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Planning Neighborhood Space with People
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4

User-Needs Techniques

To determine which of the various user needs described in Chapter 3 are salient in the design of a particular outdoor space, designers need to involve the potential users in the design process either directly or indirectly. As an example Bill Taylor of Carol R. Johnson and Associates in Cambridge, Massachusetts, used yellow tape to mark the alternative routes for Pedestrian Path East, then sent community members reminders to walk the paths and decide which routes were most suitable.¹

J. Edward Washington uses another approach in designing neighborhood spaces with first through sixth graders. He has the children make drawings, lists, and models. This is usually done in their neighborhoods since he insists that it is in the streets where you get the childrens' interest.²

In this chapter, we shall outline and discuss various specific techniques that designers employ to assess what a space must provide to ensure its social suitability. These techniques offer other tangential rewards as well. In particular, direct participation in the design of neighborhood space can promote a stronger sense of community through the mobilization of energies around a common problem. This mobilization in turn can promote a stronger community-organization structure to achieve other neighborhood goals. The benefit has been well expressed by a participant in the Workshop on Urban Open Space:

There should be a feeling . . . that it is the community that is important. That's what we are all talking about. The point is, all of these different things that an architect does, that a planner does, that any kind of technician does, should be the product of organization. . . . You see, it's not the park that's important, it's the way the park is built. It's the way the community is organized. . . . The users of neighborhood open space must be involved in the whole cycle of development.³

Architect Sam Sloan summarized a host of other tangible benefits at an Environmental Design Research Association conference:

User participation (1) relieves the anxiety of the unknown; (2) aids in self-actualization; (3) produces a design more related to

the balance of the user's values; (4) allows a setting in which a range of values and preferences can be uncovered; (5) provides a democratic climate and individual responsibility; (6) creates an awareness of the design process which the participant can use elsewhere; (7) dispels the idea that nobody cares; (8) builds a better relationship between artifacts and the individual human being; (9) deals realistically and openly with conflicts and resolves them through positive complementarity; (10) provides a logical framework for interdisciplinary action to complement each other rather than contend for dominance.⁴

Whether the designer's primary concern is the social suitability of a neighborhood space, the promotion of community organization, or other benefits of user participation, he will need to develop skills unknown to designers who deal only with city mayors, land developers, or directors of parks and recreation departments. No longer can he arrive at program-design alternatives and a final plan through personal discussions and salesmanship with a single client. A public neighborhood client, consisting of large numbers of people who display a variety of life-styles, requires a whole range of techniques aimed at measuring a complex pattern of user needs, which will be different in different neighborhoods. User-needs techniques are methods by which information is gathered firsthand on the activities, interactions, and feelings of the potential users of a neighborhood space. The techniques may be used to acquire information at any stage in the design process prior to construction: problem definition, analysis of existing situations, program development, site location, synthesis of alternative plans, and so on. The techniques include neighborhood forums, brainstorming, synectics, role playing, interviews, questionnaires, observations for activity mapping and social-ecology mapping, activity logs, and semantic differentials.

Many of these techniques are borrowed from social survey research; but it should be made clear that user-needs techniques do not pretend to provide findings based on pure research methodology. Their aim is not to prove or disprove any theory, nor to discover truths that can be generally applied. Rather, findings based on user-needs techniques are intended

to provide information that can be directly applied to a particular neighborhood space. Pamela Dinkel explains how the whole matter of facilitating open-space use is unique to each situation, because "all the variables operating in any given situation represent one case study essentially unreplicable" and that they therefore "require specific study, not a precast solution."⁵

BASIS FOR CHOOSING AMONG USER-NEEDS TECHNIQUES

Before describing the various user-needs techniques, the basis for choosing among such techniques needs to be outlined. The choice of any technique will be based on a number of standard considerations. First, the kind of information sought must be specified. We must decide whether the crucial question is what people will do in a space, how they will feel about the space, or how they will interact in a space. Then we need to consider the phase of the design process at which the technique will be employed. Does the designer want to analyze an existing situation, define a problem, generate ideas, set goals, evaluate alternative courses, or resolve user conflicts?

Another consideration, of course, is the cost of a given technique. Cost is a function of the level of professional input necessary to use a technique, the speed with which the instrument can be developed and administered, the number of times the technique has to be repeated to get reliable information, the extent to which it can be used with any size group, the degree to which it can be self-administered, the extent to which it has to be done on the site, and the ease of interpreting the results. Another cost-related factor is the accuracy required by a given technique. The validity of the sample in predicting real needs is critical, but the users of neighborhood space often represent such a diversity of economic classes, age groups, and life-styles that it is difficult to obtain a valid cross section of user needs. Moreover, the cost of a technique often increases with the validity coefficient.

Two other cost-related factors are flexibility and

versatility. Flexibility refers to the ease with which a technique can be duplicated in another setting; this is important because, if flexible, the technique has only to be learned once. Versatility refers to the ease with which a technique can be applied to a variety of situations, which is important because the technique can be applied again and again, without the elaborate training required for learning a new one.

A final basis for choosing among user-needs techniques is *a technique's compatibility with other neighborhood goals*. The technique may not only be used by designers, but also by community leaders to provide a stimulus for educating the residents of the neighborhood. A major consideration before choosing a user-needs technique is its compatibility with the development of neighborhood power through grass-roots organization, local control of various facilities and services, and the corroboration of neighborhood leadership.

DESCRIPTION OF USER-NEEDS TECHNIQUES

Before the importance of directly obtaining user-needs information was recognized, a number of indirect methods were employed. Although these methods may overlook unique and idiosyncratic neighborhood needs, they can still be used to project general use patterns. National recreation standards that describe the facilities needed in regional, city, and neighborhood parks offer general parameters for an area's needs based on needs determined in other areas. Demographic information concerning age, occupation, income, sex, housing conditions, and property values is readily available in census data and can be analyzed to gain insights into the most general needs of a particular neighborhood. Then, within the given neighborhood, contact with "gatekeepers"—people who control the exchange of information such as mailmen, storekeepers, firemen, and community leaders—can provide valuable data for the design of neighborhood space.

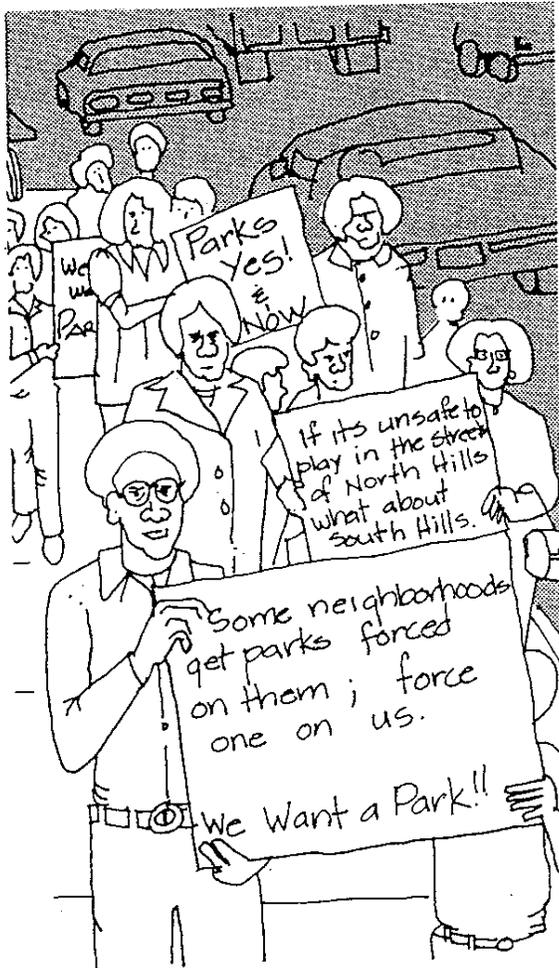
Another traditional method of indirectly assessing user needs is the designer's intuitive process of sorting through past experiences with different neighborhoods and different designs as he examines a problem by creating simulations—models, drawings, perspectives, movies, or plans. For example, recalling the pattern of use in a shopping area where benches outside the drugstore were always overcrowded, a designer may include in his plans for a similar store a larger sitting garden in the expectation that people want such a space. Designers are often correct in such judgments; but when the designer's simulations are shown to the potential users, their direct feedback can further improve upon the initial evaluations.

Town Meeting

"Town meeting" is a name given to a group of techniques that involve participatory decision making. It is much like the New England town meeting in which all participants have a voice and issues are discussed, alternatives given, and decisions made in a truly democratic fashion.

Neighborhood Forum

Probably the best example of a town meeting is the neighborhood forum, which is a public meeting open to any neighborhood resident. Ideas and problems are discussed by all members of the group, and there is no distinction between audience and performer. The drawback to the neighborhood forum as a user-needs technique is that it obtains information only from the people who attend the forum. For this reason, it is not an accurate measure of the needs of the total neighborhood. It is biased toward people who are likely to attend meetings—young adults, concerned citizens, and aspiring leaders—and excludes children, teenagers, the elderly, the unconcerned, social deviants, and other social isolates. Because of the difficulty in overcoming this bias, the



neighborhood forum has limited use in the analysis of existing situations, problem definition, and idea generation. But in the subsequent stages of the design process—setting goals, projecting futures, giving, evaluating, and making choices, and resolving conflicts—the neighborhood forum ranks as one of the most effective techniques for determining user preferences. These stages require the type of deliberation that the neighborhood forum allows.

In terms of cost, the neighborhood forum is also an excellent technique. Although it may have to be

repeated several times, the neighborhood forum requires relatively little time. A possible problem lies in both recording and interpreting the data. Accurate notes must be kept by someone other than the chairperson who is sensitive to the kinds of social factors that can be translated into design criteria. It is impossible for the person who is chairing the meeting to remember the critical comments. A recorder is particularly needed when the designer is presenting a simulation for discussion. Because the designer usually records the feedback directly on the plans, he often misses comments that do not relate directly to the plans. Also, to make interpretation of the data easier, the designer needs to make clear what information he needs and in what form.⁶ As an example, if the designer tells the recorder that he needs information related only to how people think they will use the spaces in a number of alternative plans, the interpretation of the feedback from that meeting will be facilitated because the recorder can focus on that data.

The neighborhood forum technique rates well as a low-cost technique for a number of other reasons: (1) it can be used with large groups—up to several hundred people can participate, although effective personal participation is limited by such large numbers; (2) it requires no professional administration; (3) it does not have to be done on the design site; (4) it can be easily duplicated; and (5) its versatility allows its application to a wide range of design process situations. Another advantage of the neighborhood forum technique is that it can be used to accomplish other neighborhood goals at the same time that user-needs information is being gathered. It is useful in developing neighborhood power as well as in promoting neighborhood education and communication.

