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The Utopianism of Children: An Empirical Study of Children's Neighborhood Design Preferences

by

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Abstract: Little is known about the environmental preferences of children. While planners have been actively engaged in the task of teaching children about planning, relatively little academic research has been conducted on what children can teach the discipline about planning. This paper summarizes the results of a survey of the planning preferences of 248 elementary school children, kindergarten through second grade. Three specific research tasks were formulated: to quantify the neighborhood design preferences of children and how they vary by gender and age; to investigate children's preferences for and understanding of neighborhood; and to investigate the pedagogic insights obtained from the study. The content analysis of the 248 neighborhoods analyzed in this study revealed a preference for land use variety and for places associated with activity and social interaction. Children tended to favor diversity and accessibility, as opposed to homogeneity and privacy. Natural areas were sparsely represented, as children tended to foster a social concept of neighborhood. Further, the children's plans were different in terms of age and particularly in terms of gender. Children were able to conceptualize "neighborhood" even at the kindergarten level, and many of their conceptualizations were not dissimilar from the traditional view of neighborhood espoused by planners. Planners should pay special attention to the fact that the results reported here, which are consistent with previous related research, strongly support the notion that children favor neighborhood environments that are diverse, stimulating, and socially engaging.

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THE UTOPIANISM OF CHILDREN: AN EMPIRICAL STUDY OF CHILDREN'S NEIGHBORHOOD DESIGN PREFERENCES

Appreciation of the environment begins at a very early age, marked by an intensity of exploration usually lost on adults, yet relatively little is known about the environmental preferences of children. For example, empirical research documenting what children would include in their conception of the "ideal" town or neighborhood is almost entirely lacking. While planners have been actively engaged in the task of teaching children about planning, scant academic research has been conducted on what children can teach the discipline about planning. Although children are a powerless minority, they are highly impacted by planning decisions and therefore their opinions are worth seeking out.

This paper summarizes the results of a survey of the planning preferences of 248 elementary school children, kindergarten through second grade. The survey was open-ended - students were asked to draw their "ideal neighborhood", using a simple map of several blocks. The overall intent of the research project was to gain a better understanding of the planning visions of children for the fundamental reason that these preferences reveal something about how children perceive their environment. Since planners have a responsibility to plan successful environments for children, planners should begin with a relevant basis, i.e., a firm grounding in how children experience their macro environment (i.e., the world outside of their home).

Many planners are, in fact, actively engaged in teaching children about planning and are therefore indirectly learning about children's views on planning. The American Planning Association's publication *Resources* lists a host of organizations (e.g., Center for Understanding the Built Environment or CUBE) involved in planning pedagogy, and offers advice on such topics as teaching the concept of sustainability to children. Yet their primary focus is on developing effective ways to teach children about planning and thus build an informed constituency, not on assessing, in a rigorous manner, the environmental preferences of children.

This paper employs one of the educational tools developed by APA to empirically analyze the planning preferences of children. Our goal is to contribute to a research base which can be used to build a better understanding of the needs of children from a planning perspective. Beyond this, we seek an appreciation of the environmental cognizance of children, since their views offer a fresh perspective on the adult world of planning.

PERSPECTIVES ON CHILDREN'S RELATIONSHIP TO THEIR ENVIRONMENT

How children understand their environment has been the subject of a great deal of academic investigation in a variety of fields over the past 25 years. In this section, we present a brief review of some of the key findings and conceptual frameworks which have some bearing on the research reported in this paper.

The range of topics which could be included here is wide. For our purposes, we have grouped the relevant research topics (with a few selected references) pursued in geography, planning, and the environmentally based sub-disciplines of psychology and sociology into the following four categories:

1. Children's knowledge/understanding of their urban or suburban environment:
 - At what age do children acquire an understanding of their environment? (Matthews, 1992; Hart, 1979)
 - How do children characterize their environment? (Aitken and Ginsberg, 1988)
 - How does childrens' knowledge of place differ from that of adults? (Doherty, et. al., 1989)
2. The environmental preferences of children:
 - The housing style preferences of children (Devlin, 1994)
 - Places children like, dislike or fear (van Andel, 1990)
3. Children's acquisition of spatial knowledge:
 - What is the place-learning ability of children? (Golledge, et. al., 1985)
 - What factors affect the environmental cognition of children? (Hart, 1979)
4. The effect of the environment on children:
 - What is the effect of housing density on childhood development? (Weinstein and David, 1987; Wohlwill and van Vliet, 1985)
 - How much "green" space do children require? (Nabhan, 1994)

In light of the specific research conducted in this paper - i.e., the investigation of the neighborhood design preferences of elementary school children - the most germane research topics are the first two categories listed above. In this section, the current state of research in these two areas is reviewed.

Children's Knowledge and Understanding of their Environment

What do we know about how children experience their environment? Central to this inquiry is an understanding of how children characterize their environment, the degree of knowledge they have, and what their overall environmental experience is.

Research has revealed that the environmental experience of a child is different from that of an adult (Matthews, 1992). The childhood experience appears to be much more about texture and variety than specific functions, the tactile rather than the visual. This has been seen through an investigation of adults' recollections of childhood places (Lukashok and Lynch, cited in Hart, 1979; Moore, 1986; Cobb, 1977), who seem to recall most fervently the "forms, colors, and motions, the sights and sounds of the external world of nature" (Cobb, 1977, pg. 130). Relatedly, Aitken and Ginsberg (1988) found that children's experiences of place were tied to creative, emotional, social and self-awareness place qualities.

