support each, describe a study currently being conducted, and conclude with a purely suggestive summary. It may appear that a great deal of what is said is repetitive, but this has been consciously noted in order to positively stress the tremendous need and

potential, as well as implications, that the information of the mind holds in store for planners and designers of the living environment.

CHAPTER II

INTRODUCTION

Traditionally, those individuals who have been charged with the responsibility of molding and shaping the living environment, have done so based on their own attitudes, beliefs, and values of what they perceive to be the needs, desires, and preferences of the people. Their actions have been guided by conventional wisdom which is the belief that they understand the environment better than the people, and therefore are more knowledgeable about needs than anyone else.[1] For this reason, planners have rarely felt the need nor considered the necessity of consulting thoroughly with the people during any phase of the planning process.

Planners and designers, with their personal vision of a better world so different from present reality, have too often concluded that people's desires are apparently misguided and that their level of aspiration is too low.[2] In order to raise aspiration levels and to make people aware of real needs, planners have simply bypassed any citizen input, creating environments that they, themselves, consider ideal and highly motivating; environments they believe will be consciously accepted by the people, inspiring them to higher levels of satisfaction. The belief exists that people possess an uncanny ability to adapt to new situations, and planners have adopted this philosophy when developing plans for the living environment. In effect what has really happened is that planners

have created a mismatch between man and his environment. The problem with traditional planning beliefs is that planners plan for people instead of with them.

Recently the public has begun to react negatively to many planned environments, voicing its disapproval with traditional planning ethos. Planners have been criticized for their lack of understanding and insensitivity to the real needs and desires of the people, as perceived by them, not planners. Today many people have begun to voice their desire to actively participate in and have control over their environment rather than merely adapt passively to it.[3] They seem to be dissatisfied with the environments that have been planned for them, a dissatisfaction that can be heard around the world in almost every urban area. The problem that arises, however, is to find the means by which people can participate, one that will permit the identification and incorporation of the actual needs, desires, and preferences of the people into future planning designs.

During the last decade a body of literature has evolved, with influences from psychology, sociology, geography, planning, and architecture, that has sought to develop methodologies and techniques for eliciting perceptions and images from people on a number of scales, covering a host of investigative interests. Though each discipline has its own special biases and therefore a preference for a particular methodology, each has discovered that through the study of perceptions and images, an abundance of information can be obtained about such things as human behavior, friendship formation, activity patterns, likes and dislikes, preferences, all of which can be utilized by planners in order to learn more about man and his environment.

The literature has indicated that just as planners have perception of how things are and should be, based upon their values and attitudes, so, too, do people have perceptions of their living environment. They have also indicated that perceptions of planners and users differ considerably. Through the elicitation of perceptions and images, then, planners should be able to discover the numerous differences that exist, thereby acquiring a more empathetic understanding of urban life as perceived by the users of the environment.[4] Hopefully, the mismatch of man and his environment can then be corrected or at least approximate a closer fit.

Planners have an obligation, if not a duty, to learn as much about man's behavior within his environment as possible. Too often planners have judged the living environment only on the basis of physical characteristics. Their ability to evaluate its other dimensions is limited by their training and what they can observe on a visit to the area, while residents tend to consider social factors such as neighborliness in addition to the physical environment.[5] Planners tend to have a very narrow, one way perspective of the living environment, failing to recognize that people are affected in many ways by their surroundings. Studies of the perceptions and images of the living environment should be able to help them identify significant elements, seeing them as the people do, in terms of their operational roles--how various elements affect people in accomplishing tasks or goals; inferential aspects--generalizations people have of the environment which enable them to encounter new environments; and responsiveness--those elements which are immediately imageable, be they visual or non-visual such as smells and noises.[6]

The intent of the research is to create an awareness in planners and designers that will stimulate their curiosity and sense of purpose as they attempt to formulate plans for the creation of better living environments. They invite planners to be inquisitive about man and his environment, to approach planning from the users perspective, incorporating their perceptions and images into the design process. They suggest specific areas of interest within the living environment that should be investigated and why. Specifically the studies indicate that man's perception of the living environment is influenced by a diversity of factors which in turn affect how he will react to and behave in his environment, and that in order to properly design the living environment, the consequences of these influencing factors must and should be considered. To consider these will enable planners to perceive more accurately the actual needs of the people for whom they are planning. As Benton Mac Kaye has suggested:

> Planners must clearly establish a set of goals based on human needs which could then be used as guidelines for planning decisions. Studies of how people perceive their environment may help provide the information necessary to establish such a set of goals.[7]

CHAPTER III

PERCEPTIONS, IMAGES, AND COGNITIVE MAPS

Research, especially in the field of psychology, has revealed that people form mental images in their minds based on living experiences, and that these images either persist or change with time. That is, from childhood to adulthood images are formulated about places, objects, people, etc., and some of these will remain constant while others will change rapidly based on experience.[8] Perceptual studies have brought attention to the fact that no two people have identical images, as a result of experience, but many people do share certain images and perceptions about particular objects or environments which provides a measure of meaning.[9] In other words, images will vary from person to person according to content, value, and strength.[10] All images possess content and the content of each and every image differs from the content of others in terms of its fundamental elements: quantity and quality. Qualitative distinctions impart a sense of value to an object and the perceived value provides us with a motivation for behavior.[11] The strength of images may be correlated positively with the amount of knowledge possessed. Thus, the more familiar we are with a place, the stronger the image we possess of that place.[12] The image a person holds of a particular urban area is shaped by the learning experience he has gained in relation to that area. This means that people respond to areas in terms of their experience with it. Thus images will vary from person to person.[13]