Kingwood Forest Park in Raleigh, North Carolina, provides an illustration of how the neighborhood forum can be used in the design process. From the following notes on the process, it is easy to see the value of the neighborhood forum both as a user-preference technique and as a decision-making mechanism.

The New Landscape was asked by the Neighborhood Association to work on the project in September, 1971. The designer used information compiled by the Association leaders to draw five alternative plans.⁷ These were used as the basis for discussion at a series of eight neighborhood meetings. During the first five meetings, it became apparent that the plan the City Recreation Department had drawn was not consistent with the priorities of the neighborhood; the most obvious difference being the inclusion of a tennis court.

Advertising on WLE radio, in local stores, and through flyers got the attention of adults who attended regularly and agreed on what were the important design considerations. However, the teens were not involved. Since they would be a major user, the Neighborhood Association scheduled a neighborhood social forum for them. At the social forum, the designer met with 75 teens and got their input without adult intrusion. A month later the teens held another forum and agreed on their priorities. In February, 1972 two priority lists existed—the teens' and the adults', and a neighborhood forum was held to resolve the conflicts. About 100 residents of various ages debated the priorities for several hours although there were only minor conflicts in the priorities. Finally, an elderly gentleman suggested that since the teens were the primary users, only the teens should decide on the design program. The teenagers voted overwhelmingly in favor of their priorities and their design plan.⁸

This case study illustrates many of the positive factors of the neighborhood forum as a technique for determining user preferences. Most notable are the versatility of this technique in its use throughout the design process from problem definition to conflict resolution, the use of the technique to stimulate further political activity, and the ease with which new techniques can be incorporated into the method for the purpose of receiving user feedback. In recent years the neighborhood forum has been the setting for numerous experimental participatory techniques. The use of guided fantasy, hypnosis, group graphics, and modified nominal group techniques were tested in neighborhood forums before they received more widespread application.

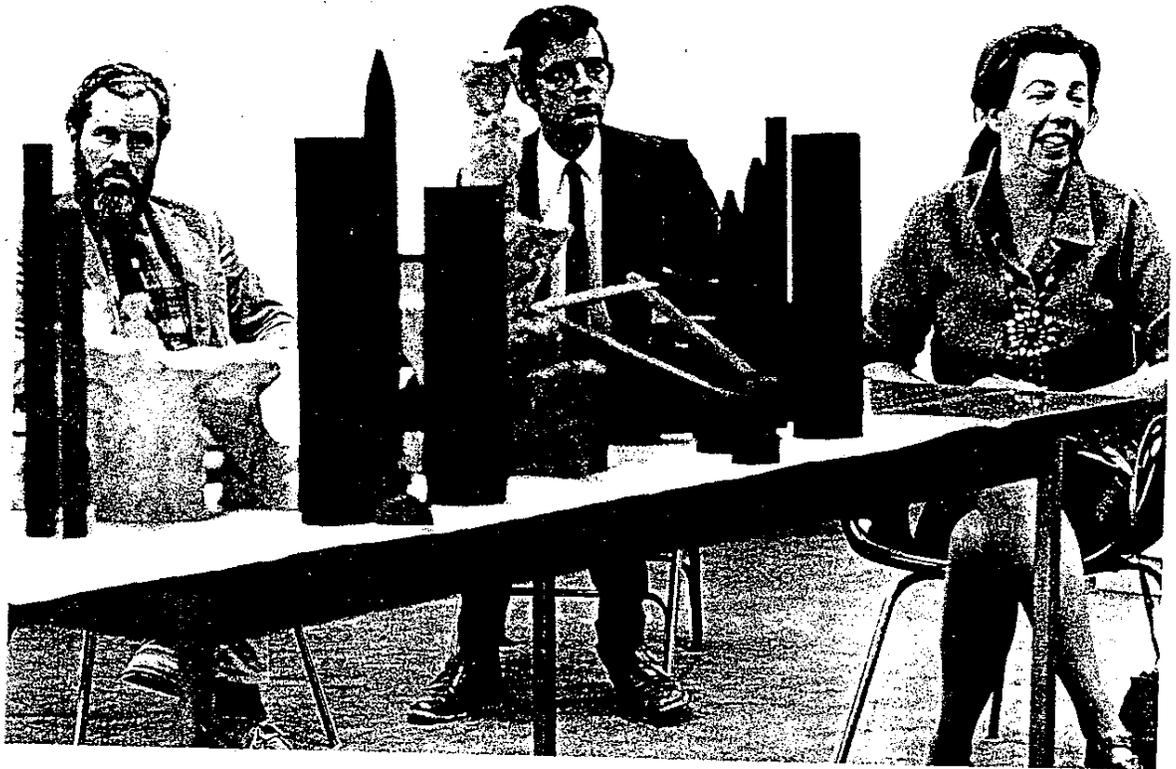
Panel Discussion

Another technique in the town-meeting category is the panel discussion. The panel usually consists of

residents who, confronted with several alternatives, must choose a plan of action to solve a neighborhood problem. But because the panel discussion can be used throughout the design process, the audience may simultaneously be tackling other problems. They may be defining a problem, setting goals, generating ideas, solving a problem, projecting what each idea would mean for their neighborhood, or resolving conflicts among residents about what should be done. Although the panel discussion exposes the preferences of only the panel members, it provides the residents with information on which they can base further decisions. Thus, it accommodates the goal of fostering neighborhood education. Also, this technique is relatively low cost because it can be used with large groups and can be arranged by neighborhood residents without any professional skill.

To illustrate the use of the panel discussion, consider the case study of the Dennis Chávez Park, in Albuquerque, New Mexico. After Model Cities approved the general plans for park improvements, the designers presented a scale model to various neighborhood groups, and a panel discussion followed each presentation. The panels included an architect, an artist, a sculptor, a parks and recreation staff member, a cultural coordinator for Model Cities, a representative of the Office on Aging, and knowledgeable neighborhood residents. Each presented his views on the proposed plan. Because the plan included a series of unusual play towers and an amphitheater, it was necessary for the panel members to explain to the community the underlying concepts. Also, each panel member discussed the advantages and disadvantages of the project and raised questions. Was it safe? How would it be maintained? Was there enough lighting? What activities would there be for the elderly? Who would be in charge of the performances?

After each discussion the audience gave feedback and the plans were modified accordingly. Provision was made for special activities for the elderly—a place for craft fairs and get-togethers in the shade of portable tents. The towers were carefully redesigned



Panel discussions were used to explain the design of the Dennis Chávez Park to receive suggestions for changing the plans to better suit the needs of the users. (Photograph courtesy of Julie Graham)

to be as safe as possible, while still allowing the freedom to explore. After twenty panel discussions with various groups, the plans responded to the questions raised by the panel members and the concerns of the residents.⁹ Citizen support for the project increased as the plans increasingly reflected their needs, and the project was passed by the city commission with only one dissenting vote.¹⁰

Since some of the panel members were not neighborhood residents, the panel discussions themselves could not be used as a measure of the needs of the neighborhood; however, the feedback afterwards could be used. In general, it is better for the panel mem-

bers to be neighborhood residents. Their comments not only reflect firsthand user needs, but residents can better communicate ideas to their neighbors than a panel of outside experts who speak in professional jargon.

Brainstorming

The use of the brainstorming technique is more limited than either the neighborhood forum or the panel discussion. Brainstorming is confined to generating ideas and giving alternative choices, and

the technique is usually applied to design by groups of between five and ten people who try to generate as many alternatives as possible to solve a stated problem. If the brainstorming session creates enthusiasm and spontaneous responses, it can be useful in determining what people would like to do in a space. However, it is not an accurate measure of the user needs of an entire neighborhood since the effective group size is quite small, usually less than ten people. If large groups can be subdivided into small brainstorming sessions and the results later combined, the validity of the technique increases slightly as a measure of total neighborhood preference.

The following example shows the utility of brainstorming as a method of idea generation. In Cambridge, Massachusetts, a few parents, concerned about the lack of playgrounds, met with a city planner to consider alternatives. After much heated debate about who was to blame for the paucity of playgrounds, the group was ready to abandon its effort—until the suggestion was made that they try brainstorming. Everyone agreed to think of as many alternatives for play spaces as he could, and these rules were established:

1. Negative criticism is suspended.
2. The sky is the limit.
3. The more ideas the better.
4. Group improvement on ideas is desirable.¹¹

One person was informally designated the leader, one the recorder, and one the sheriff to guarantee that the rules were being followed. After a few minutes of uncertainty, the group began to rapidly produce uninhibited suggestions, building on each other's ideas and discovering creative suggestions beyond the grasp of any person by himself. For example, where can the kids play?

the vacant lot on the corner
 the library
 the schoolyard
 the tot lot

the back alley
 the tot lot for kids and the vacant lot for basketball

And, what could be included?

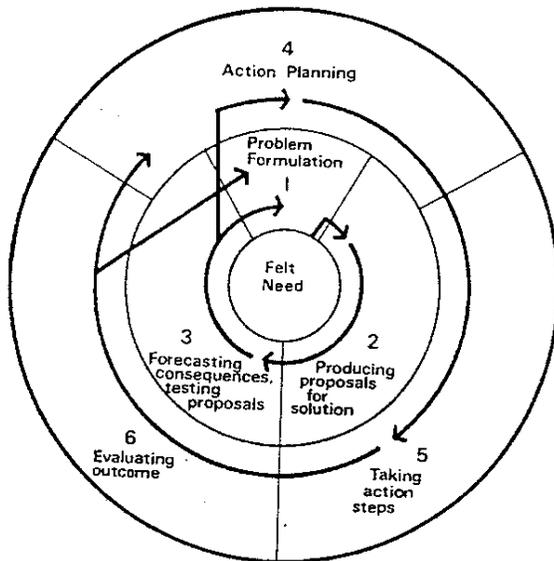
a sandbox
 swings
 a wall mural
 a cave with rope swings
 a slide from the cave
 a tower on top of the cave
 the swings could be attached to the cave
 a doll house
 a tower with caves in it
 a fort
 sand under the tower
 a tower with colored panels the kids could move around
 a construction area
 an adventure playground
 a floor mural
 different textures
 rocks
 stones
 sand
 water
 a water cave¹²

The group discovered five places where the small children could play and found a place where teenagers could play basketball. They then concentrated on the tot lot and considered what might be included. Although several traditional items were mentioned, most of the alternatives brainstormed were creative, like a cave with rope swings, a tower with caves in it, and a floor mural. The recorder, in this case the city planner, not only recorded but also sketched each idea so everyone would have a visual image of the possibilities. After the session, he categorized the ideas, evaluated them, and worked out the details of construction. At the next meeting he presented plans based on the brainstormed ideas. The technique had cost little, had taken little time,

and the results were easily interpreted and translated into a design plan. Although the technique requires little training, to effectively employ brainstorming the leader must be sensitive to the ideas of each person. Each person's enthusiastic participation is necessary for ideas to be spontaneously generated. Especially with people who are "uptight" or shy, the leader must be capable of involving everyone in a positive and rewarding manner. The leader must also be able to clearly define the goal and to keep the group focused on the goal.