To some extent, the environmental competence (i.e., level of understanding and knowledge of environment) of children has been underestimated (Matthews, 1992), in part because of the immensely varied and intricate environmental experience they appear to have. Although places are imbued with social meaning, children experience their environment in a highly personal way, grounded in what Hart (1994) refers to as the child's "phenomenal" landscape. Research on children's environmental imagery has shown that their experience is a complex system of multi-faceted environmental layers which "press" upon the child (Garbarino, 1985). One of these layers is referred to as the "mesosystem", the local setting comprising the social and geographical context of the child outside of the home (Bronfenbrenner, 1979). This environmental system is particularly relevant to planning. In essence, research has shown that "the stronger, the more diverse and the more positive the links between [local settings], the more beneficial and influential will the resulting mesosystem be upon a child's environmental opportunity" (Matthews, 1992, p. 8).

Children also experience their environment indirectly, through mass and interpersonal communication. Here children acquire an "invisible, but real, information environment" (Gould and White, 1986). Images of ideal neighborhoods, for example, appear on television sets (e.g., *Mr. Roger's Neighborhood*), as well as in books (e.g., Richard Scarry's *Busytown* books). These symbolic, environmental images have a powerful effect on children's views of the world. Of course, children view these images through their own social and cultural lenses, interpreting and selecting information according to their life experience. Yet it is important to note that these environmental images, derived from secondary sources, may be no less real than a direct encounter with the environment, particularly in terms of the meanings attached to certain kinds of environments (Burgess, 1990).

Studies of the Environmental Preferences of Children

The interaction between the various levels of childhood experience (from family relations to the larger, cultural sphere) has been shown to influence the child's sense of place and environmental imagery. But how such factors control how children experience their environment may be of less immediate importance to planners than an understanding of children's feelings towards their environment. The environmental or place experience has been described as "action in, knowledge of, and feelings toward place" (Hart, 1979). Thus preferences may be viewed as one component of the total environmental experience.

Although few studies have focused on the land use preferences of children specifically, children's attractions to activity, variety, and interaction can be linked to land uses which provide and foster these types of activities and settings. Hart's (1979) study of the favorite places of children revealed that younger children (kindergarten to third grade) seemed to stress the importance of social places, valued because of the social activity associated with a particular place, and commercial places, valued because of what could be bought or obtained in a particular place. One study in which children were asked to draw their favorite places to go after school and on weekends (Moore, 1986) found that children exhibited a wide variety of land uses - fifty-two different types of places. In addition, the study found that children exhibited a high preference for natural places, such as parks and open spaces. Interestingly, there were few drawings of stores and commercial spaces. Moore postulated that the omission was because children associated stores with running errands, not leisure time activity.

The study of children's feelings about the environment has been approached in several different ways. Some research has focused on how children's feelings about the environment differ from those of adults (Miller and Rutz, 1980; Balling and Falk, 1982). Others have studied children's perceptions of the "affordances" of places, where children rate environments based on the opportunities they provide (Gibson, 1979; Matthews and Airey, 1990). What emerges repeatedly in the literature on children's environments is that children prefer areas that are diverse and accessible, as opposed to homogenous and isolated (van Andel, 1990; Moore, 1986; Jacobs and Jacobs, 1980; van Vliet, 1980). Studies of the playground preferences of children reveal that playground environments created by adults are often severely limiting in the child's mind view, particularly in terms of how they remove children from play opportunities in the surrounding, more stimulating world of adults. As Matthews concludes, "highly formalized and partitioned environments are unattractive to most children" (1992; pg. 229).

Many studies of children's environmental preferences have involved documenting what children like or dislike about a particular environment shown on a photograph or slide (termed "place reactions"; see Bunting and Cousins, 1985, and Bernaldez, et. al., 1987). For example, some researchers have investigated the housing style preferences of children and how these differ by gender, race or income (Schiavo, 1990; Devlin, 1994). Gender differences appear to be the most predominate. Not only have gender differences been revealed in studies of housing style preferences (Devlin, 1993), but also in studies of adult recollections of childhood environmental experiences (Moore, 1986), and in the environmental cognizance of boys vs. girls (Doherty, et. al., 1989). Devlin (1993) found that although socioeconomic and regional differences in housing style preferences were not present, gender differences were.

RESEARCH QUESTIONS

The focus of this study is on assessing children's affective images of the environment, revealed through their prescription for the "ideal neighborhood". Children's land use preferences reveal both their knowledge of and feelings about their local neighborhood or macro environment.

Three specific research questions were postulated:

1. What are the neighborhood design preferences of children, revealed through quantified, empirical analysis? How do these differences vary by gender and age?
2. How do children view the concept of "neighborhood", and how do their views differ from the views of neighborhood traditionally espoused by planners?
3. What level of knowledge do elementary school children, aged kindergarten through second grade, exhibit for land use design?

The first question evolves from the view that planners should be concerned with planning successful environments for children, and that therefore planners should be actively engaged in seeking an understanding of what the environmental preferences of children are. To add further dimension to this understanding, the study investigates how children's preferences differ by age and by gender.

The second research question focuses more directly on the child's view of neighborhood. The neighborhood scale was chosen not only because it describes the immediate and best known realm of children (outside of their homes), but also because the concept of neighborhood has traditionally had specific significance for planners. Of particular interest is the fact that the

children surveyed in this study live in a rural area, interspersed with low-density housing developments, not organized into traditional type neighborhoods. With the current interest in new urbanism and neotraditional neighborhood designs, the question of how children's views interrelate with these ideals is a relevant topic. To some degree, children's views reflect an innate, raw view of neighborhood, conditioned by their own experience, but unfettered by practical constraints.

The final research question is pedagogic. As planners teach children about planning, it is important to understand what children's base level of knowledge and understanding of the environment is. If planners quiz children about their views of neighborhood, for example, what can be expected in terms of their baseline understanding of the concept? This is important not only for helping to formulate planning educational endeavors for children, but also for conducting future comparative research about the planning cognizance of children.