One's perceptions and images of a particular area, object, or other environmental element, may have behavioral consequences, in that how one perceives of something will determine how he or she reacts to it. The problem with the planning profession today, however, is that planners very seldom think in terms of the specific behavioral outcomes of their work. Rather, they tend to make assumptions about expected user behavior which, though consciously made, are typically based upon stereotypes, partial knowledge, or inappropriate applications of past experiences. Attempts by the planning profession to survey needs, preferences, and life styles of intended users are often cursory, unsystematic, and based upon inadequate understanding of the evaluative capacities of respondents.[14] In other words, planners have failed to properly and thoroughly consult with those for whom they are planning, resulting in the creation of plans which in no way reflect the true needs and desires of the people. Their concern has been with planning a physical environment which has meaning to them, but which in reality may have negative effects on the public. Planners have failed to realize that the immediate physical environment influences psychological states and overt behavior.[15]

Perceptions and images are manifested in the term cognitive or mental map, the map of the mind, which is a composite of all the information the environment has to offer. Each of us has his own special way of viewing the environment, selecting and remembering those elements which in some way have an influencing effect, thus obtaining and retaining perceptions and images that enable free, unhampered movement within the living environment.

Cognitive maps are the process by which spatial information is acquired, coded, stored, decoded, and applied to the comprehension of the everyday physical environment.[16] The cognitive map is a construct that has been proposed to explain how individuals know their environment. It assumes that people store information about their environment in a simplified form and in relation to other information they already have. It further assumes that this information is coded in a structure which people carry around in their heads, and that this structure corresponds, at least to a reasonable degree, to the environment it represents. It is a product of experience.[17] Since people's perceptions and images may vary considerably because they are products of experience, cognitive maps, it is believed, can reveal the areas of greatest experience with detailed information.[18] Eliciting the information available in cognitive maps can also reveal something about how people use their environment as well as what it means to them symbolically.[19] That is, in addition to illuminating what is perceived, and how it is perceived, one's perceptions and images can also, depending on how they are elicited, reveal why, which will add the dimension of meaning to the perceived and imageable elements of the environment.

Cognitive or mental maps include four domains of knowledge--recognition, prediction, evaluation, and action--each of which enable a person to structure his uncertain environment and make it livable.[20] By eliciting the images and perceptions that make up the mental or cognitive map, planners can filter out those elements of the urban environment that stand out and are recognized by most people to be desirable or undesirable features of the urban scene. This will enable planners to perceive of the living environment from a similar perspective. Cognitive map studies may then be used in the design process as a basis for the

reconsideration of urban aesthetics, and as a means of analyzing the underlying dynamics of human behavior.[21]

Perceptions and images, or cognitive or mental maps are capable of revealing a great deal of potential environmental information. Planners can no longer ignore the fact that within the mind there lies the potential knowledge for the creation of better living environments. The research methodologies so far developed are the key to the door of the mind, and to date seem capable of filtering out and distinguishing perceptual and imagery differences based on such factors as sex, age, culture, race and socio-economic characteristics; which in turn can provide insight into spatial relations, friendship formations, urban design, behavior, activity patterns, preferences and a wide range of other environmental phenomena.

Perceptions and images reveal hidden meanings that people have of their surroundings, meanings that normally would remain a secret if not tapped by some type of systematic research. For instance, perception and images can tell much about the legibility of the living environment, that is, how clearly recognizable the environment is to the users. However, as no two people hold the same perceptions and images, there is a tremendous amount of diversity, and yet there is also commonality. The commonality is represented in three dimensions of images: identity (must be recognizable from other elements of the environment); structure (must relate spatially to the observer and other elements of the environment); and meaning.[22] Through the application of specific methodologies the image commonality can be determined, revealing overall attitudes, preferences, and desires that will enable planners to understand how the majority of people feel about their living environment and its elements.

The value of this lies first in discovering regularities and consistencies in behavior, and second in sensitizing planners to individual and group differences.[23]

The maps of the mind have been shown to be a useful technique or method for securing information about the variable quality of life in urban residential areas.[24] This quality or lack of it in turn can provide planners with the essential tools of knowledge for better planning decisions that will be based on citizen input and participation. Since the goal is for more citizen participation so that the living environment will more accurately reflect their needs, one can understand that perhaps the most important basis of planning decisions lays in the perception and images of the direct users.[25]

CHAPTER IV

RESEARCH METHODOLOGIES

The basic problem that presents itself in studying perceptions and images is that of measurement, since people often have difficulty articulating their conscious or unconscious feelings, attitudes, or ideas associated with perception.[26] Research efforts, to be useful to planners, should be designed in such a manner as to be able to elicit not only the perceptions and images of the mind, but also needs, desires, and preferences based on the meanings people attach to their perceptions and images. A review of the literature indicates that most studies conducted with these goals in mind fall within one of the following methodological categories: preference ranking studies; verbal-based studies; or map-based studies.[27]

Preference ranking studies also include the dimension of familiarity. This methodology involves giving respondents a map with various locations identified, or a list of particular environmental attributes. Respondents are then asked to rank these in order of preference, importance, or familiarity depending on the desired goal of the study. This allows researchers to determine what areas, qualities, attributes, or other particulars are considered more desirable or essential, and therefore what characteristics should be included in an ideal, satisfying living environment.

The most often used verbal methodology is semantic differential. This technique involves giving respondents a list of particular

environmental qualities or attributes as major descriptive categories. Under each category appears a list of descriptive adjectives, such as good or bad, pleasant or unpleasant, from which respondents are asked to select the adjective most nearly describing their true failings. Through the application of the semantic differential method, feelings not otherwise revealed can be elicited, group images can be obtained, and likes and dislikes can be identified.