Buzz Session

The buzz session is similar to brainstorming in that it involves a few people, usually less than five, who informally generate ideas. The distinction between the two techniques is that the buzz session is less goal directed, and the problem is less clearly defined.



Buzz sessions frequently expose a felt need in a neighborhood, which leads to action to solve a problem.

A buzz session can be nothing more than an informal sidewalk chat during which a common neighborhood problem is discussed, or it can be a meeting called to discuss the solution to a problem. The buzz session frequently exposes user preferences, but because there are better techniques to systematically gather preferences, it is most often used to generate ideas and provide alternative choices. The following excerpt from the notes of a meeting of neighborhood leaders shows how a buzz session, although informal and undirected, may lead to a new idea:

The group discussed the general problems of the neighborhood and why people were not interested in the Community Action Group. Mr. Joyce mentioned that the neighborhood was apathetic because it has a false sense of security in the everlasting stability of the community. Mrs. Green pointed out that the neighborhood was presently threatened by a number of highway construction projects of which the residents were unaware. Mrs. Baker suggested delivering flyers door to door prior to the next meeting, warning people of the threat the highway posed to their neighborhood. Mr. Joyce, wondering out loud why they hadn't thought of that before, agreed to be in charge of distributing the flyers.¹³

Although the need for an issue to mobilize the residents may seem perfectly obvious in retrospect, the leaders realized the need only after a lengthy buzz session. In their case, the leaders had discovered the key issue and the neighborhood rallied around it. Several hundred people began participating in the effort to stop the highway projects. The buzz sessions had provided the idea of the critical need of a process to begin action that ultimately led to the redesign of the comprehensive plan for the neighborhood.

Synectics

Another excellent technique for generating ideas and for stating and solving problems is synectics, a process through which individuals with different backgrounds can maximize their group creativity by consciously using the awareness of each person's

emotional and irrational functioning.¹⁴ A general problem is presented to the group. As an example, one neighborhood group was given the problem of how to move people and goods throughout the neighborhood in a way that was not disruptive. The group had to clearly state the problem. In this case, they decided to focus on alternatives to the continual expansion of the street system. Then the group concentrated on making the strange familiar and familiar strange through personal, direct, symbolic, or fantasy analogy. One analogy pursued was to move people "by mail." The idea was originated by a retired mailman who suggested that a truck that made deliveries in the neighborhood could be used to pick up and disperse people as well. The mail analogy was finally developed into a concrete solution. Pavilions would be constructed at 2 block intervals throughout the neighborhood. The pavilions would include a post office, grocery, and other delivery stations as appropriate for the neighborhood. People could walk to the pavilion to pick up groceries or packages that had been delivered by the "mail" truck. This same mail truck would run to the central city every half hour to pick up other goods. People could ride either way for free, thereby significantly reducing the number of automobile trips in a day. Through the use of an analogy with the familiar mailman, the group had explored the movement of goods and services and discovered a creative way to reduce the use of the automobile.

Because the synectics process requires considerable professional training and has been used mainly for the invention of products, it has not enjoyed widespread use by neighborhood residents. But the principles are familiar to designers,¹⁵ and neighborhoods supply a ready resource of diverse backgrounds. Therefore, this technique has promise beyond its rather limited use to date.¹⁶

Role Playing

Another town-meeting technique is role playing. Role playing is used in a small group to discover

how people feel about and interact in a space as well as what they do in the space. The role allows people to project real feelings, which they otherwise might be reluctant to express, in an uninhibited manner. When people play either their own roles or the roles of others in a space, the use of that space becomes clearly articulated, an understanding of the needs that different groups have for the space is possible, and alternatives that satisfy the conflicting needs may be explored. Therefore, it is useful in analyzing an existing environment, in projecting future uses for that environment, and in resolving conflicts over the use of the environment. In addition, role playing has the asset of being one of the few user-needs techniques that can further neighborhood education. Another advantage is that the basic guidelines for a role-playing situation can be established and repeated throughout the neighborhood. But role playing ranks low in versatility, and it costs more than other techniques because professional aid is necessary to set the guidelines and monitor the role playing. Also, professionals are needed to interpret the results.

To illustrate, consider the value of role playing in the following neighborhood park-planning process, in which the existing park was virtually a battleground for teen and elderly conflicts.

The setting was a meeting of the Senior Citizens Organization to review plans for a neighborhood park to which the teen gang had come uninvited. After a few minutes of disruptive and hostile shouting, it was suggested that the group try role playing. After considerable prompting and a rather unfruitful warm-up to the roles, the following dialogue took place between the leader of the teen group playing the role of an elderly woman and the president of the Senior Citizens Organization playing the role of a teenager. (Teenager playing the role of an elderly woman = TE. Elderly man playing the role of a member of the teen gang = ET.)

- TE: You don't have any right to be playing in the park. It's for old people.
- ET: Hell if I don't. I live here same as you.
- TE: Don't you have any respect for us old people?
- ET: Respect? This is the only place we have to go to hang out.
- TE: Why don't you go down by the river?
- ET: Why don't you? We like it here.
- TE: So do we. And besides, it's too far for us to walk.

ET: It's too far for us to walk, and you are always in our way.
 TE: And you are always making noise and drinking and busting the benches and playing cards and breaking bottles and sexing around and causing trouble. Why can't you sit in the park and enjoy it like the rest of us normal people?

At this point the teenagers broke into laughter at the admission by their leader of the whole array of their "evils," many previously unknown to the elderly. But the session had served its purpose by bringing out a number of user needs. First, the teens viewed the space as their own and perceived the elderly as not respecting their need to have a place of their own. Second, the elderly man realized the need the teens had for a "hanging" space and that the teens considered the elderly as being in the way. Finally, the teen leader realized the need the elderly had for a place to sit closer to home than the river. Through role playing, the two groups had come to recognize their mutual needs for the park



Role playing can be used to get the users to project real feelings in an uninhibited manner that they might otherwise be reluctant to express. (Photograph by Marge Hackmann)

and the conflicts caused by their shared use. This information was utilized by the designer to revise the plans and resolve the conflicts between the teen and elderly users in the park.¹⁷

Our Playground

We like the monkey bars, the climbing poles, four square, and hop scotch. We like to play ball.

If we could have what we wanted on our playground, we would choose lots of things:

- | | |
|---------------------|------------------------|
| 1. swing set | 13. hobby horse |
| 2. basketball court | 14. tire swing |
| 3. sliding board | 15. play house |
| 4. trampoline | 16. chinning bar |
| 5. merry go-round | 17. bicycles and rack |
| 6. teter totter | 18. markings for track |
| 7. football field | 19. pipes |
| 8. tennis court | 20. balance beam |
| 9. tree house | 21. play car |
| 10. swimming pool | 22. cubes |
| 11. train | 23. funny mirrors |
| 12. roller coaster | 24. skating rink |

We enjoy playing at the beach, the Y, the mountains and at home.

By having school children pretend they could change their playground, the designers for this schoolyard were able to incorporate many of the things the school children wanted. This resulted in a much more exciting environment, filled with swings, tree houses, bars, cubes, play cars, and junk where previously there had only been barren ground.¹⁸ (Photographs by Marge Hackmann)

One problem with role playing is apparent in this example. Because it can only be used in small groups, it is difficult to achieve an accurate measure of the entire neighborhood's needs.

There are, however, role-playing techniques that can be employed with larger groups. These are based on having the people pretend or wish something such as "pretend you are a kid and describe the kind of place where you would like to be; make believe you are an old man and draw the kind of park you would like to have; write a wish poem for your neighborhood; write a story about a little girl in this space." With this technique, descriptions can be collected from several hundred people at a time and tabulated to give total group preferences that more accurately represent the needs of the entire neighborhood than a single role-playing situation.

Gaming

A game is a model of reality,¹⁹ a simulation in which the users are players who express their preferences by making choices cooperatively or competitively with each other to arrive at some outcome. The outcome or solution in this case would be the design of a neighborhood space. The player may be a single person or a group of persons with similar needs. The choices a player makes during the game are determined by his personal preferences, group pressure, and his power as defined by the rules of the game. The rules generally define the extent to which players can communicate with each other—whether or not the players can enter into binding agreements; whether or not the rewards of the game may be shared with other players; what the formal, causal relation is between the player's actions and the outcome of the game; and what information is made available to the players.²⁰

There is a wide range of applications for neighborhood-design games. Gaming techniques such as Planning Outdoor Play (POP)²¹ and Selection of



In the redevelopment of the Jaycee Community Center, the Minipug game was used, which allowed the residents of the neighborhood to actually design their own park. By using abstract game pieces and an actual budget, and by following a set of rules that fostered cooperation and compromise, the residents developed an abstract plan that was used by the designer to draw a final plan.

Sites (SOS)²² are applied to determine what people want to do in a space. These techniques are most useful in analyzing existing environments and in setting goals because they focus on the theoretical decisions that influence user needs. As an example, in POP the users choose the kinds of activities they want to do but do not choose the type of equipment or the specific settings for the activities. Other games, however, are not only useful in analyzing existing environments and setting goals, but can also be used to compress all phases of the design process into a few sessions. Games like Urban Design Investment Game (U-Dig),²³ Developing Recreational Resources (DDR),²⁴ Community Land Use Game (CLUG),²⁵ and Mini-Park User's Game (Minipug)²⁶

can be used in charrettes when complex decisions must be made in a short period of time. These techniques can be used to project and evaluate futures and to resolve conflicts among users in order to produce a final design. For these methods to be successful, the problem must be clearly defined and the relevant information about the alternative choices must be obtained before playing the game.

Gaming can be an extremely beneficial technique for self-education by the neighborhood residents, the only drawback being the cost. In terms of cost, gaming ranks only moderately well because professional aid is necessary to develop and administer games. Also, the participants must be trained before using the game.²⁷ Frequently, it appears that games are more educational for the users than the results are for the designers. Since the game is often an abstraction of reality and does not accurately describe the actual process for which it is a model, the results may be suspect. And since most games cannot accommodate more than a dozen players, it is difficult to be sure that the information resulting from even the most accurate games provides a reliable measure of total neighborhood preference. Nonetheless, gaming produces a finite result that is easily interpreted, it does not have to be done on site, and it is easily duplicated and moderately versatile.

In the redevelopment of a Jaycee community center in Raleigh, gaming was used to assess user needs. The user-input process consisted of two town meetings, the first to prepare the participants for the game, and the second to play Minipug with resident representatives. At the first meeting, the players were briefed on the budget for the project, and slides were shown to stimulate creative thinking. At the second meeting, the designer gave a brief introduction to the design game, explaining the various pieces, the price list, how much each player could spend, the layout dimensions of the board, and the general rules.