STUDY DESIGN

A total of 248 public elementary school students, their grade levels ranging from kindergarten through second grade, participated in the exercise. The elementary school is located outside of the city limits of Morgantown, West Virginia (population of the metropolitan area is approximately 42,000). Four classes from each grade level were surveyed for a total of twelve groups in all. Kindergarten students comprised 33 percent (82) of the total population while first and second grade students accounted for 37 percent (95) and 30 percent (75) respectively. Only a slim margin of difference (1.6 percent) existed between the total number of female students and the total number of male students who participated in the study.

The survey instrument used was taken directly from one of the American Planning Association's educational publications (1996), and is shown in figure 1. The survey is fairly unstructured, with only a simple diagram of several streets and blocks laid out in a grid. After a ten minute discussion during which students were asked about their ideas about neighborhoods and city form, the students were asked to design the "perfect neighborhood", and told that they could include whatever they wanted. Thus the survey was open-ended.

Relative differences between the drawing abilities of participants at each grade level lent a degree of uncertainty to our interpretation of individual plans. However, we were aided by the fact that older students were told to label the features that they included in their neighborhood plans, which helped to reduce the possibility of misinterpretation during the content analysis.

Figure 1. (about here)

In addition, class teachers and parent assistants consulted with students to ascertain exactly what features students had drawn in instances where this was not apparently clear, and the plans were labeled accordingly.

RESULTS AND DISCUSSION

Land Use Preferences

Table 1 depicts the range of elements that were included in the student's neighborhood plans and the ranking of each element based on the total number of respondents who included a particular element in their plan. A total of 49 spatial features were recorded from the plans. Non-spatial elements were grouped into two additional categories labeled "Person" and "Action/Moving object". In addition, a category of "Other Object" was established to capture those features which were either unlabeled and/or indecipherable by the researcher. An additional aspect of these plans was the inclusion of one or more similar features in their design (e.g. a neighborhood with 3 single family houses, 2 stores, etc.). Hence a separate ranking of elements or features was developed, termed "events", based on the number of each element included in the student's plans (listed on the right side of table 1).

Using percentage of elements as the sole criteria and excluding non-spatial elements, it can be shown that a majority of the students preferred the following spatial features in their neighborhood: single family homes, schools, stores/shops, pools, parks, churches, and hospitals. Non-spatial elements were also included within the top ten choices of the participants: other objects, persons, and action/moving objects. Comparing element rankings with event rankings reveals only minor variances within the order of the top ten features. The "single family home" and "other object" categories predominated in both the elements and events rankings; however, significantly more store/shops were depicted than schools in the latter ranking.

Table 2. (about here)

The wide array of land use preferences can be aggregated into four dominant land use types (and one "other" category):

residential (e.g., house, "neighbor's house", trailer park, mansion)
commercial (e.g., store, mall, gas station, bank)
recreational (e.g., park, playground, arcade, amusement park, zoo)

public/non-recreational (school, library, hospital, church, fire department)
 other (e.g., non-spatial objects, moving objects, people)

Table 2 shows the *mean representation rate* for each land use type. This rate, after Moore (1986), is the number of events of a given type of land use divided by the total number of plans (n=248). Residential land use, with a representation rate of 3.48, is by far the most represented type. Commercial and public/non-recreational uses have roughly the same representation rate, followed by recreational uses. The “other” category, which does not include land uses, was slightly more prevalent than commercial and public land uses.

Table 3. Mean Representation Rates for Major Land Use Types

Land Use Type	Number of occurrences	Mean Representation Rate
Residential	864	3.48
Commercial	431	1.74
Recreational	381	1.54
Public/non-recreational	428	1.73
Other	473	1.91

The fact that residential uses are the dominant land use type is not surprising. What is however somewhat unexpected is the fact that commercial uses are as well represented as public land uses, and are better represented than recreational uses. Thus the respondents were more likely to include uses which involve commerce than uses which would traditionally be viewed as being more closely associated with the macro environment of children, such as playgrounds and parks (this point is discussed further in the next section).

The results do not reveal that children have a close affinity to the natural world, as Moore’s (1986) analysis indicated. This may be due to the fact that the land use design exercise was put into the context of “neighborhood”, rather than as an open-ended question of overall “favorite places”. Therefore, if the preferences of children are viewed within the context of neighborhood, land use preferences move well beyond the natural world. In fact, the natural world (e.g., forests, lakes, fields) was not well represented.

The mean representation rates by gender for the major land use categories are presented in table 3. The results support the finding reported earlier that differences in environmental preferences do exist along gender lines. In comparing these rates, the most significant finding is that the inclusion of residential land uses among females was much higher than for males. Commercial and public land uses were also higher. The higher incidence of residential land uses

among females is consistent with other research (Matthews, 1992), reflecting perhaps a more home-centered view of the environment among girls.

Table 4. Mean Representation Rate for Major Land Use Types, by Gender

Land Use Type	Mean Representation Rate - Males (n=126)	Mean Representation Rate - Females (n=122)
Residential	2.55	4.45
Commercial	1.59	1.89
Recreational	1.53	1.55
Public/non-recreational	1.60	1.86
Other	1.92	1.89

Gender differences can be evaluated in more detail. Referring to table 4 it is evident that those features which were ranked as the top ten elements for boys were also those ranked within the top ten elements for girls. The lone exception is that of churches. Whereas 40.2 per cent of the female students included churches within their community plans, by contrast only 21.4 per cent of the male students, or roughly one half the percentage of the female students, placed churches in their neighborhood plans. Other elements which showed a wide difference in percentage between the male and female respondents include single family homes (11.8), schools (13.0), offices (12.7), restaurants (8.6), libraries (7.7), and trailer parks (4.91).

While the male population included 96.2 percent (50) of all the 52 possible elements in their plans, the female population included only 90.4 percent (47). However, the female plans were in fact more diverse than those of the male students. Specifically, there was an overall difference of 11 percent between the average total number of different elements included in the female student's plans (7.18 elements/plan) and those of the male students (6.39 elements/plan).