The map-based methodology is an attempt to graphically represent the composite picture of each man's perceptions and images. It requires respondents to draw a sketch map of a particular environmental setting being as detailed as possible in portraying the components within the setting. A variation of this method involves giving the respondents a base map with certain features already delineated, which enables them to draw more accurate maps, as they do not have to draw upon their memory and recall for structure. Through the application of either of these techniques researchers can learn about the legibility of an area, how people spatially and sequentially structure an area, and what elements are commonly perceived. In most cases this methodology is used in conjunction with surveys or interviews in order to add meaning to the graphic representation.

When planners undertake the task of planning within or for an urban area, including the overall physical design and elements, they attempt to design the environmental setting in such a manner as to be pleasant to the eye, compatible with the physical surroundings, and capable of providing for the satisfaction of the needs of those who will inhabit the area. How the living environment will be designed, however, is often only considered from the perspective of the planners, a

representation of what they feel is the ideal living environmental setting. As a result, cities, towns, and neighborhoods are developed in such a way as to be recognizable from 30,000 feet.[28] The design very seldom matches how the people will eventually see it, essentially lacking a human understanding. The design may seem ideal but in reality it is not capable of providing satisfaction to its users. To understand how people feel about, react to, behave in, and view their living environment are the primary objectives of these three methodologies.

Now that the problem has been stated, the methodologies defined, and the objectives clarified, it is time to determine whether or not each methodology is capable of eliciting pertinent information. The discussion to follow will present empirical studies for each methodology that will give some idea of the types of information that can be made known, and that will indicate some of the strengths and weaknesses of each. Through this discussion it will be possible to realize and appreciate the potential ramifications, implications, and applications that perceptual and imagery studies hold in store for planners.

Over the years geographers have been quite curious about man's behavior within the environment, specifically his reasons for choosing areas in which to live, to socialize, to shop, etc. Borrowing from psychology, geographers have realized that man's behavior within his environment is influenced by many factors, which in turn are reflected in the map of the mind. Man draws upon this stored information based on experience in order to make decisions about his present relationship with his environment. To measure the mental map or image, geographers have traditionally utilized the familiarity and preference ranking methodology in order to determine the types of settings that become

familiar and to understand why one setting may be more preferable to another. Questions asked are designed to determine space preferences from which they attempt to explain the ways in which mental maps are related to the characteristics of the real world.[29] The geographer's main interest in using this method is to determine the way that perceived differences between various parts of the earth's surface affect movements of many different kinds.[30]

Peter Gould has conducted several preference studies utilizing college students in the United States, English students, and students in Tanzania. In each, he attempted to determine people's place preferences, specifically for residential desirability. Students were asked to list in order of preference the places they perceived to be the most desirable in which to live. It was assumed that each person's mental map or image would be unique because of information acquired through experience, a variety of news media, culture, and other informational sources. However, it was also assumed that in some way all the mental images would mesh in varying degrees. From the data collected, then, it was possible to create isoline maps to represent the relative desirability of various areas to the students.[31] The maps indicated that students did share similar attitudes about places to live, for one reason or another, and the most desirable and least desirable areas could be determined.

The Tanzanian study is of particular interest because in addition to preference ranking, students were asked to assign income levels they felt would allow a reasonably satisfying life, and then they were asked, using a semantic differentiation method, to evaluate each district.[32] It was found that students not only held similar views about

desirability, but also about income needs, and evaluations of particular aspects of each area. The study in Tanzania produced a more in-depth look at desirability, indicating reasons which, if reviewed by planning authorities, could result in suggestions for overcoming the deficiencies of the undesirable areas.

Frank Horton and David Reynolds also employed the familiarity preference ranking methodology, but for different reasons and on a different scale. Their intent was to study the variations in action spaces of urban residents in Cedar Rapids, Iowa. Action space was defined as "the collection of all urban locations about which the individual has information and the subjective utility or preference he associates with these locations."[33] An individual's action space is the manifestation of his activity demands predicated upon his perception and cognition of urban locations which can potentially satisfy his demands.[34]

The methodology was employed in two areas of Cedar Rapids, a recently developed middle class suburban community located on the urban fringe, and an old, low income central-city area.[35] Respondents were asked to indicate on a five-point scale their familiarity with each of twenty-seven delimited areas on a map and for each area with which they were familiar to some degree, they were asked to express their perception of its residential quality, again on a five-point scale, this time of goodness from very poor to very good.[36] The study found that the action space of individuals is dependent on the location of the neighborhood and the location of their former residences.[37] Familiarity with urban areas is linked to the individual's activity patterns, which focus on their homes.[38] It also found that the lower income groups had a more favorable reaction to residential quality.[39]

The importance of the results of this study for planners, according to the researchers, is that to understand the long-range spatial restructuring of the city they must be aware of action-space formation. It is not enough to know the objective spatial structure.[40] In addition this type of study reveals to planners that the environment is not perceived or known in the same manner by everyone. A great deal of perceptual diversity exists which is the result of many factors, thus people in one section of the living environment do not share the same perceptions and images as people in another section. The indication is that planners must understand the differences in order to plan appropriately.

Henry Sanoff and Mar Sawhney conducted a study concerned with identifying and understanding the dwelling and neighborhood dimensions with which families in predominantly low-income sections of a town feel satisfied or dissatisfied and the dimensions they consider important in their dwellings and neighborhoods. According to them, this objective would ultimately provide design criteria to be employed for a diverse population by establishing relationships between people's attitudes toward and evaluations of the environment and demographic and socio-psychological factors.[41]

Respondents were asked to rate a list of 20 neighborhood attributes and 17 dwelling attributes. The objective of the ratings was to indicate satisfaction or dissatisfaction for present dwellings and neighborhoods and the number of people considering the attributes important for ideal settings. Thus, the researchers were able to list the attributes in rank order, comparing ideal and present neighborhood and dwelling responses.