There seemed to be confusion as to the rules of the game and playing procedure; the participants needed a practice round to get the feel of the gaming procedures. After the practice round,

participants were instructed to list a set of five personal priorities in terms of general activities—like swinging instead of a swing set, climbing instead of monkey bars, sliding instead of a sliding board. Satisfying these priorities became the goal of each person throughout the process of the game.

After the priorities were listed, play began with each player taking his turn in order. Each player kept an account of the money spent so that the total budget would not exceed \$8,000.

During the course of the game, numerous trade-offs and compromises were reached concerning equipment, surfaces, and location. Design criteria were discussed, and decisions concerning play concepts were reached as the game progressed. Continual information was fed into the group by Frank Evans, director of the City Parks and Recreation Department, concerning maintenance, cost, practicality, and the special concerns of his department.

The game lasted approximately an hour, at the end of which time an abstract model was completed for the play area.²⁸

In this instance, gaming proved to be quite effective. By focusing attention immediately, it eliminated the time lag that is usually necessary in neighborhood forums to establish priorities. The discussion was directed at moving abstract game pieces to form a real plan—a plan acceptable to all the factions represented. Using all the information gathered, with primary emphasis on the decisions made during the Minipug game, a final design was reached and accepted by the city. Detailed drawings were then prepared for the actual construction of the facility.

The main difficulty with town-meeting techniques is that the accuracy of the information is questionable since it is difficult to get a representative cross section of the neighborhood to attend; consequently, the results may not adequately reflect the user needs for the entire neighborhood. Therefore, other user-needs techniques are potentially more accurate.

Interviews

The interview is a technique whereby a trained field worker obtains information from the people of a neighborhood, one by one, through the use of a set of questions to determine specific patterns of activ-



The interview is often used to determine user activities, feelings, desires, or values. It is particularly useful in analyzing existing environments and in defining problems because it can potentially provide an accurate assessment of user attitudes.

ity, feelings, desires, or values in regard to neighborhood space. Its major applications in the design process are for the analysis of existing environments and for the definition of problems. In other phases of design—setting goals, generating ideas, evaluating and making choices, projecting futures, and resolving conflicts—the use of interviewing is more limited. Furthermore, interviewing is costly. There is also a need for professional aid with this technique—professionals must define the problem, study other research, formulate hypotheses, draw a sample, define variables, draft questions, design the questionnaire, pretest the instrument, prepare for, do, and verify the field work, and analyze the data. Before using interviews, a number of questions must always be answered. Exactly what is the neighborhood prob-

lem? What must be determined? What studies have been done that relate to this problem? What were the results? Can the findings be applied to this neighborhood? What does the designer expect to be the outcome of the study? What are the variables? How should the question be asked: formally or informally, open-ended or closed-ended, first or last? All these questions must be answered by someone skilled in the technique.

There are a number of resources for learning the basics of these methods: *Methods in Social Research* by William J. Goode, and Paul K. Hatt, *Survey Research* by Charles H. Backstrom and Gerald D. Hursh, *Research Methods in the Behavioral Sciences*, edited by Leon Festinger and Daniel Katz, and *Empirical Foundations of Educational Research*

by Gilbert Sax.²⁹ These resources can help the designer communicate with persons skilled in interview techniques when he obtains their professional assistance throughout the process of developing an interview. It takes skill and time to develop an interview, and a designer should not think he can "whip one out" in a day or so. In most cases, the interview should be developed by someone professionally trained in research methods.

The interview is not only difficult to develop, it is difficult to administer. Each interview must be done separately by a trained interviewer. Interviewers must be carefully chosen, taught the techniques of interviewing and the specifics of the interview schedule, and then organized into groups with explicit interviewing assignments. But although the interview is costly and difficult to develop and administer, it is valuable as a user-needs technique because it gives extremely reliable and valid information when done with precision and focus. If the technique is used well, the sample chosen and interviewed is both representative of the potential users and is large enough to make precise predictions about the needs of the population; little bias is introduced into either the sample or interview results.

The ease with which the results can be interpreted is also important. If the interview is developed by skilled professionals, the results should be easy to analyze because the appropriate questions will have been asked. If one asks, "Would you rather play basketball or football?" when what one really wants to know is, "What do you do in your leisure time?", the results would be difficult to analyze. Equally difficult would be the analysis of "What do you do in your leisure time?" if one really wants to know "What do you do most often when you visit your neighborhood park?" Also ease of interpretation is a function of how readily the results can be categorized according to age, sex, income, and the like. Another difficulty can be avoided through careful coding of responses. In general, multiple-choice questions and questions requiring specific answers are easier to code and interpret than open-ended questions.

The Roberts Park planning process in Raleigh, North Carolina, shows the value of the interview technique. The city had given the design team a list of improvements based on standard park facilities, but the designers were not convinced that these improvements met the needs of black residents. Since there was no visible neighborhood organization, and the design team wanted to check the user needs in an accurate manner in order to show the city the results, they turned to the interview technique. They wanted information on the backgrounds of the residents—their age, their class, their neighborliness. They also wanted to know what park-related activities the residents participated in, how frequently, and where these activities occurred, because they felt that each of these factors contributed to the needs of the users. The designers described how the interviewing was done:

The population interviewed in Roberts Park neighborhood was determined by a random-sampling method whereby we personally talked with the head of household or spouse of every fourth house in our predetermined block. Whenever a case arose whereby no one was at home or would not respond to the questionnaire at each fourth house, we immediately went to the fifth house. If there was still no response, we returned to the third house. Generally, we were received by one of the three households. If not, we returned another time. The total number of interviews administered in Roberts Park was 96, or approximately 25 percent of the households in the neighborhood.

For purposes of compiling the information into a form whereby interpretations could be accurately made, we utilized computer services. The Statistical Analysis System (SAS) Chi Square and frequency program was selected in order to obtain frequency percentages of response distributions for each respective subneighborhood. Each question on the interview was coded and results tabulated individually so that accurate representation could be made and evaluated. Correlations of variables were made primarily of percentage distribution.³⁰

From the interviews, the design team was able to establish socioeconomic information on the Roberts Park neighborhood such as education, income, employment, needs related to park facilities in terms of age, and homogeneity of the neighborhood. They found that in Roberts Park, 58 percent of the people

interviewed had a high-school education or less but 43 percent had attended college or post-graduate school:

The socioeconomic data compiled from our survey information indicated that the highest percentage of income level for the park neighborhood was the \$3,000 to \$6,999 range which included 34 percent of the people interviewed. Also of interest was the percentage of families in the Roberts neighborhood with incomes of less than \$3,000 per year. Twenty-nine percent of the families surveyed fell into this category. It was interesting to note the correlation between these percentages in comparison with age. Thirty-three percent of the people interviewed in Roberts were 51 or older, which may account for the low income level.

Of the families interviewed, 45 percent were blue-collar workers, while only 26 percent were white-collar workers. In the nonworkers classification, 29 percent resided in the Roberts community. It should be noted, however, that 26 percent of those residents in the nonworkers classification were retired or disabled. The high percentage of retired or disabled people closely correlated to the age-income breakdown mentioned earlier. All of these factors indicated low mobility and a high dependence on the neighborhood park for leisure-time activities.³¹

To determine the homogeneity of the Roberts Park neighborhood, questions were included that would give an indication of the neighborliness exhibited in this neighborhood. By using neighborliness in conjunction with mobility, social interaction, and stability of the neighborhood residents, the design team arrived at a generalization in regard to homogeneity. First, they had to determine the degree of neighborliness in the neighborhood. A high ranking using a modified Guttman scale was found for neighborliness:

In addition, by examining the socioeconomic data, we found that the Roberts Park neighborhood is a relatively stable neighborhood. The large number of elderly residents indicate a permanence of individuals in the neighborhood, and a high percentage of home ownership gives an added indication of the residents' longevity. Considering these factors, we concluded that the Roberts Park neighborhood exhibits a high degree of homogeneity and has a high potential for compatible shared park use.

In order to determine the needs of the neighborhood as they relate to park facilities, we used question number 20 of the interview schedule.

Of the 96 people interviewed in the neighborhood, 88 percent of the subjects were dissatisfied with the park and facilities and

had some recommendations as to how their park needs could be met. Of the recommendations listed, some were completely out of range of our limited budget. For example, 36 people indicated a need for a swimming pool. Below is the total breakdown in numbers of responses of recommendations requested by the neighborhood residents.

Requested park recommendations	Number of responses
Tot lot	56
Picnic facilities	36
Swimming pool	36
Basketball court	30
Benches	29
Tennis court	26
Landscaping	20
Lights	10
Bleachers	8
Water fountains	4
Toilet-facility improvements	2

This can be compared to what people presently do in the park.

Activity	Frequency of Open-Space Usage		
	Once a week	Once a week- once a month	A few times a month
Sitting	103	9	7
Walking	93	19	7
Running	51	4	3
Basketball	38	3	3
Football	33	2	1
Baseball	24	8	8
Swimming	23	12	22
Jumping rope	21	2	4
Picnicking	21	33	53
Tennis	18	10	9
Walking dog	9	1	3

Since the need for play equipment for small children appeared to be outstanding, we began to correlate user needs in terms of age breakdown. For example, no facilities were available for small children. By the same token, no facilities were available for the elderly who comprise a large percentage of the neighborhood population. Both of these groups are neighborhood bound; therefore, the need for a tot lot, benches, and picnic facilities ranked high on the list of design priorities.³²

After the preliminary neighborhood investigation was completed, a plan for the park was prepared using the recommendations of the people surveyed