Table 5. (about here)

Age related differences in mean representation rates for major land use categories are shown in table 5. Most striking is the much higher incidence of residential land uses (more than double) among second graders, as compared to either first grade or kindergarten children. Further, commercial and recreational uses are represented more frequently by older, as compared

to younger children; recreational uses are particularly strong among second graders as opposed to kindergarten children. The low representation rate of recreational uses among kindergarten children is somewhat surprising; however, the rates indicate that kindergarten children substituted public uses (schools, libraries, churches and hospitals) and “other”, non-spatial objects for traditional recreational uses such as parks and playgrounds.

Table 6. Mean Representation Rates for Major Land Use Types, by Age

Land Use Type	Mean Representation Rate - Kindergarten (n=82)	Mean Representation Rate - 1 st grade (n=95)	Mean Representation Rate - 2 nd grade (n=75)
Residential	2.51	2.48	5.63
Commercial	1.48	1.68	2.00
Recreational	0.77	1.72	2.07
Public/non-recreational	1.99	1.41	1.75
Other	2.21	1.89	1.49

Not surprisingly, kindergarten children had a greater incidence of objects, animals, people and moving objects than the older children. This suggests that at the kindergarten level, the depiction of neighborhood is highly animated - people, animals, moving objects, and other non-spatial items are almost as prevalent as residential land use.

Spatial v. Non-spatial

As previously mentioned, the students included within their neighborhood plans a number of elements which could not be classified as *land uses*, ranging from people and automobiles to the circus and activities such as skateboarding. These elements, classified here as “non-spatial”, were recorded as either objects, action/moving objects, or persons. The incidence of spatial vs. non-spatial elements is summarized in table 6.

Table 7. (about here)

While only approximately 6 percent (3 out of 52) of the total number of elements included within the student neighborhood plans were non-spatial in nature, they accounted for 18.34 percent of the total number of recorded events. For the total population the ratio of spatial

to non-spatial objects was 4.45, or 4.45 spatial objects for every one non-spatial object in a plan. The ratio was larger for female students (5.14) who incorporated relatively fewer non-spatial objects in their plans than did their male counterparts who had a spatial to non-spatial ratio of 3.79.

As the grade level increased the ratio of spatial to non-spatial objects increased from 3.06 for the kindergarten classes collectively to 7.67 for the second grade classes collectively. While only a 0.5 percent difference separated the kindergarten class (181 total non-spatial objects) from the first grade class (180 total non-spatial objects), the difference between kindergarten and second grade was more pronounced. There were 181 non-spatial events recorded for the kindergarten class, compared to only 112 non-spatial events recorded for the second grade (a 38 percent decrease).

In terms of gender differences, the male kindergarten group showed the lowest spatial to non-spatial event ratio (2.58), while the female second grade group held the highest ratio of spatial to non-spatial events at 9.77. Within the gender divisions, the male students' ratio of spatial to non-spatial events per neighborhood plan increased by 55.4 percent overall while the female students ratio increased by 63.4 percent. For the female student population, there was a dramatic 60 percent increase in the spatial/non-spatial ratio between the first and second grades. This outpaced the 34.5 percent spatial/non-spatial ratio increase within the male population between the first and second grades.

Recreational v. Utilitarian Features

For this part of the analysis, plan elements were grouped into either of two categories: "recreational" or "utilitarian". Recreational features include ball barks, arcades, movie theaters, playgrounds, zoos, and the like. Utilitarian features include police stations, recycling centers, banks, factories, etc. Since the intent of this analysis was to contrast the prevalence of "fun" vs. more "responsible" land uses, residential uses and non-spatial objects were not included in this portion of the analysis. A summary of the results is shown in table 7.

Table 8. (about here)

While the recreation category had more total elements included than the utilitarian category, there was a 13 percent difference between the total number of utilitarian events (497)

and the total number of recreational events (440) depicted in the student's plans. This seems to indicate that among the general participant population, recreation and fun did not take precedence over more "responsible" land uses. Many students seemed to employ the notion that neighborhoods are miniature cities, requiring a variety of different civic oriented land uses.

Overall, the recreational to utilitarian event ratio increased dramatically with age. Specifically, between kindergarten and second grade the ratio of recreational to utilitarian events increased from .38 to 1.25. This may reflect a propensity toward increased involvement in various recreational activities as children mature.

A comparison between the recreational/utilitarian ratios of the total male and total female populations indicates a 31.9 percent difference. While male students depicted recreational and utilitarian events in their plans at a rate of 1.16 to 1 respectively, female students included recreational and utilitarian events in their plans at a rate of .79 to 1 respectively. Thus the male student population accounted for 262 total recreational events and only 225 utilitarian objects while the female students accounted for 215 recreational events and 272 utilitarian events. In sum, female kindergarten, first grade, and second grade students overall had a higher preference for the inclusion of utilitarian spatial features in their neighborhoods than did their male counterparts.

Children's vs. Planners' Concept of the Ideal Neighborhood

The concept of neighborhood and its ideal form is a topic of long-standing interest to planners. A resurgent focus on the importance of neighborhood has been spurred by *new urbanism*, an umbrella term which describes neighborhoods built on pre-World War II notions of the ideal urban form. These longstanding notions are based on the goals of fostering sense of community and resident interaction by mixing land uses (incorporating retail or civic facilities within neighborhoods), promoting pedestrianism, and including public spaces such as parks and community facilities as an integral part of the neighborhood. These basic tenets have in one form or another been espoused by a number of planning theorists, notably James Rouse (1978) and Clarence Stein (1957), and, more recently, by new urbanists such as Calthorpe (1993), and Langdon (1994), among others.