The authors suggested and utilized two types of familiarity and preference ranking techniques that, though somewhat time consuming, could easily be administered: 1) use of paired comparison using photographs, allowing the children to make a choice; and 2) a rank order method which required the children to pick the most desirable of several alternatives rather than of only two as in paired comparison.[46] The study revealed that children are capable of being tested by either of these methods. The researchers also administered the same methodologies to 50 adults in the design profession. The results of the two studies proved that adults and planners are indeed insensitive to children's preferences. In addition, the study also revealed considerable differences between and among children based on sex differences.

The importance of these techniques to planners is that they provide the means of identifying and closing the communication gap between adults and children.[47] Through this mode of research planners can learn what children prefer, can consider design based on age and sex differences, and can design play environments that are better equipped to stimulate, challenge, and satisfy the needs of children.

These studies have shown that familiarity and preference ranking is both an applicable and easily administered methodology that can elicit pertinent information for planners about the general images held by people, preferences for particular environmental settings and attributes, and the characteristics of urban knowledge resulting from their interaction with the living environment. However, the methodology is subject to some criticism concerning its reliability when dealing with a large number of variables requiring ranking, the criticism being directed to the validity of the assigned ranks given to the middle

categories. In other words, in ranking 60 areas or attributes one can assume, let us say, that those in the top ten to 20 and those in the lower ten to 20 can be ranked accurately, but the validity of the middle range rankings is questionable. The research studies reported above made allowances for such noise, as respondents shared similar views for the upper and lower categories, thus allowing for a mental picture to be formed.

The research seems to indicate that this methodology is perhaps most effectively employed for particular environmental settings or to provide information of people's impressions of different land areas, and with a smaller respondent base. Familiarity and preference ranking can reveal what types of settings people prefer and the extent of their environmental knowledge based on familiarity, but, it does not answer the question "why?". That is, it does not reveal the reasons or meanings of why particular elements of the environment influence people's lives, which affect their behavioral patterns within the living environment. In addition, one must be careful to realize that preference studies are more likely to reflect information patterns in the environment than cognition of it.[48]

From a ranking mental image elicitation concept I turn now to a method which involves a rating scheme of environmental qualities and attributes, semantic differential. This method seeks to identify, through the use of polar terms, the mental image feelings or attitudes that people have about a particular environmental setting. In several instances this methodology has been employed in conjunction with familiarity and preference ranking, as in Peter Gould's study in Tanzania. People have preferences for certain land areas, shopping facilities, housing, or whatever

used to describe the city, requesting people to rate what they saw while walking through particular areas. The ratings were then compared to those of people who did not experience the walk through. An interesting find was noted as the two groups tended to contrast. The analysis indicated that the mental structure based on semantic responses differed from that based on observation and experience.[51]

In the study conducted by Downs and Stea I concluded, as they did, that the semantic differential method can indeed elicit responses from the mental image which otherwise may not have been revealed, and that planners utilizing this method can learn about the strengths and weaknesses of particular environmental settings and the reasons why. However, the study by Lowenthal and Riel seems to cast some doubt about the reliability of semantic responses, that in some way they do not accurately reflect reality. The fact is that while language at times reinforces environmental experience, at other times the two are opposed. The differences help to show how and explain why the way we think we see the world is in many respects not the way we actually do see it.[52] In other words, what we think we like or would like (or dislike) about certain kinds of environments is often not what we do like (or dislike) when we actually experience them.[53]

Semantic studies of this variety, showing divergencies between observations and experiences, can be illuminating for design and planning. For example, the traditional observational assumptions that old areas are drab and should be renovated, may in fact contradict actual experience which may indicate that they are viewed as pleasant and beautiful.[54] Planners should, therefore, be aware of both the value and shortcomings of this methodology, realizing that while much information can be made

known, semantic responses alone may actually be misleading, reversed from reality. Semantic responses explicate only a fraction of all that individuals perceive and what they do in the environment, and semantic associations tend to bias responses in ways that differ from one culture to another, and, indeed, from class to class and person to person.[55] For these reasons, planners should realize that to most effectively utilize this method, it should be used in conjunction with other methods, such as the map-based methodology.

Preference ranking and semantic are capable of revealing a great deal of information that might otherwise remain unknown about man's mental image of his environment. However, each falls somewhat short of realizing and eliciting the full potential of information within the mind. Problems with sources of information, semantic differences, and people's ability to conceptualize, restrict and hinder these two methodologies in determining how man's behavior is affected by the environment, and in learning about the full meaning of environmental settings. To understand more fully how man reacts to and behaves in his environment, the meanings he attaches to particular elements, and the influence these elements have on his perceptions and images, researchers (beginning with Kevin Lynch) have employed map-based studies in conjunction with surveys and interviews. This allows for elicitation of both spatial and sequential information. Since Lynch conducted the seminal study in this area, I shall discuss his work in somewhat more detail.