ROBERTS PARK INTERVIEW SCHEDULE

<p>Cod 1 _____</p> <p>Cod 2 _____</p> <p>Cod 3 _____</p> <p>Cod 4 _____</p> <p>Cod 5 _____</p> <p>Cod 6 _____</p> <p>Cod 7 _____</p> <p>Cod 8 _____</p> <p>Cod 9 _____</p> <p>Cod 10 _____</p> <p>Cod 11 _____</p> <p>Cod 12 _____</p> <p>Cod 13 _____</p> <p>Cod 14 _____</p> <p>Cod 15 _____</p> <p>Cod 16 _____</p> <p>Cod 17 _____</p> <p>Cod 18 _____</p> <p>Cod 19 _____</p> <p>Cod 20 _____</p> <p>Cod 21 _____</p> <p>Cod 22 _____</p> <p>Cod 23 _____</p> <p>Cod 24 _____</p> <p>Cod 25 _____</p> <p>Cod 26 _____</p> <p>Cod 27 _____</p> <p>Cod 28 _____</p> <p>Cod 29 _____</p> <p>Cod 30 _____</p>	<p>Interview Number _____</p> <p>Introduce yourself. Explain that the city has a certain amount of money to do improvements in the Park, supposedly for a rot-lot. Explain that you are working with the City/University Program to develop plans for the Park, and that you need their ideas so the park will be what they need. Ask to speak to the head of household or the spouse.</p> <p>1. What is your present address? _____</p> <p>2. What was your reason for selecting this house? A. Park related reason B. Non-park related</p> <p>3. How long have you lived at this address? A. Less than 6 months B. 6 months to 1 year C. 1 to 3 years D. Over 3 years</p> <p>4. Age A. Less than 30 B. 31-50 C. 51 and above</p> <p>5. Sex: A. Male B. Female</p> <p>6. Including yourself, how many members of your family are living in your household at the present time? _____</p> <p>7. What are the ages and sexes of any children living in your home? Age _____ Sex _____</p> <p>8. Where do the people live that you visit with most? (House and street number--BE SPECIFIC) How often? At least once a week, less than once a week to once a month, few times per year A. _____ B. _____ C. _____</p> <p>9. Do you and your neighbors exchange or borrow things from one another such as food, tools, dishes? Yes _____ No _____</p> <p>10. How many of the adults in this neighborhood do you know on a first-name basis? A. 4 or less B. 5 to 10 C. 10+</p> <p>11. Would you say that real friends are hard to find in this neighborhood? Yes _____ No _____</p> <p>12. I do not want names, but I want you to think about the people who live in this same area that you like. Would you say you like: A. Few B. Half C. Almost all</p> <p>Why do you like them?</p> <p>Now I would like for you to think of the members of your own household and their use of the outdoors for recreation.</p> <p>13. Which of the following activities have the adults in your home done in the past year? What others? A. Basketball B. Baseball C. Football D. Tennis E. Running F. Walking G. Picnicing H. Sitting I. Walking dog J. Swimming K. List others</p>
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From the interviews conducted in the Roberts Park Neighborhood, the designers established the needs related to park facilities in terms of age and homogeneity, present activities, and requested activities.

Description of User-Needs Techniques 115

- | | | |
|--------|--------|---|
| Cod 31 | Cod 32 | <p>14. Where do the adults participate in the above listed activities? (List to correspond with preceding letters)</p> <p>A. _____ F. _____
 B. _____ G. _____
 C. _____ H. _____
 D. _____ I. _____
 E. _____ J. _____
 K. _____</p> |
| Cod 33 | Cod 34 | |
| Cod 35 | Cod 36 | |
| Cod 37 | Cod 38 | |
| Cod 39 | Cod 40 | |
| Cod 41 | | |
| Cod 42 | Cod 43 | |
| Cod 44 | Cod 45 | |
| Cod 46 | Cod 47 | |
| Cod 48 | Cod 49 | |
| Cod 50 | Cod 51 | |
| Cod 52 | | |
| Cod 53 | Cod 54 | |
| Cod 55 | Cod 56 | |
| Cod 57 | Cod 58 | |
| Cod 59 | Cod 60 | |
| Cod 61 | Cod 62 | |
| Cod 63 | | |
| Cod 64 | Cod 65 | <p>15. How often do the adults in your home participate in the above listed activities?</p> <p>1 - at least once a week
 2 - less than once a week to once a month
 3 - few times per year</p> <p>A. _____ F. _____
 B. _____ G. _____
 C. _____ H. _____
 D. _____ I. _____
 E. _____ J. _____
 K. _____</p> |
| Cod 66 | Cod 67 | |
| Cod 68 | Cod 69 | |
| Cod 70 | Cod 71 | |
| Cod 72 | Cod 73 | |
| Cod 74 | | |
| Cod 75 | Cod 76 | |
| Cod 77 | Cod 78 | |
| Cod 79 | Cod 80 | |
| Cod 81 | Cod 82 | |
| Cod 83 | Cod 84 | |
| Cod 85 | | |
| Cod 86 | | |
| Cod 87 | | |
| Cod 88 | | |
| Cod 89 | | |
| Cod 90 | | |
16. Which of the following outdoor activities have the children in your home done in the past year? What others?
- | | |
|---------------|-----------------------------|
| A. Basketball | F. Jumprope |
| B. Baseball | G. Running |
| C. Football | H. Walking |
| D. Swimming | I. Picnicing |
| E. Tennis | J. Sitting |
| | K. List other outside games |
17. Where do the children participate in the above listed activities? (List to correspond with above letter)
- | | |
|----------|----------|
| A. _____ | F. _____ |
| B. _____ | G. _____ |
| C. _____ | H. _____ |
| D. _____ | I. _____ |
| E. _____ | J. _____ |
| | K. _____ |
18. How often do the children in your home participate in the above listed activities?
- 1 - at least once a week
 2 - less than once a week to once a month
 3 - few times per year
- | | |
|----------|----------|
| A. _____ | F. _____ |
| B. _____ | G. _____ |
| C. _____ | H. _____ |
| D. _____ | I. _____ |
| E. _____ | J. _____ |
| | K. _____ |
19. If there were a large field behind your home, but you did not like the other neighbors whose homes surrounded it, would you use it for outdoor activities? Yes, No - Why or why not?
20. Are you satisfied with the park as it is now, or would you like to see anything else there that is not now? And what do you think the children would like to have there? _____
- These last questions are only used to divide the interviews into groups
21. What was the last grade of school completed by the chief breadwinner for your home?
- | | |
|------------------------------|---------------------------|
| A. attended grade school | D. attended college |
| B. attended high school | E. graduated from college |
| C. technical/business school | F. Post-graduate work |
22. What type of work does the chief breadwinner for the household do? _____
23. Is the total yearly family income over or under \$ _____? Is that over or under \$ _____?
- | | |
|-----------------------|-----------------------|
| A. less than \$3,000 | C. \$7,000 to \$9,999 |
| B. \$3,000 to \$6,999 | D. over \$10,000 |

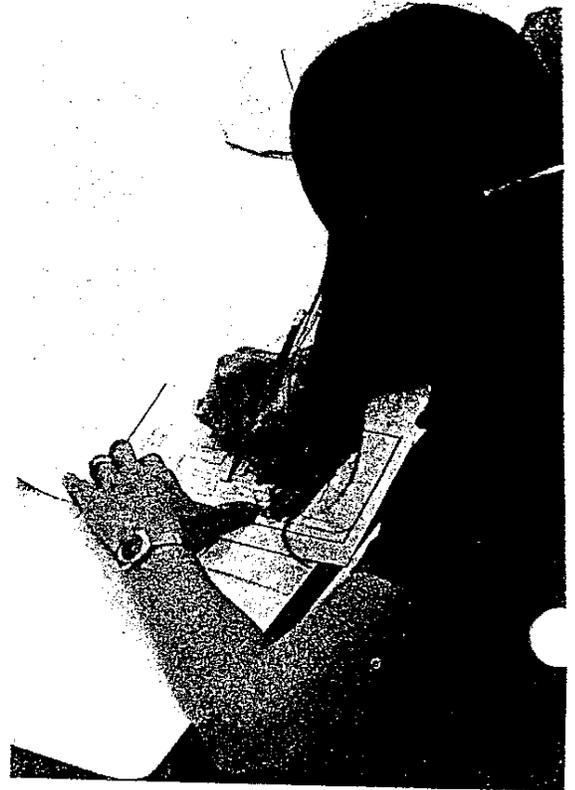
to determine a priority list. Within the framework of the budget, the design team tried to incorporate as many recommendations as possible. The initial design scheme included, in order of priority, a tot lot, picnic facilities, basketball courts, benches, tennis courts, landscaping, lights, bleachers, and a drinking fountain, all arranged in an informal way to accommodate the interaction of the residents.

The initial design scheme based on information from the interviews apparently was accurate enough that only two neighborhood meetings were required to reach an approved plan. This plan, which differed greatly from the one originally proposed by the city, was accepted by the Parks and Recreation Department. Of the priorities stated in the interviews, only the swimming pool and basketball court were omitted in the final plan. The swimming pool was simply too costly, and the neighborhood decided to press for an indoor gymnasium instead of outdoor basketball courts.³³

In the case of Roberts Park, the interview provided information detailed enough to proceed from a specific definition of the problem to an actual form design. The interview data not only described the general patterns of neighborhood-space use but also the specific priorities of the residents for neighborhood improvements. In many cases, the interview would be used only to define general problems, to determine the relative importance of various problems to the neighborhood, or to get specific design priorities that might influence the use of certain neighborhood spaces.

Questionnaires

Another user-needs technique, the questionnaire, resembles the interview because it can accurately discover users' activities and interaction patterns in and feelings about a neighborhood space. The questionnaire is particularly valuable in problem definition. The difference between the two techniques is that the questionnaire requires the respondent to fill out the form himself.³⁴



The questionnaire has uses similar to the interview. In addition, it has the advantage of being self-administered, which can, in certain situations, save the designer time.

By eliminating the cost of trained interviewers, the questionnaire becomes a less-expensive technique; but it can also be less accurate because it loses the random sample that is possible with an interview. If the questionnaire is either mailed or passed out by hand to be picked up later, the return response is usually less accurate a measure of user needs than an equal number of interviews, because the sample is biased to respondents who are motivated to return the questionnaires. In one community, questionnaires were delivered door-to-door, in an effort to determine the need for a neighborhood facility. Even though the questionnaires were left with explicit

instructions and were picked up the following day, the responses were not representative of the total community. Of the small percentage retrieved, there was a bias toward residents who had lived in the area a long time.

It appeared the newer the resident was in the community, the less likely he was to return the questionnaire because he felt less concern about acquiring a park. In contrast, the older, more settled members of the neighborhood saw a great need for a park and returned a high percentage of the questionnaires.³⁵

This is a common problem in using the questionnaire. But in spite of this shortcoming, the questionnaire can be effectively used when potential users can be identified as groups to whom the questionnaire can readily be given. If the users are the students and staff at Public School 23, the Underwood PTA, Boy Scout Troop 49, or the Longwood Neighborhood Association, questionnaires can be handed out and collected during a meeting or class with a high rate of return. But to get a reliable and valid sample, one must be able to identify representative groups and to administer the questionnaires when the groups have a high turnout of members.

In the case of the redevelopment of an elementary schoolyard in Raleigh, the use of questionnaires was advisable. Since the teachers, staff, and students were readily available and interested, 97 percent of the questionnaires distributed were returned. The principal suggested that a similar questionnaire be given to the parents at the first PTA meeting (he suggested the first meeting of the year because he knew from past experience there would be a high turnout). Over 100 parents were present, and all but three returned the questionnaire. The parents answered questions such as:

1. How often do you go to the schoolyard?
2. If you do use the schoolyard, what do you do most when you are there?
3. What things does the schoolyard have now of which you approve? Disapprove?