The children's concepts of neighborhood revealed in the plans analyzed in this study were animated and diverse. One representative plan, shown in figure 2, is illustrative of the kind

Figure 2. (about here)

of diversity found. There was also a degree of civic-mindedness - i.e., land uses were not dominated by fun and fantasy. Yet the animation, variety and civic-mindedness of the children's preferred neighborhoods did not reflect their current environment. Since the exercise was predicated on idealism, and therefore the results were utopian (i.e., children were asked to design their "ideal" neighborhood), the inclusion of non-familiar land uses was not surprising. However, the degree of diversity is significant because it reflects the ability of young children to conceptualize, idealize, and expand upon the neighborhood ideal.

While the children's neighborhood plans were strong on civic-minded uses and commercial activity, this diversity did not extend to the realm of housing. The familiarity hypothesis, which has been put forth in attempting to explain children's housing style preferences (Devlin, 1994) appeared to be a factor in housing choice since multiple-family housing was not prevalent (and multiple-family housing represents only 7 percent of the housing type found in the area where the respondents live; see Talen, 1997). However, the familiarity hypothesis was not operative for non-residential land uses. This seems to indicate that the non-residential aspects of neighborhood are strongly influenced by indirect concepts (e.g., through books and television), while the inclusion of residential types are dominated by the home environment with which children are most familiar (i.e., single-family housing).

To some extent the land use diversity preferred by children coincides well with the neighborhood design ideals espoused by planners. It was reported earlier, and confirmed by the results reported here, that children prefer diversity, stimulation, and the opportunity for social interaction. The basic tenets of new urbanism - mixed land uses, the inclusion of community facilities, the importance of streets as social spaces - provide these opportunities, and thus are supported by the land use preferences of children reported in this study. Clearly, land use diversity and access to a wide variety of "adult" land uses at the neighborhood level was an important component of the neighborhood view of the children included in the study. In some ways, the results of the study indicate that children are "natural" new urbanists. The results are particularly noteworthy since the children in this study were from an area of low-density suburban sprawl; it is likely that the children had little, if any, exposure to traditional or neotraditional neighborhood forms.

The high incidence of commercial land uses in particular may be related to the notion that children seek to be an integral part of the adult world, not isolated from it in what has been referred to as *childhood ghettoization* (Matthews, 1992). Neotraditional neighborhood form provides the opportunities desired by children by making "adult" spaces like streets, stores, and

community facilities accessible at the neighborhood level. In this way, children's environmental needs are obtained on the basis of a *shared* as opposed to a *child* oriented conception of environment (see Ward, 1977).

Hart's (1979) finding that children aged kindergarten to third grade tend to stress the importance of social places (valued because of their potential for social interaction), and commercial places (valued because of what could potentially be purchased or consumed), is supported by the research results reported here. Children tended to have a socialized, commercialized view of neighborhood, rather than a more naturalized (i.e., natural world) view. The predominance of the social and commercial aspects of neighborhood is striking particularly since the neighborhood environments of the children in the study do not contain commercial land uses. Again, this suggests that the indirect experience of children - their view of neighborhood obtained from books and television - dominates their environmental experience.

The prevalence of commercial land uses - i.e., stores - is not consistent with Moore's (1986) study, discussed earlier, which found that children did not include stores in their drawings of favorite places. One reason for the discrepancy may be that Moore's study did not focus on the concept of "neighborhood" specifically. Clearly, children in the study reported here were comfortable with the inclusion of stores and other commercial facilities in their idealized neighborhoods. The obvious implication is that children equate commercial land uses with diversity and social interaction.

Teaching Planning to Children

In terms of the pedagogic value of the study results, there is some indication that children even at the kindergarten level are well aware of the land use diversity that can exist in the world beyond the home. As noted, it is intriguing that the children included such diversity and creativity in their neighborhood concepts, despite the likelihood that few, if any, are familiar with more urbanized areas where mixed land uses and local, neighborhood shops would indeed be part of a "neighborhood". Several conclusions can be made. First, children seem to require little coaching on what a neighborhood is, and despite the homogeneity of the neighborhood environments they reside in, they possess a wealth of ideas about the concept of neighborhood, even as early as age 5. While kindergarten children did include a wide range of non-spatial objects, indicating a lack of understanding of the spatial dimension of land use, the fact that they were able to include many relevant elements in their neighborhoods indicates that the exercise was entirely appropriate for kindergarten age.

Second, the present home environment of the children in the study did not appear to be a constraining or controlling factor. Children showed a prevalence toward diversity in their schemes, and thus did not feel the need to reflect their own, familiar experience of neighborhood. Since this indicates that children's knowledge of environment is strongly influenced by indirect experience, planners should be aware of this influence as they attempt to relate various planning principles to young children. It could be that young children are highly receptive to a much wider array of planning concepts than is currently included in planning educational exercises. If children can include a wide range of land use types in the absence of any first-hand experience of neighborhood diversity, it is likely that their knowledge of environment is much more complex than we currently allow.

We have emphasized that research has shown that children are attracted to environments full of activity, variety, and the potential for social interaction. This research corresponds with the related notion of land use preference: consistently, the children in the study did tend to favor land uses which can be associated with animated, playful, socially oriented activity. From an educational standpoint, it is important to note that the degree of animation and activity (reflected by, for example, the inclusion of non-spatial or moving objects) varied widely according to age and gender. Even in comparing kindergarten children to second grade students, there appeared to be a fairly steep curve in the ratio of spatial to non-spatial objects included. To some extent, this may reflect a lessening of uncontrolled imagination as children get older. It would be interesting to compare the research results reported here with the neighborhood plans of children in higher elementary grades. To what degree does the inclusion of land uses associated with activity, variety and sociability lessen with maturity? Are these elements a reflection of the more animated, imaginative view of younger children, destined to be scaled back as children mature?