Kevin Lynch's study employed what is termed a user-evaluation approach.[56] In effect this also is a map-based study. Together he and his colleagues conducted a field survey of three major cities, mapping what they considered the most visible and easily imaged elements and also

a number of salient features. They then interviewed a number of residents in order to determine the characteristics of the public image of the city. Each respondent was also asked to draw a map of the city, listing distinctive features and providing detailed descriptions of trips through the city. Lynch's belief was that even though each individual would have his or her own distinct image, a public image would appear once all the data was collected and analyzed. His efforts led him to discover that cities possess five basic elements which make up to public image-paths, edges, districts, nodes, and landmarks. By putting them all together, he was able to produce maps of the city that closely corresponded to the mapping done earlier by him and his colleagues.[57]

Lynch's major concern focused on the visual quality of the American city. He was concerned with the apparent legibility or clarity of the cityscape, or the ease with which its parts could be organized into a coherent whole.[58] Through this type of research he learned what people think their environment looks like in terms of images that have become significant to them over a period of time.[59] It becomes apparent that the character of a city or other urban form is to a large degree its memorability manifested in the images it impresses on our minds.[60] Through this study Lynch learned that there is confusion in the image of the city but by structuring the area concentrating on the five basic elements, cities and other urban areas can be planned to provide more legibility, thus creating more order in the city and in the cognitive images of the mind.

The important feature about Lynch's study, which has also been adopted by other researchers, with some modifications, was the use of a graphic representation of the cognitive map through manual map construction.[61] The advantage of this method is that it can elicit responses

that might be difficult to obtain by other means. It is a projective technique that allows for and demands a maximum of structuring by the subject.[62] Between the interview and the map, one can elicit sufficient information about held perceptions and images which will result in a better understanding of how people view their living environment.

From the planning perspective the importance of Lynch's study is that he recognized that actual design form should be used to reinforce meaning and not to negate it.[63] Specifically, Lynch's study showed that studies of perceptions and images can assist those who are engaged in city planning and design. He proved that by systematically studying perceptions and images, it is possible to see which parts of the city appear clear, orderly, or memorable, and how the parts fit together as a whole. Where the image is unclear, it seems likely that problems of disorientation will arise. These can be corrected by better design of paths, edges, nodes, districts, and landmarks that make up the city. It is assumed that a city with a clear, coherent image is one that is a pleasure to live in.[64] Lynch realized, however, that extreme legibility could lead to boredom, therefore, planners should be concerned with creating a variety of urban form that would provide for alternative choices, frequent minor changes, and an element of surprise.[65]

Lynch's seminal study of perceptions and images using the map-based methodology has been criticized as to its reliability because of the small number of people interviewed. However, Lynch's methodology has been recognized by others for the valuable information it is capable of eliciting, and has since been used at several scales, in a variety of spatial contests, and in relation to a number of different problems.[66]

Derk De Jonge, for instance, applied Lynch's methodology in three cities in Holland, in an attempt to determine the reliability of the methodology, if it could be used on a wider variety of urban areas and informants if the formation and nature of city images could be confirmed by such studies, and if any further relations could be established between "urban form" and "city image."[67]

His study was conducted in two phases; the first involved interviews with 20 staff members of the Department of Architecture in Delft, and the second phase involved interviews with wives of skilled workers and white collar employees. Maps were compared for laymen and professionals in order to discover the images of the two groups. He added some variation for the comparison of maps since he approached his study from the perspective of a social scientist, but his results proved that on the whole the methods and techniques developed by Lynch were found to be useful instruments for the investigation of people's images of urban areas.[68] Essentially he found that Lynch's map-based methodology can be used for larger samples of people and that it has unlimited application possibilities.

Brian Goodey also recognized the possibilities of map-based studies, especially the assistance they can give to planners in learning about design. He asked the people of Birmingham, England to help in a study investigating their perception of the city center by drawing maps conveying the major impression they had of the area. No interviews were conducted as he was not interested in investigating behavior patterns or meanings. The response was overwhelming as people seemed to like the idea of helping planners and being involved in some small way with the planning process.[69] By combining the responses the planners

were able to build up a weighted mental image that seemed to emphasize a marked preference for things at a human scale.[70] This study provided planners with the means of thinking through the future appearance of the city.

In Cuidad Guayana, Venezuela, Donald Appleyard embarked on a study that marked the first time such a survey was conducted on a large scale as part of the design of a new city.[71] It clearly showed that there was indeed a gap between the perceptions of the planners and the people. Two separate studies, "Why Buildings Are Known" and "Styles and Methods of Structuring A City" have been reported. The latter study, using Lynch's techniques, showed that people from different backgrounds and different parts of the city structure the city and its elements in different ways, ways that reflect their particular behavior patterns and life styles. The maps they produced pictured spatial relationships which were very difficult to verbalize.[72] His first study, "Why Buildings Are Known," is of particular interest however because it represents another dimension in the realm of possibilities for map-based studies. Lynch attempted to determine what kinds of elements were known, while Appleyard wanted to determine the reasons why these elements were known.[73]

Appleyard assumed that a person would include a building or a place for some combination of four reasons: 1) the distinctiveness of its physical form; 2) its visibility to him as he travels around the city; 3) its role as a setting for personal activities, use and other behavior; and 4) the inferences he makes about its cultural significance to the population at large.[74] Responses were gathered by both verbal and graphic means. Through this study, Appleyard was able to provide precise statements on the relative significance of each of the attributes in terms of

building recall.[75] In other words, he was able to determine why buildings are known in terms of visibility, significance, movement, contour, size, shape, and use. By using maps and verbal responses he was able to elicit two different interpretations which created more accuracy for the study. For planners Appleyard showed that by coordinating urban form, visibility, and action with community significance, a more meaningful city could be created.[76]

The sociologist, Peter Orleans, conducted a city-wide study of this type in Los Angeles, in order to determine from a sociological point of view, how various classes of people perceived of the city and what they perceived. His respondents consisted of a white, upper-class, black residents in Avalon near Watts, and a small Spanish speaking minority.[77] Assembling the information obtained through interviews and maps, he made a composite map of Los Angeles. Planners should be aware how various cultures and groups of people are influenced by the city, and this particular study relates some grim findings. From one group to the next, beginning with the whites, the knowledge of the city became limited in scope. The picture tells of limited life styles and behavior patterns, a result of low income and low education, and of people that the city has enveloped, restricting their movement and limiting their visibility. This type of information is important, and since it can be elicited through map-based interview studies, planners should seek to learn about these situations in order to understand them and to find solutions for them.