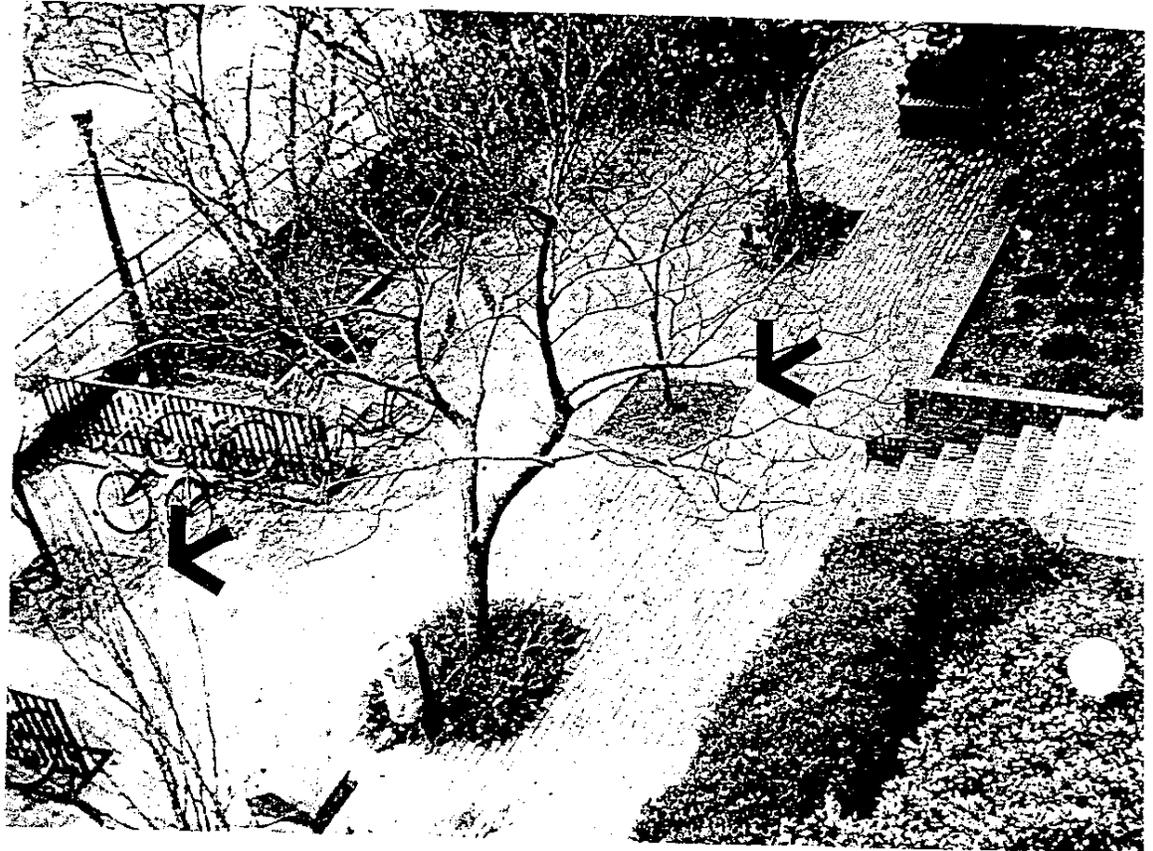
4. What things would you like to see added to the schoolyard for your children's benefit?
5. How can the yard be redesigned to serve the whole community, adults as well as children?
6. Would you use the yard if there were things for adults to do? If so, what facilities or activities would you want?
7. Where did you play most often when you were young? Describe the place.

The results indicated that the parents almost never went to the schoolyard but would like to if there were more attractions, places to sit and talk while supervising the kids, more variety of kids' things, a nature-study area, more green living things, basketball courts, a garden, a theater, and water. Some of these ideas—places to sit and talk while supervising the kids and more living things—had been mentioned beforehand. There is no doubt that the final design more accurately reflected the parents' preferences because of their input through the questionnaire. . . . A secondary effect of the questionnaire was that the parents were pleased that their ideas were important enough for the designer to ask for them. As a result they were willing to help during the construction of the yard.³⁶

Observation

Observation techniques provide another method for assessing user needs. They have long been the basis of site analysis for designers who make mental notes of what they see and then transfer them into a design form. What landscape architect has not made these notations: "Save grove of mature oaks," "topo and vegetation give a sense of enclosure," or "good point of entry." Whereas a casual visit to a natural site gives the designer a "feel" for the place, a vegetation or soil analysis requires more systematic, precise, and long-term observation. The same is true for meaningful analyses of residents' use of neighborhood space. The art of looking must be systematic and precise.

Such observation is the single best technique for discovering what people do and how people interact with other people in neighborhood space. However, it has limited value in measuring how people feel



Activity recording can often be done with a camera or tracers. By recording where paths are made, where garbage is left, or where plants are broken, one can determine how spaces are used without interrupting the normal patterns of the residents. In this space, an analysis of the condition of plant materials suggested

that several areas (indicated by arrows) were used as a bicycle service area and a major circulation path. This indicated the need for paved surfaces rather than plants in these areas. (Photograph by Susan Foster)

about the space. In the overall design process, observations are most useful in the analysis of existing situations and in the definition of problems. They can also be helpful in projecting future patterns of use but have almost no value in generating ideas, setting goals, giving alternative choices, evaluating and making choices, and resolving conflicts. Observation is a rather costly technique because professional input is necessary to develop and administer

a good instrument. The same process outlined for developing an interview must be followed in developing observation techniques: define the problem, study the research, state expected observations, choose sample times, design specific methods to observe the critical variables, and pretest the instrument. Also, the administration of the technique is costly—the observations must be done on site in an unobtrusive manner by a trained observer, and they must be

repeated to give valid and reliable results. Observations should be done at different hours of the day, different days of the week, and if possible, different seasons of the year. When the results are interpreted, it is difficult to predict "what could be" because the data give only a description of "what is." Any projection must be done with caution.

Although observation methods are not versatile and are costly, they are flexible. They can be easily duplicated from one neighborhood to another after the techniques have been developed and tested. Earlier in this discussion, it was noted that observations can also provide accurate descriptions of what people do in a neighborhood space and how they interact with others. For each of these descriptions there are different things to look for and different types of observation techniques to direct the looking. These techniques can be classified as activity observation, interaction observation, and ecology observation and mapping:

Activity Observation

Activity observation is a straightforward recording of what people do in a space. The important factors to record are the various kinds of activities and the different people according to age, sex, and race who are doing these activities. Activities are frequently categorized as active or passive or as to whether they are supported by a particular environment or a general environment. For example, the observer may record activities that occur in all types of settings, like walking or stopping to talk, in one category, or he may record activities that occur only in special settings, like waiting for a bus or working on a car. Robin Moore categorizes activities by whether they involve primarily psychomotor, muscular, perceptual, or cognitive skills because they are most relevant to the environments he plans and builds for child development.³⁷ Other categories are useful for observing infants, elderly people, working people, or handicapped people or for observing particular set-

tings like schoolyards, business areas, transportation stops, playgrounds, front steps, or parks. In a study of a neighborhood with a high percentage of elderly people, observers discovered that a significant pattern of open-space use was being omitted because they could not categorize whether people were actively participating or watching. The observation categories were altered to include headings for "participants" and "audience."

A good rule is to do some informal observing before developing a specific technique or instrument for activity recording. While making informal observations, one might discover the appropriate categories, or one might realize that it is better to do the activity recording mechanically—with a camera or tracers. Or it might be necessary to record only at peak-use times, or to have the recording done by a participant observer. To illustrate, informal visits to a neighborhood business area that was being redesigned indicated that the use of the shopfronts would be interrupted by the observer and that a camera should be installed in a second-floor window to do the recording. Photographs were taken every 15 minutes throughout the day without interfering with normal patterns of stopping to chat and sitting down to rest.

By imaginatively using tracers to record where paths are made, where garbage is left, or where plants are broken, one can also determine how spaces are used without interrupting the normal patterns of the residents. Although choosing the appropriate categories for observation and the appropriate times and ways to observe can be difficult, activity observation can be extremely useful in the design process, as in the following site analysis of a school-ground project:

Our first inclination was to remove the rusted swing set which really was an eyesore and start all over, creating a playground which would stir the imagination. But our observations told us differently. After a week of seven hourly observations daily, the activity totals indicated that the swings, even though quite ugly, were the most popular piece of equipment. They remained.

In another case, the residents indicated that they wanted to

remove the basketball court from the neighborhood park. Activity observations indicated why: the most frequently observed activity was basketball; the predominant age, teens; the predominant race, black. The neighborhood was all white and lower-middle-class. The teenage boys played unaware that their racially mixed basketball games threatened the adults. The activity observations provided the key to the problem with the neighborhood space.

In a final example, the observation technique was used to check what people said they did most often in a neighborhood space. People mentioned child-related activities when asked "what do you do most often when you are here?" But upon observation, the space was found to be most used for walking and waiting for transportation, although the space was not designed for these activities. These had not been mentioned by anyone who had been interviewed. As a result of these observations, a path system and a bus-stop shelter were incorporated into the design.³⁸

Interaction Observation

The interaction-observation technique is most frequently employed in conjunction with activity observation to provide a more complete picture of how certain activities occur in a social context. Interaction observation provides answers to questions such as: Is the person alone, in a small group, or in a large group? Is the interaction impersonal, cooperative, competitive, conflictive or accommodative? Such information can be valuable in learning how to maximize the use of small neighborhood spaces by reducing conflicts among neighborhood users. For example, in one neighborhood, a playground was used almost exclusively by preschool children and their mothers. The mothers frequently gathered in groups of three or four, standing and talking uncomfortably in the corners of the playground where the children played. This suggested that several separate sitting areas for small groups should be incorporated into the plan to redevelop the playground. Frequently, mothers are now observed in groups of four playing bridge while the children play; three or four games often are going on at the same time. Although one big sitting area would have been adequate, the recognition of the separate, small-group interaction pattern provided a more suitable design.

In another neighborhood, the opposite interaction pattern was observed. It was noted that large numbers of elderly residents gathered at the local drugstore daily. The small, separate booths were constantly rearranged to allow for larger group chats. It was proposed that an adjoining garage be demolished and replaced with an outdoor sitting area where the elderly residents could meet in groups of twenty or more with no barriers to their group discussions. In still another case, interaction observations made over a period of a month indicated that the residents of one particular neighborhood frequented a local shopping center. They usually walked, but they often had uncomfortable and hazardous encounters with automobiles driven by people from other neighborhoods who came to shop there. A proposal was made to reduce conflict between pedestrians and automobiles by closing the street to automobiles, turning the street into a pedestrian mall, and providing parking in the rear alleys.