CONCLUSION

The content analysis of the 248 neighborhood plans in this study revealed a preference for land use variety and for places associated with activity and social interaction. Children tended to favor diversity and accessibility, as opposed to homogeneity and privacy. Natural areas were sparsely represented, as children tended to foster a social concept of neighborhood. Further, the children's plans were different in terms of age and in terms of gender. In particular, girls appeared to show more diversity in their plans than boys. Younger children included more animated, non-spatial elements than older children. Despite this lack of focus among the younger

participants, the exercise appeared to be age appropriate. Children were able to conceptualize “neighborhood” at even the kindergarten level, and except for the inclusion of non-spatial objects, many of their conceptualizations were not dissimilar from the traditional view of neighborhood espoused by many planners.

Planners should pay special attention to the fact that the results reported here strongly support the idea that children favor neighborhood environments that are diverse, stimulating, and socially engaging. Further, the notion reported earlier that children have a natural tendency to seek out variety and tactile qualities is consistent with the related research findings presented in this paper. Children may simply have a better grasp of the macro environment around them than previously thought. They may in fact have an intuitive feel for its variety, its sights and its movement, whereby they perceive complexity in a world which appears homogenous to adults. In this context, it is not insignificant that a study of children’s versus adults’ knowledge of places in a neighborhood found that children did a better job than adults at recognizing scenes and judging distances (Doherty, et. al., 1989).

Several studies have concluded that low-density suburban settings are detrimental to children’s sense of freedom, their need for complexity, and their connectedness with the larger community (Berg and Medrich, 1980; Hart, 1979; Wohlwill, 1981). Hart postulated that suburban life presents few opportunities for children to develop their environmental competence. The findings of the study presented here, however, indicate that although children in suburban settings may be more isolated and less mobile (because of their dependence on the automobile, their highly structured and programmed play arena, and their lack of exposure to land use diversity), they are still capable of a knowledge of environment that exceeds their current situation. In short, their environmental imagery does not appear to be stifled by a lack of environmental complexity. What may be most interesting to planners is the fact that these children, housed in what many would view as the worst kind of suburban sprawl, had a fairly vivid and articulate concept of what a neighborhood should be. Thus the influence of their “mesosystems” did not appear to weigh heavily in the children’s utopian visions.

Gaining a better understanding of the planning visions of children is a legitimate and worthwhile endeavor which has not been rigorously pursued in the planning profession. One of the research goals of this study was to illuminate children’s environmental understanding, which would help not only in the formulation of planning educational endeavors for children, but also in conducting future comparative research about the planning cognizance of children. It is hoped that the findings reported in this paper will be built upon by contrasting and comparing the

results of other studies of children's views on planning. The vivid utopianism of the plans analyzed here reflect a highly imaginative constituency which can and should be tapped into for the edification of planners.

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Fig. 1 The Exercise

"The Perfect Neighborhood"

If you were designing a brand new neighborhood, what would it be like? What things would it include?

Neighborhood Layout

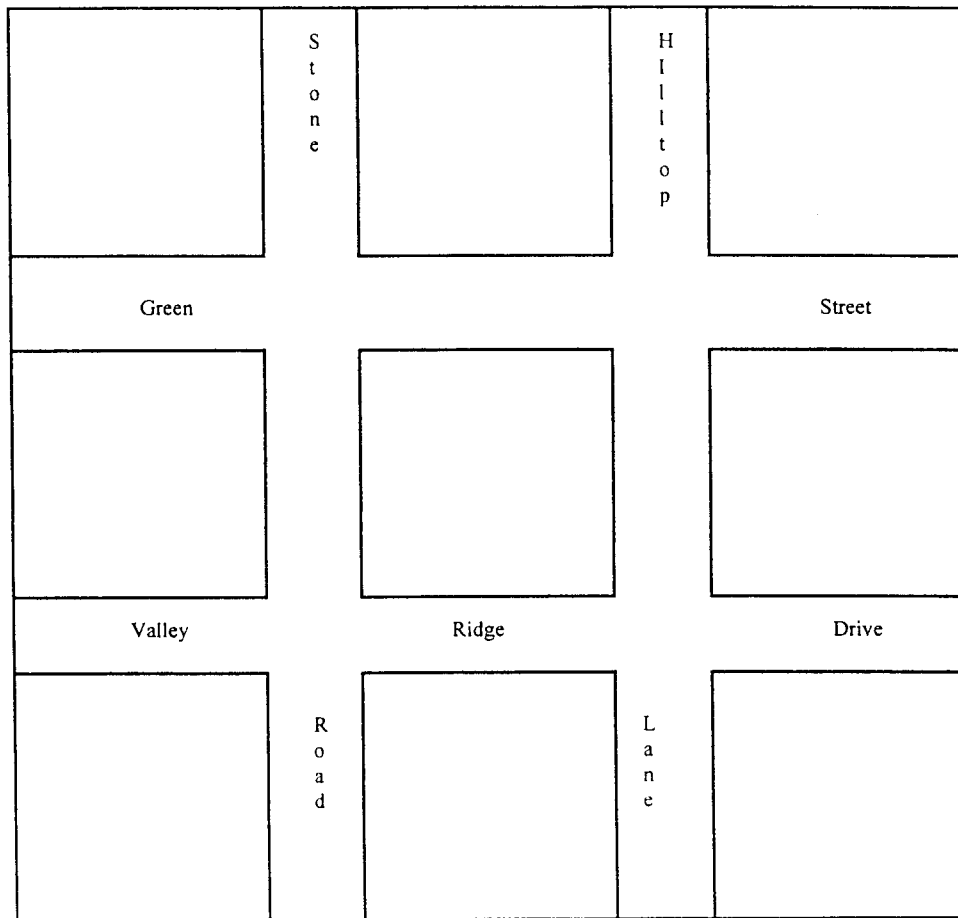


Figure 2. Example Neighborhood Plan (first grade student, female)