So far the discussion of map-based studies has indicated the potential information available on a city-wide basis, but one wonders if similar studies can be conducted on a smaller scale, specifically on

the neighborhood level. The noted British psychologist, T. R. Lee, applied this methodology in several neighborhoods in Cambridge, England. The neighborhood concept is the basis of much of what goes on in city planning, but many believe that the concept is not well recognized by the residents.

To identify whether or not people are aware of neighborhoods, Lee interviewed housewives from various districts throughout Cambridge, asking each to draw a map of their neighborhood, to locate friends, kin and acquaintances, to detail their travel habits, to express their attitudes toward their locality, and to provide the usual background factors of age, occupation, length of residence, etc. [78] From the information elicited Lee found that there actually exists three levels of neighborhoods: the Social Acquaintance Neighborhood; the Homogeneous Neighborhood; and the Unit Neighborhood.[79] In addition, he found that (unlike planners) people do not think of their neighborhoods in terms of the number of people, but only as a comfortable and familiar space around them.[80] Lee also found that three forms of behavior are associated with more spatially extensive neighborhoods. These were the number of friends a subject had locally, the number of clubs and organizations to which she belonged, and her tendency to use local shops rather than town center or non-local ones.[81] According to Lee, behavior which might be loosely grouped under the heading of "local involvement" or "community participation," is related to the pattern of the physical environment.[82]

The importance of this type of study for planners is the awareness that neighborhood planning should take place on at least two levels. The unit neighborhood confirms the validity of the neighborhood unit as a means of planning the location of public amenities and facilities. However, the neighborhood unit concept seems to be less valid as a framework

for social interaction. Therefore, planning at the small neighborhood level should be more concerned with the effect of physical environment on social interaction and the provision of low-order amenities such as corner stores and tot lots.[83] In other words, planning should be directed toward heterogeneous physical and social layouts deliberately emphasizing the local satisfaction of needs.[84]

Studies of this type can easily be carried out by planners in sub-sections or neighborhoods in towns and cities everywhere, enabling planners to see the living environment in a cross sectional manner, consisting of diversity of life styles, cultures, needs, desires, and preferences. The living environment can then be seen as composed of many diverse parts fitting together to make one city, with each part having its own distinct characteristics that make it unique and, therefore, worth investigating.

Throughout the paper several references have been made that one's perception of the living environment in some way influences his behavior in it. One's attitude towards such things as shopping faciltiies, residential areas, or urban design apparently determines how he will react to and perceive of those elements. People's information about the environment may vary considerably, and the mental images they build up may reflect not only their surroundings but many other aspects of themselves and their lives.[85] It was suggested earlier that map-based studies supported by interviews can possibly add support to the motion that one's behavior is directly related to his perceptions. The maps can provide insight of spatial organizations while the verbal responses can explain why the elements of the map are arranged in a particular manner. A study conducted by Florence Ladd can shed some light on this suggestion.

Florence Ladd conducted a map-based interview study in the Mission-Hill area of Boston, asking a number of black children to draw a map of their neighborhood area, and then she tape recorded her conversations with them. Her initial study, "Black Youths View Their Environment," was strictly concerned with the maps, how the neighborhood was drawn. This in itself reveals a considerable amount of information especially about how the neighborhood structure is perceived and what elements are most identifiable, but the maps alone tell nothing about meaning and social significance. Her follow-up study, "The World Across the Street," which reported on the taped interviews, brought the maps to life, giving meaning to what was drawn. For instance, within the Mission-Hill area is a housing project inhabited mostly by white families. On one of the maps this area was drawn in but left blank of any detail. The tape recorded conversation indicated that the child was physically afraid of that area and had never ventured in it.[86] By combining maps with interviews Ladd was able to elicit the mental image of the neighborhood and was able to determine that one's image of an area has a definite influence on his behavior pattern.

The significance of this type of study for planners should be obvious because it can be conducted with both adults and children, and its results can make known the features of the living environment that contribute to the social and psychological value of the residents.[87] Planners need to know as much as possible about man's interaction with his environment, especially how he behaves in it. By conducting studies that elicit both graphic and verbal representations of mental maps, planners can learn not only what and how people perceive of the environment, but also why.

Map-based studies add another dimension to the study of mental maps, a dimension that permits a graphic view of the map of the mind. This methodology can reveal a great deal about how people organize and structure their surroundings enabling them to move freely about, and it enables planners to see how orderly and well designed the environment really is. Through graphic representations the spatial organization of the living environment can be evaluated, and activity patterns of the users can be determined by the accuracy or inaccuracy of the depicted environment. By conducting verbal interviews along with map drawings the dimension of meaning can be added to the information elicited, which will add to the understanding of why certain areas are better known than others, why people prefer certain environments over others, and why people behave and react to the living environment in particular ways. From such information planners should be able to perceive of the environment in the same manner, enabling them to plan future environments reflecting more closely the life styles of the people.