Ecology Observation and Mapping

The third and most useful observation technique is ecology observation and mapping, which combines the above techniques by considering activities, interactions, actual settings, and their influence on each other. Ecology observation records how the activity relates to the place or niche in which it occurs. Frequently, the recording is done directly on maps or plans that are called ecology maps. Since this technique gives information concerning both behavior and interaction and then relates these to the setting, it is most applicable to the design of neighborhood space. As an example, the design team used ecology observations extensively to answer a number of complex questions in redesigning the Fred Olds School Yard in Raleigh:

First, we needed to know what activities were done most frequently so we could incorporate those into the plans for renovation. Second, we wanted to know in which activity settings what

FRED OLDS SCHOOL OBSERVATION SHEET

Date	Hour	Weather	Observer										Setting for Interaction**	
			Pre-School	1-8 Grade	9-12 Grade	College	Adult	Elderly	Social Activity**					
			F	M	F	M	F	M	F	M	F	M		
a. Walking														
b. Sitting														
c. Working														
d. Stop to talk														
e. Neighborhood meeting														
f. Active recreation														
g.														
h.														
i.														
j.														
k.														
l.														
m.														
n.														
o.														
p.														
q.														
r. Commercial														
s. Waiting for transportation														
t. Art														
u. Fantasy play														
v. Construction														
w. Role play														
x.														
y.														
z.														

*Record the Interaction Process associated with each activity and the number of people interacting in that manner. Use the key: P = Private, I = Impersonal, C1 = Cooperation, C2 = Competition, C3 = Conflict, A = Accommodation.
 **Indicate the setting in which each activity takes place and the numbers of people, particularly in that setting.

The interaction-observation technique is most frequently employed in conjunction with activity observation to provide a more complete picture of how certain activities occur in a social context.

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interactions took place because a number of teachers thought that conflicts occurred most often around the monkey bars and field. If so, they wanted these settings altered. Third, we needed to know what spaces were most intensively used in order to disturb these "identity areas" as little as possible.³⁹

The design team decided to do ecology observations and mapping seven times daily for 2 weeks. An instrument was developed that would allow activities to be recorded by age and sex as well as by the interaction process observed. These data were expected to answer the questions about what activities were done most frequently and what interaction processes occurred in which settings. The raw data were tabulated to give the frequency of observed activities as follows:

Frequency of Observed Activities⁴⁰

Activity	Number of times observed
Walking through or around	197
Playing on monkey bars	181
Waiting for transportation	159
Jumping rope on paved area	116
Stopping to talk on edges	85
Running in field	83
Racing in field	80
Exercising in field	76
Sitting on edges in shade	74
Four square on paved area	56
Football in small space	49
Red rover in field	45
Walking across field (adults)	44
Standing on edges of field	39
Kickball in field	36
Role playing: monster all over	32
Hunting insects in grass	29
Fighting in field	28
Flying paper airplanes in field	28
1-2-3 red light on edges	25
Bicycling	24
Wrestling	23
Fantasy play	23
Tug-of-war	22
Turning flips	20
Dodge ball in field	18
Role playing: Wizard of Oz	13
Sitting on edge of field (adults)	13

Pulling up grass	10
Basketball	10
Working (adults)	9
Squat thrust in field	9
Softball in field	8
Throwing rocks from field	8
Ball	8
Walking dog	6
Frisbee in field	6
Playing in box	6
Role playing: horse	6
Hopscotch on paved area	5
Tag	5
Cub Scouts	5
Twirling around in grass	5
Hunting snakes in grass	4
Climbing fence	4
Playing on fire escape	4
Raising flag	4
Throwing pennies	2
Broad jumping	2
Nature study	2
Jogging (adults)	2
Role playing: pulling down trees	2
Role playing: fantasy football	1
Role playing: scarecrows	1
Playing with plastic bag	1
Riding motorcycle	1
Bicycling (adults)	1
Driving	1

The design team was surprised by some of the information, especially the fact that walking and waiting for transportation were among the most frequent activities:

We concluded that the frequency of walking was due to a combination of factors. Adults used the schoolyard for walking around the block, school children walked from activity to activity, and walking represented a lack of other things to do. The design implications were these: a clearly defined pathway both through and among the activity settings would be desirable to provide clear connections for the children and safe passageways for the neighborhood residents and teachers. The monkey bars were popular partly from the lack of diversity, we concluded. The design implications were these: leave the monkey bars, add more climbing apparatus, and diversify the activity settings generally.⁴¹

The design team suggested that waiting for transportation ranked high because half the students

were bused from other neighborhoods. The new plans included several informal waiting places that allowed for small-group play. Continuing down the list of most frequently observed activities, the design team attempted to explain why the activity occurred and to draw conclusions about how to accommodate these activities in the new plans for the school.

The design team had less success in answering the teachers' questions about conflicts occurring most often around the monkey bars and open field. Although fights were frequently observed in the field, and pushing was often observed as a part of playing on the monkey bars, the design team was not able to explain conflicts in terms of activity settings:

As far as the most frequent interactions were concerned, it was impossible to validate that different interactions were related to different activity settings. There were many more instances of cooperating in all activity settings, followed by privacy, competition, and accommodation. Almost all of the adult interactions were private. We drew no conclusions from these data that we could apply to the design process.⁴²

Although no conclusions were drawn, the school principal thought that the fights were due to the competition to play on the monkey bars, which were the only equipment in the yard. A design-team member offered the hypothesis that the fights on the field were due to conflicts between the people playing competitive sports and the people racing, exercising, flying airplanes, or playing games like softball, dodgeball, or kickball, all of which frequently occurred in the same space at the same time. Fewer conflicts after construction of a set of towers suggest that the principal was correct in his assessment.

A second part of the Fred Olds observation technique was designed to answer the question, "What areas have the most intense use?" By marking where the most activity occurred and leaving blank the areas of least activity, the observers developed maps that indicated the intensity of use of each area of the yard for each hour of the day. The design team itself was surprised by the insights that the maps allowed:

The activity-intensity maps provided enlightening results. There was no activity during the weekend observation periods. The design implication: Fred Olds School needed to provide settings for community activities to encourage weekend use. Therefore, such things as picnic facilities, a shelter, basketball, nature study, more shade, an amphitheater, and special events were considered in the planning process.

The activity-intensity maps for each hour provided only supporting information to what we already had discovered; the kids milled around the entrances before and after school since there was so little to do in the playground. Play was concentrated during morning recess play, dispersed during lunch and afternoon recess. The schoolyard was virtually unused after the children left the school in the afternoon.⁴³

The most valuable information was the composite maps that indicated the areas that were most intensely used. The designers concluded that these areas should remain in their present locations because the children probably had symbolized these spaces as the settings for certain activities and would be dissatisfied with changes in them:

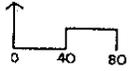
The most intensely used outdoor areas were the area around the monkey bars and the areas used for basketball, kickball, and other organized games. We decided to leave these undisturbed. The second most intensely used areas around the bus stop and entrances corroborated the need for places to wait for the bus. The least intensely used areas seemed the most suitable for quiet activities. We suggested that nature study, an outdoor classroom, a garden, the shelter, and private sitting and play spaces be located in these areas.⁴⁴

The ecology observations and mapping technique were beneficial to the process of redesigning the Fred Olds School Yard, but the technique employed had one drawback. Because the researchers could only map a few factors at a time, only intensity of use was mapped, not the actual activities.

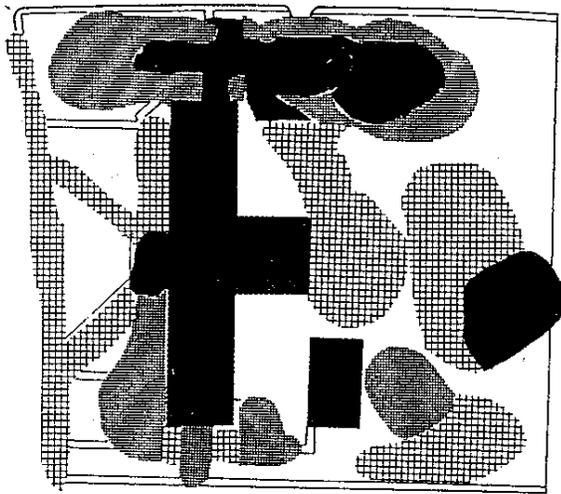
In another example, the redevelopment of the Jefferson Park Housing Project in Cambridge used an ecology-mapping technique that mapped both the intensity of activity and the activities themselves. As each activity was observed, it was given a letter as a key, and each time the activity occurred the letter was marked on the plan at the approximate location