Table 1. Plan Features

Elements				Events			
Element	Rank by # of Respondents	Total	%	Element	Rank by # of events	Total	%
City/Town Hall	34	1	0.4	City/Town Hall	35	1	0.0
Military Base	34	1	0.4	Military Base	35	1	0.0
Low-Inc. Center	34	1	0.4	Low-Inc. Center	35	1	0.0
Post Office	34	1	0.4	Post Office	35	1	0.0
Golf Course	33	2	0.8	Recycle Center	35	1	0.0
Space Center	33	2	0.8	Golf Course	34	2	0.1
Bus Garage	33	2	0.8	Space Center	34	2	0.1
Subway/Train Center	32	3	1.2	Subway/Train Center	33	3	0.1
Recycle Center	32	3	1.2	Bus Garage	33	3	0.1
Nursing Home	32	3	1.2	Nursing Home	33	3	0.1
Mansions	32	3	1.2	Mansions	32	4	0.2
Haunted House	31	4	1.6	Haunted House	32	4	0.2
Roller/Ice Skating	31	4	1.6	Roller/Ice Skating	31	5	0.2
White House	30	5	2.0	White House	31	5	0.2
Science Center	30	5	2.0	Science Center	31	5	0.2
House w/Pool	30	5	2.0	House w/Pool	30	6	0.2
Filling Station	29	6	2.4	Filling Station	30	6	0.2
Gym	29	6	2.4	Gym	30	6	0.2
Trailer/Trailer Park	29	6	2.4	Arcade	29	8	0.3
Neighbor's House	28	7	2.8	Neighbor's House	28	9	0.3
Arcade	27	8	3.2	Museum	28	9	0.3
Museum	27	8	3.2	Sports Stadium	27	10	0.4
Sports Stadium	27	8	3.2	Cinema	26	11	0.4
Factory	26	10	4.0	Forest	26	11	0.4
Cinema	25	11	4.4	Trailer/Trailer Park	25	12	0.5
Forest	25	11	4.4	Bank	25	12	0.5
Bank	24	12	4.8	Factory	24	13	0.5
Water/Amusement Park	23	13	5.2	Water/Amusement Park	24	13	0.5
Jail/Police Station	23	13	5.2	Airport	23	16	0.6
Airport	22	16	6.5	Jail/Police Station	22	24	0.9
Ball Park	21	18	7.3	M/F House	21	26	1.0
M/F House	20	22	8.9	Garbage Dump	20	28	1.1
Hotel/Motel	20	22	8.9	Ball Park	19	29	1.1
Garbage Dump	19	28	11.3	Playground	18	31	1.2
Playground	18	30	12.1	Hotel/Motel	17	33	1.3
Library	17	33	13.3	Library	16	37	1.4
Mall	16	38	15.3	Mall	15	38	1.5
Fire Dept.	15	40	16.1	Fire Dept.	14	42	1.6
Restaurant	14	41	16.5	My House	13	43	1.7
My House	13	43	17.3	Restaurant	12	51	2.0
Office	12	51	20.6	Office	11	57	2.2
Zoo	11	59	23.8	Zoo	10	61	2.4
Hospital	10	66	26.6	Hospital	9	66	2.6
Action/Moving Object	8	71	28.6	Church	8	78	3.0
Church	9	76	30.6	Action/Moving Object	7	82	3.2
Person	7	79	31.9	Park	6	94	3.6
Park	6	84	33.9	Pool	5	101	3.9
Pool	5	96	38.7	Person	4	132	5.1
Store/Shop	4	121	48.8	School	4	132	5.1
School	3	128	51.6	Store/Shop	3	194	7.5
Other Object	2	136	54.8	Other Object	2	259	10.1
S/F House	1	219	88.3	S/F House	1	756	29.3

Table 4. Gender Division Student Plan Elements

Element	# of Male Respondents	% of Total Respondents	% of Total Male Respondents	Total # of Objects (rank)	% difference between Male and Female
S/F House	104	41.94%	82.5%	281 (1)	11.8
Other Object	69	27.82%	54.8%	140 (2)	.1
School	57	22.98%	45.2%	59 (5)	13
Store/Shop	56	22.58%	44.4%	94 (3)	8.9
Pool	46	18.55%	36.5%	47 (6)	4.5
Park	42	16.94%	33.3%	44 (7)	1.1
Person	37	14.92%	29.4%	60 (4)	.5
Action/Moving Object	36	14.52%	28.6%	42 (8)	.1
Zoo	29	11.69%	23.0%	30 (9)	1.6
Hospital	28	11.29%	22.2%	28 (10)	8.9
Church	27	10.89%	21.4%	28 (10)	18.8
Fire Dept.	22	8.87%	17.5%	24 (11)	2.7
My House	22	8.87%	17.5%	19 (13)	.3
Mall	19	7.66%	15.1%	19 (13)	.5
Office	18	7.26%	14.3%	18 (14)	12.7
Restaurant	16	6.45%	12.7%	23 (12)	8.6
Garbage Dump	14	5.65%	11.1%	14 (17)	.4
Ball Park	13	5.24%	10.3%	23 (12)	6.2
Playground	13	5.24%	10.3%	15 (16)	3.6
Hotel/Motel	12	4.84%	9.5%	12 (18)	1.3
Library	12	4.84%	9.5%	16 (15)	7.7
Airport	11	4.44%	8.7%	11 (19)	4.6
M/F House	10	4.03%	7.9%	10 (20)	1.9
Sports Stadium	7	2.82%	5.6%	7 (22)	4.8
Forest	7	2.82%	5.6%	7 (22)	2.3
Factory	7	2.82%	5.6%	9 (21)	3.1
Jail/Police Station	7	2.82%	5.6%	18 (14)	.7
Arcade	6	2.42%	4.8%	6 (23)	3.2
Bank	6	2.42%	4.8%	6 (23)	.1
Cinema	5	2.02%	4.0%	5 (24)	.9
Water/Amusmnt. Pk.	5	2.02%	4.0%	5 (24)	2.6
House w/Pool	4	1.61%	3.2%	5 (24)	.7
Gym	4	1.61%	3.2%	4 (25)	1.6
Museum	4	1.61%	3.2%	4 (25)	.1
Recycle Center	3	1.21%	2.4%	1 (28)	2.4
Haunted House	3	1.21%	2.4%	3 (26)	1.6
Filling Station	3	1.21%	2.4%	3 (26)	.1
Space Center	2	0.81%	1.6%	2 (27)	1.6
Subway/Train Center	2	0.81%	1.6%	2 (27)	.8
White House	2	0.81%	1.6%	2 (27)	.9
Neighbor's House	2	0.81%	1.6%	2 (27)	2.5
City/Town Hall	1	0.40%	0.8%	1 (28)	.8
Military Base	1	0.40%	0.8%	1 (28)	.8
Post Office	1	0.40%	0.8%	1 (28)	0
Golf Course	1	0.40%	0.8%	1 (28)	0
Bus Garage	1	0.40%	0.8%	2 (27)	0
Nursing Home	1	0.40%	0.8%	1 (28)	.8
Mansions	1	0.40%	0.8%	1 (28)	.8
Roller/Ice Skating	1	0.40%	0.8%	1 (28)	1.7
Science Center	1	0.40%	0.8%	1 (28)	2.5
Low-Inc. Center	0	0.00%	0.0%	0 (29)	.8
Trailer/Trailer Park	0	0.00%	0.0%	0 (29)	4.9
					1.66
					Mean