Even though map-based studies seem to offer much in the way of information, they, too, suffer from certain weaknesses that result in criticism concerning their reliability and validity. Images that are drawn may rely as heavily on the respondents ability to draw and on his ability to recall, as on his cognition of the area.[88] This partially explains why many people refuse to draw maps or are very sketchy with the maps they do draw. In addition, cognitive maps of different people presumably represent different things in different patterns of association.[89] This means that in relating cognitive maps, people tend to relate those features which have meaning to them, that is, those elements which have an influence on their behavior. Thus many prominent features may be

omitted because they lack meaning to the individual. Because of the differences, one must be careful in analyzing maps because of possible distortions. Individual differences among cognitive maps emerge primarily from subtle variations in spatial activity patterns, variations which can have striking effects on such maps.[90]

The preceeding discussion of the three major methodologies for eliciting perceptions and images, or mental maps, was not intended to be all inclusive. There are several other methodologies that have been developed such as the Repertory Grid as part of the Personal Construct Theory, game techniques, and observational techniques to name just a few. These have not been included for examination because they have more applicability to psychological and sociological inquiries and are not easily applied by others. The purpose of this paper is to make known the methodologies that can be administered by people in the planning professions, that can reveal information pertinent to their needs. Other methodologies are capable of discovering a great deal about man's interaction with his environment and should therefore be considered by planners, but they require time and training not available to most planning professionals.

Also eliminated from the discussion are the different statistical measuring techniques designed for the analysis of the elicited information. Analysis depends on what is measured, why it is to be measured, and how it should be measured in order to translate the material into an understandable format. Each of the studies that were discussed varied in one way or another as to how the elicited information was translated, and to have done justice to each was both beyond the purpose and scope of this paper, and my comprehension of the analysis techniques. Suffice

it to say that if planners choose to apply any one of these methodologies in order to learn about man and a particular environmental setting, the statistical analysis information is readily available to them.

One final area in which I have limited the discussion is in the example studies of the methodologies in practice. Since many of the studies conducted to date tend to overlap as far as what was studied and how it was studied, I have attempted to select from the many a few that reflect the broad and varied information potential of each methodology. In doing so I have been able to indicate some of the strengths and weaknesses of each methodology, when it is most appropriate to use a particular methodology, and the potential types of information that can be elicited through each of the methodologies. The importance of all of this for those in the planning profession is that the perceptions and images of the mind or the mental or cognitive map are a source of informational wealth, and by applying any one or a combination of these methodologies a picture of man and his environment, his behavior in it and reaction to it, can be translated and replicated into the planning formulation and decision-making process. To proceed in this manner will enable planners to allow for citizen participation and input, which may lead to a closer designed fit of man and his living environment.

CHAPTER V

A METHODOLOGY IN PRACTICE

The purpose of the research currently being conducted is to examine the cognitive image of the neighborhood or village concept upon which most new towns and communities are being designed and built. The subjects were the residents of Washington New Town, Great Britain, selected at random during a census survey representing approximately 10 percent of the population of each village. The total number of respondents was approximately 1,400.

Washington New Town consists of 16 separate, quite distinct villages. Some of the villages are very well defined in terms of external boundaries, while others do not have finely drawn dividing lines. The residents were not consulted during any stage of the planning process, but the planner felt that they have created easily identifiable, highly planned and designed, self-contained villages. Regardless of boundaries, the planners feel that each village is distinct enough for residents to clearly distinguish one village from another. The research is intended to discover if the residents share the same feelings of the planners, to determine just how strongly the residents do identify with the village concept, and to determine whether or not the village concept can satisfy social, psychological, and physical needs.

To elicit the perceptions and images of the residents the map-based methodology has been employed along with an interview questionnaire.

For purposes of map analyses the Lynchian technique of paths, edges, districts, nodes, and landmarks has been adopted in order to determine the legibility and clarity of each village. In addition, a map classification scheme has been developed, classifying maps according to part versus whole, bits and pieces overlapping villages, types of districts drawn, and non-usable in order to determine how well villages are conceptualized, how residents structure their villages and what aspects seem to be the most identifiable. The analysis of the maps will allow for composite maps to be drawn reflecting the overall vision of village respondents. After this each section of each village can be color coded indicating imagery strengths and weaknesses. This will provide an indication as to whether or not the village concept is as easily identifiable as the planners have imagined it to be.

So far for the most part, the people do seem to identify with the village concept which substantiates the planners' imageability claims. However, some confusion does exist in the identification of external boundaries, as many respondents include parts of surrounding villages in their drawings. In addition, very few respondents have detailed knowledge about the interior design of their villages. Most depict only portions of their village, usually the home area and village center, which may indicate the extent of their activity patterns within the village.

The interview portion of the research is intended to determine village satisfaction, neighborliness or friendliness, village preferences, and how well each village has been designed to satisfactorily meet the needs of the people. Both rating and ranking techniques have been utilized in order to give the respondents a choice, thereby eliciting

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more fairly true and accurate responses, and to allow for statistical comparisons. Once these responses have been statistically analyzed, comparisons can be made between the graphic representations and the verbal responses, which will result in a more valid picture of each village. This will help to determine whether or not the planners have been successful with their village designs, and whether or not respondents feel satisfied and secure with their respective villages, and if not, for what reasons. The fact that one's friends live in other villages or that one must go to other villages for shopping, social activities, or other conveniences would be an indication that one's own village does not satisfactorily fulfill his social, psychological, or physical needs. So far one of the ranking questions, that which attempts to elicit the three most preferred and three least preferred villages, indicates that the residents do share some common identity in preferring particular villages over others.

The planning design of new residential environments, be it the village concept or neighborhood concept, is often based on an intention to create the optimum physical conditions to foster and sustain a "neighborhood" or "community consciousness."[91] This means that planners attempt to create living environments which achieve clarity and visibility along with providing the essentials for a good life. If this actually is the case, then one can expect that the residents will participate fully with their neighbors and surroundings, which means that they will not have to look elsewhere for the satisfaction of their needs.