FRED OLDS SCHOOL
INTENSITY OF ACTIVITY

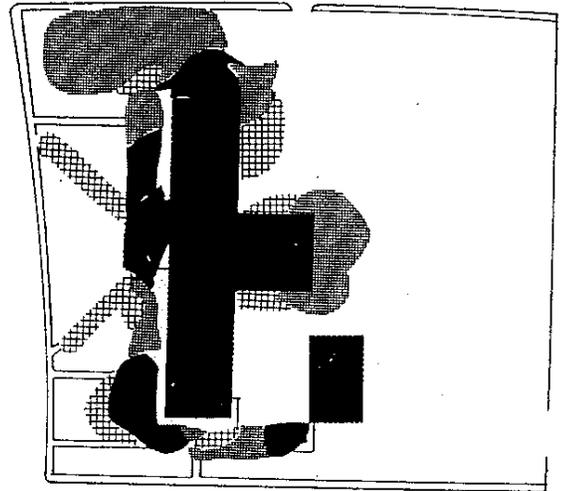
Key to Intensity of Activity



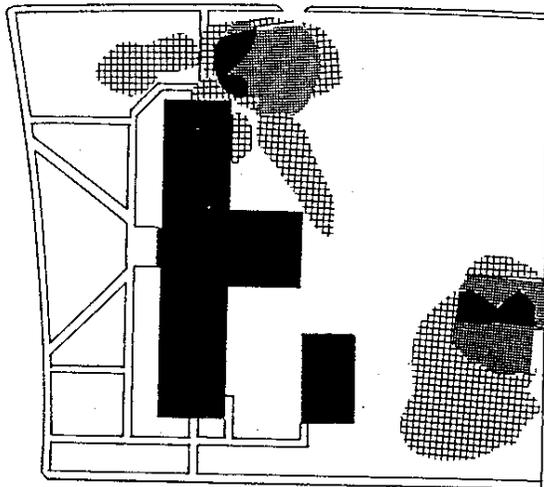
TYPICAL WEEKDAY



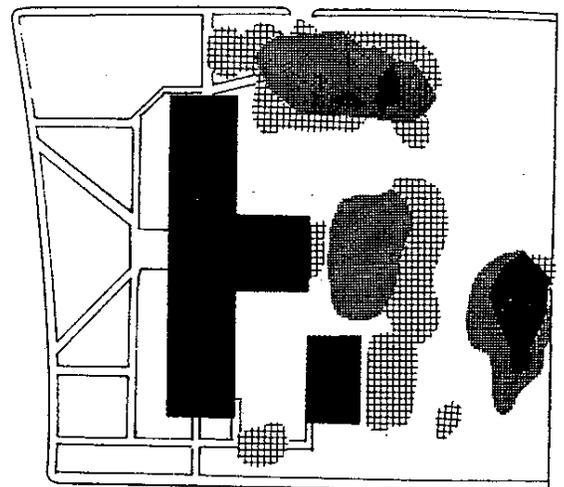
7:30 to 8:30 am



9:30 to 10:30 am



12 to 1 pm



FRED OLDS SCHOOL: Characteristics of Observed Activity Settings

ACTIVITIES BY PREDOMINANT SETTING TYPE	FLAT OPEN SPACE														NATURAL SPACE														LINEAR ROUTES													
	Racing	Football	Red Rover	Kickball	1-2-3 Redlight	Tug-of-War	Turn Flips	Dodge Ball	Basketball	Ball	Softball	Fantasy Horse	Frizbee	Twirl Around	Broad Jump	Fantasy Football	Hunting Insects	Pulling up Grass	Hunting Snakes	Nature Study	Walking	Running	Tag	Jogging	Bicycle	Driving	Motorcycles															
Number of Observations	80	49	45	36	25	22	20	18	10	8	8	6	6	5	2	1	29	10	4	2	197	83	5	2	1	1	1															
SETTING CHARACTERISTICS																																										
Large Flat Open Space	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●															
Special Setting	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●															
Linear Route								●									●	●	●	●																						
Nodes																				●	●	●	●	●	●	●	●															
Small Enclosed Space																																										
Any Space		●																																								
Needs Props	●		●				●	●	●	●	●	●	●	●	●	●																										
Large Group Space			●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●															
Small Group Space																	●	●	●	●	●	●	●	●	●	●	●															
Private Space																	●	●	●	●	●	●	●	●	●	●	●															
Enhanced by Audience Space	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●															

KEY: ● Indicates secondary setting characteristics

where the activity was observed. This provided a significant aid to the designer who was accustomed to making form decisions in plan view. He was able to look at the composite map and judge what activities would be affected by a change in the layout. For instance, he knew that the proposed basketball courts and the hockey rink would eliminate the baseball games because the courts would subdivide the baseball area. The designer could also visualize what activities would be increased and where they would occur by comparing the proposed plan with the ecology map. He assumed that there would be an increase in people stopping to talk because he provided niches along the edges of the walkways. He assumed that street hockey would increase during the

fall in the ice-hockey rink and that teenagers would hang out in the private shelter, although on the ecology map few teenagers were recorded as hanging out. Generally, the designer was able to consider user needs that he normally would have ignored because the information could not be transferred into plan view.

In the case of the redesign of the Jefferson Park Housing Project, ecology mapping was done before and after the renovations, thus providing an excellent technique to evaluate the social suitability of the new plan. From a comparison of the "before" and "after" maps, the plan could be ranked high in satisfaction of user needs. Stopping to talk greatly increased, as did playing street hockey and hanging

One problem in the Fred Olds School mapping arose because the activities and the intensity of the activities were recorded separately. Some techniques use a sophisticated coding system

to allow age, sex, activity, interaction, and intensity to be recorded on the base map.

	ACTIVITIES BY PREDOMINANT SETTING TYPE																												
	NODES	Waiting for Transportation	Stopping to Talk	Sitting	Standing	SMALL ENCLOSED SPACE	Jump Rope	Fighting	Flying Paper Airplanes	Fantasy Play	Wrestling	Throwing Pennies	Playing with Plastic Bag	NEEDS PROPS	Monkey Bars	Four Square	Playing in Box	Hoopscotch	Climbing on Fence	Playing on Fire Escape	Raising Flag	ANY SPACE	Exercises	Monster	Wizard of Oz	Throwing Rocks	Cub Scouts	Role: Pulling down Trees	Scarecrow
Number of Observations	159	85	74	39	116	28	28	23	23	2	1	181	56	6	5	4	4	4	76	32	13	8	5	2	1				
SETTING CHARACTERISTICS																													
Large Flat Open Space																													
Special Setting																													
Linear Route																													
Nodes																													
Small Enclosed Space																													
Any Space																													
Needs Props																													
Large Group Space																													
Small Group Space																													
Private Space																													
Enhanced by Audience Space																													

KEY. ● Indicates secondary setting characteristics

out.⁴⁶ Thus, if user-needs information can be transferred into plan view, it is more likely to be applied to the design of neighborhood space, which is precisely the value of ecology mapping.

Observation techniques are clearly applicable in determining neighborhood residents' needs, just as they have been, traditionally, in determining natural-site factors. Activity observation, interaction observation, and ecology observation and mapping provide different insights into user preferences; each uses the designer's highly developed skill of seeing precisely both the usual and the unusual, both what is and what could be. These techniques can be applied in the analysis of existing situations and in problem definition. Of the observation techniques, ecology

observation and mapping offers the greatest amount of information about people's activities and their interaction in space. Therefore, this technique should be the focus of greater refinement and increased application.

Other Techniques

Activity logs and semantic differentials were mentioned previously as methods useful for determining user needs, although to a lesser extent than the previous techniques. These techniques are unquestionably useful in postconstruction evaluation, and they can be useful in determining user needs before the design synthesis process.

Activity Logs

The activity log, a diary-like recording of self-observations, is useful in determining what people do in a neighborhood space. When using this technique, a person records what activity he is doing, how much time he spends doing it, where he is doing that activity, and what that place is like. The results often elucidate what changes are needed in the neighborhood to facilitate people's activities. To illustrate, the results of the compiled activity logs for a 2-week period for a group of elderly people indicated that the average older person spent approximately 2 hours waiting for the bus in areas that had no benches, shelters, or landscaping. Although these were common problems shared by the group, they never discussed the problem until the activity logs disclosed the extent of their plight. They proposed that the city improve the bus-stop facilities.

The activity log is a low-cost technique since it is self-administered; its only major costs lie in developing the instrument and in analyzing the data. Psychogeographer Roger Hart has used this technique to record children's activity patterns in their leisure time. Children's activity logs indicate that they spend very little time in actual playgrounds and that their play occurs throughout the neighborhood. Such insights obtained from activity logs can be readily used in evaluating designed environments. The diaries of children or other residents can simply be tabulated to see if the environment is used as the designer expected and how it "performs."

Semantic Differentials

Semantic differentials have also been widely used as an evaluation technique. Charles E. Osgood developed this technique and readers should refer to *The Measurement of Meaning*⁴⁷ for a detailed explanation of its use. Semantic rating can be used to describe how people feel about a neighborhood when one is analyzing existing environments or defin-



By studying the data from semantic differentials, the designer can assess how strongly the residents feel about what they want changed or preserved in their neighborhood.

ing community problems. By offering neighborhood residents a choice of various descriptive adjectives such as "friendly," "unfriendly," "clean," "dirty," "pleasant," "unpleasant," "colorful," or "drab," the designer can discover the residents' collective feelings about the neighborhood. By studying the data from such semantic differentials, the designer can assess how strongly the residents feel about what they want changed or preserved in their neighborhood. This technique requires highly skilled professional assistance in its development and administration, but because of its accuracy, a whole series of semantic-differential techniques have been developed, including activity checklists, mood checklists, numeral ratings, ladder ratings, and step ratings that are often incorporated into questionnaires and interviews.

Summary

In this discussion, both direct and indirect methods of assessing user needs have been considered. Recreation standards, census data, gatekeepers, and the process of making simulations have long provided indirect glimpses at user needs. But these techniques provide only the grossest data; as a result, primary user-preference techniques have become necessary in designing socially suitable neighborhood space. Primary techniques are town meetings, interviews, questionnaires, observations, activity logs, and semantic differentials. Each has been discussed in terms of its suitability for use in the neighborhood design process. Primary attention has been given to what the technique can be used to determine, but each method has been viewed in terms of its appli-

cability to various stages in the design process, its cost, and its compatibility with other neighborhood goals. The illustrations indicate some of the possible uses of these techniques. There are many other techniques that have been used and that can be derived from combining techniques to solve a particular problem. The designer must continually focus on the most important social factors and choose a technique appropriate to the situation. There has been no discussion of the actual development of the techniques or the analysis of the data. The designer must consult the other sources listed for detailed discussions of some of the techniques. Nonetheless, this discussion of user-needs techniques can serve as an introduction for design students who are just being exposed to user needs, and it can assist professionals who must select an applicable technique for a certain situation.

ROLE OF THE DESIGNER IN POSTCONSTRUCTION EVALUATION

Thus far, we have focused on the techniques that, if properly employed, can increase the designer's awareness of the social variables that are influencing the use of a neighborhood space before the construction of that space. These techniques are important when designers are called on to produce better space design. But equally important is the designer's responsibility to evaluate what he has designed after it is constructed and to determine if indeed it is socially suitable. Amazingly little is known about how designs perform, how people behave in them, and how people feel about and interact in them. Postconstruction evaluation is just as vital a part of the design process as is a preconstruction site visit, because through postconstruction evaluation new knowledge can be gained that can in turn be applied to subsequent designs.

As Paul Friedberg has said, designers were "flying by the seat of their pants"⁴⁸ in this regard because evaluation has not been considered a part of the

design process. Because of the lack of meaningful postconstruction evaluation done in the past, the professional organizations made efforts to facilitate such evaluations. The American Society of Landscape Architects established a task force in 1974 to propose systematic and comprehensive techniques for evaluating the performance of designed landscapes. Although the work of the task force did not lead to wholesale changes in the professions, postconstruction evaluation became much more widely practiced afterwards. The work of Clare Cooper-Marcus, Mark Francis, David Stea, Henry Sanoff, and Donald Appleyard, among others, has made postconstruction evaluation of neighborhood projects more practical and cost effective.

Mayer Spivack has suggested a simple technique for evaluating neighborhood space designs. He maintains that the proper role for designers is to begin at the beginning:

If you are interested in the evaluation of projects you design, you must know what the assumptions are. There are four easy rules. First, write down your assumptions about how the space will be used as you go through the design process. Second, design those assumptions. Third, change the assumptions or predictions or design decisions into working hypotheses. Statements such as "I expect this space to be used thus and so by this group and that group at such and such times" should suffice. Fourth, after construction, observe to see if the hypotheses are validated. This does not require sophisticated, quantitative techniques but, rather, qualitative, precise, unbiased looking.⁴⁹

This is a good starting point. But the need for designers to play a more active role in every aspect of postconstruction evaluations of neighborhood space designs is clear and will increase their ability to provide suitable neighborhood environments.

THINGS FOR YOU TO DO

The following exercises will clarify the issues raised in this chapter. Some will check your understanding of the material; others will help you articulate your own values or give you insights into neighborhood-