Table 4. Gender Division Student Plan Elements

Element	# of Female Respondents	% of Total Respondents	% of Total Female Respondents	Total # of Objects (rank)
S/F House	115	46.37%	94.3%	475 (1)
School	71	28.63%	58.2%	73 (3)
Other Object	67	27.02%	54.9%	119 (2)
Store/Shop	65	26.21%	53.3%	100 (3)
Pool	50	20.16%	41.0%	54 (5)
Church	49	19.76%	40.2%	52 (6)
Park	42	16.94%	34.4%	50 (7)
Person	42	16.94%	34.4%	72 (4)
Hospital	38	15.32%	31.1%	38 (10)
Action/Moving Object	35	14.11%	28.7%	40 (8)
Office	33	13.31%	27.0%	39 (9)
Zoo	30	12.10%	24.6%	31 (11)
Restaurant	26	10.48%	21.3%	28 (12)
Library	21	8.47%	17.2%	21 (14)
My House	21	8.47%	17.2%	24 (13)
Mall	19	7.66%	15.6%	19 (15)
Fire Dept.	18	7.26%	14.8%	18 (16)
Playground	17	6.85%	13.9%	17 (17)
Garbage Dump	14	5.65%	11.5%	14 (19)
M/F House	12	4.84%	9.8%	16 (18)
Hotel/Motel	10	4.03%	8.2%	21 (14)
Water/Amusmnt. Pk.	8	3.23%	6.6%	8 (21)
Cinema	6	2.42%	4.9%	6 (23)
Trailer/Trailer Park	6	2.42%	4.9%	12 (20)
Bank	6	2.42%	4.9%	6 (23)
Jail/Police Statlon	6	2.42%	4.9%	6 (23)
Neighbor's House	5	2.02%	4.1%	7 (22)
Airport	5	2.02%	4.1%	5 (24)
Ball Park	5	2.02%	4.1%	6 (23)
Science Center	4	1.61%	3.3%	4 (25)
Museum	4	1.61%	3.3%	5 (24)
Forest	4	1.61%	3.3%	4 (25)
Roller/Ice Skating	3	1.21%	2.5%	4 (25)
White House	3	1.21%	2.5%	3 (26)
Filling Station	3	1.21%	2.5%	3 (26)
Factory	3	1.21%	2.5%	4 (25)
Nursing Home	2	0.81%	1.6%	2 (27)
Mansions	2	0.81%	1.6%	3 (26)
Gym	2	0.81%	1.6%	2 (27)
Arcade	2	0.81%	1.6%	2 (27)
Low-inc. Center	1	0.40%	0.8%	1 (28)
Golf Course	1	0.40%	0.8%	1 (28)
Subway/Train Center	1	0.40%	0.8%	1 (28)
Bus Garage	1	0.40%	0.8%	1 (28)
Haunted House	1	0.40%	0.8%	1 (28)
House w/Pool	1	0.40%	0.8%	1 (28)
Sports Stadium	1	0.40%	0.8%	2 (27)
City/Town Hall	0	0.00%	0.0%	0 (29)
Military Base	0	0.00%	0.0%	0 (29)
Post Office	0	0.00%	0.0%	0 (29)
Space Center	0	0.00%	0.0%	0 (29)
Recycle Center	0	0.00%	0.0%	0 (29)

Table 6. Spatial v. Non-Spatial Objects

	Overall	Male	Female	Kindergarten	Female		Male		1st Grade	2nd Grade
					1st Grade	2nd Grade	Kindergarten	1st Grade		
Ratio of Spatial:										
Non-spatial objects	4.45	3.79	5.14	3.06	3.58	3.93	9.77	2.58	3.77	5.78
Total # of Spatial Objects	2106	918	1188	553	308	362	518	245	332	341
Total # of Non-spatial objects	473	242	231	181	86	92	53	95	88	59

Table 7. Recreational v. Utilitarian Plan Elements

	Overall		Female		Male		Grade Level		1st Grade	2nd Grade	
	Male	Female	Kindergarten	1st Grade	Kindergarten	1st Grade	Kindergarten	Kindergarten			
Ratio Recreation/Utilitarian	1.16	0.79	0.36	1.00	1.12	0.43	1.27	1.42	0.38	1.13	1.25
Total # of Recreation Objects	262	215	37	87	91	36	98	92	73	185	183
Total # of Utilitarian objects	225	272	104	87	81	83	77	65	191	164	146