The research conducted in Washington New Town is still in the analysis stages, so many questions remain unanswered. Hopefully, however, once the analysis is completed and more comparisons are made, the picture

of each village will reflect fairly accurately the mental images of both men and women across several investigative interests, indicating whether or not the village concept has been able to create a community or neighborhood consciousness. In addition, if the techniques utilized for the study are effective, it will lend additional support to the importance and applicability of such studies to planners.

CHAPTER VI

CONCLUSION

The time has arrived for planners to break out of their traditional shell, shake loose of conventional wisdom, and view the world for what it really is. This is not to say that they should turn their backs completely on their traditional tools and techniques, but rather that they should seek to incorporate new methods into the design process. Specifically, they need to realize the relevance of the information available through the minds of the public, accept the fact that people do have real perceived needs and desires, and that they are aware of the essential elements needed to create a well designed and organized environment. It is time for planners to try to understand something of the "city of the mind."[92]

Planners need to realize that the living environment is characterized by a great deal of diversity, reflecting differences of sex, age, culture, race, socio-economic backgrounds, and experience. As a result, no two people have the same perceptions nor the same needs and desires. Perceptual and imagery studies can awaken planners to the diversity that exists, making them aware of the fact that one principle of planning cannot come close to accommodating satisfaction for everyone. An awareness of such diversity may make the designer's task more difficult but it may also make his designs more relevant to human use.[93] This awareness will help planners to understand that traditional planning standards are simply too inflexible to provide overall satisfaction.[94]

The designed environment reflects the largely untested assumptions about human behavior held by the professional planner. That substantial differences exist between the ways the public and the designer view the same environment has too often been disregarded by the latter, on the basis that the design professional knows both what the public wants, and, more important, what is good for the public. The designer, of course, operates under severe constraints, being only one of a number of actors, all of whom exert some influence on the final plan. As a result, urban environments have too frequently been thrust upon the public, which in turn has endeavored to adapt to the new situation.[95] This situation is understandable, but it is not forgiveable, as the consequences are evident in urban areas throughout the world. People may be able to adapt to changing situations and environments, but unless their true needs and desires are considered, the problems of living environment will persist. Eliciting perceptions and images offer a new perspective, an opportunity for planners to consider the other side of the coin, realizing that it takes both sides to attain the full potential value of the living environment.

The environment suggests distinctions and relations and the observer with great adaptability and in the light of his own purposes selects, organizes and endows with meaning what he sees.[95] One's images and perceptions then can reflect how he views the physical form of cityscape elements, his culture, personal and group values, sentiment, symbolism, and activity setting.[97] The research methods developed to date, though still criticized for apparent weaknesses in their reliability and validity, provide the means by which planners can study human and social system factors, which in turn, through the elicitation of perceptions and images, can reveal how and why particular individuals or groups of individuals view their living environment. All of this means that planners should engage in more

purposeful planning, investigating and understanding the "city of the mind," in order to endow future living environments with the essential qualities that will encourage people to take an active interest in their surroundings.

The living environment is a potential field of human action, but it does not become effective until we perceive what actions are possible and carry them out.[98] To fulfill the potential of the environment means that planners must perceive what the people perceive, and then plan accordingly. It means planning a good environment which can support socially desirable planful behavior and which can facilitate man's effort after meaning.[99] It also means, however, that planners need to develop a working vocabulary that can help them communicate with and for people, a vocabulary that is composed of the learned perceptions and images.[100]

With citizens demanding more involvement, this demands that all engage themselves responsibly in the planning process. A new education is needed for both planners and social scientists. Each has to develop a more comprehensive understanding of urban life and the dynamics of urban systems.[101] The need is to develop a good predictive model that would give the planner a vocabulary of urban attributes. He could then coordinate urban form and visibility with the active experience of the inhabitant, so that the latter could find his way more clearly around the urban area. He could also coordinate form, visibility, and action with community significance to create a more meaningful living environment.[102]

That people desire active participation is undeniable, but due to numbers, it is impractical. The methodologies discussed offer planners the means to permit indirect participation by consulting with the environmental users in order to obtain their perceptions and images. The composite of these can then become a major source of informational input into

the decision-making process. Planners need to keep in mind, however, that it is not adequate to simply study how people perceive their present environment, and then to attempt to incapsulate that structure in a new environment. Perception and meaning are not something that exist independently of perceivers. Nor are they static. Meaning cannot be manipulated in the same way as a built form or land-use disposition. It arises from the dialogue between behavior and experience and the environment. The problem ultimately becomes one of education both for politicians, planners, architects, and residents.[103] The research methodologies can only provide planners with a vocabulary of urban attributes and an understanding about meaning and behavior, they cannot guarantee similarities in future environments. They provide an education for both planners and citizens so that the present environment can be made known and future environments can be made better.

To know the "city of the mind," the cognitive or mental images and perceptions within the mind, is the first step towards achieving a better living environment. Planners must and should strive to learn as much about man and his environment as possible. They need the information available through perceptions and images in order to know how the people feel and what they want so that they can become advocates for the people, speaking their language and relaying their needs, desires, and preferences.[104] The methodologies available are not full proof and are still susceptible to criticism, but they do represent a step forward for planners as they seek ways to plan with, rather than for, the people. Traditionally, planners have designed urban environments without consultation with the user-clients, who have become increasingly alienated from the decision-making process.[105] The research methodologies designed to

elicit perceptions and images offer the means to overcome this problem, but the most important ingredient for success is for planners and designers of the environment to realize that information available through the elicitation of perceptions and images can lead to more enlightened planning decisions.[106]

FOOTNOTES

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