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HOUSING IN NEIGHBORHOODS

country which would ensure that the beneficiary is an effective participant in collective decisions with regard to the common good" (Habitat, 1976). However, it is strongly recommended to obtain an active involvement of the private developers from the outset of the planning of the service and light industrial district of Quweismeh.

- "Special attention should be paid to clear definition of public objectives and private ownership rights into conformity with the present and future needs of society; . . . and adoption of policies for long-term leasing of land" (Habitat, 1976). The municipalities of Amman, Quweismeh and Jouweideh should control the land use, thus redefining the legal ownership of the land which is demanded for the future development.

- "Levying of appropriate taxes, eg capital gains taxes, land taxes and betterment charges, and particularly taxes on the unused or under-utilised land, and instituting development charges or permit fees and specifying the time-limit within which construction must start" (Habitat, 1976). Such necessary actions would maintain better control of land and would simultaneously increase the municipal revenue, which would also encourage a continuous improvement of the public services and infrastructure in the district.

- Economic and legislative studies should be initiated by the Municipality of Amman in order that pursuing the

development projects of Quweismeh would not suffer shortcomings or stagnation.

- A multidisciplinary approach is indispensable for the provision of the lacking community service facilities in Quweismeh. This schematic master plan should be carried through, in a more detailed manner, by a team of specialists in the various fields of the relevant disciplines.

- It is extremely important to restore the confidence of the private developers so that they remain attached to the industrial district of Quweismeh and able to maintain both their working and living environment.

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Children's travel behavior

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In a crusade against the private car, Bendixson (1974) advises planners to take a "breakfast-table" look at the average family, where the father takes the family car to work, leaving his wife and children "without wheels."

Unfortunately, planners have rarely examined how children get around in the city. There are, to be sure, some good studies of children in traffic (eg, DELAIS, 1970; SANDELS, 1975; GUTTINGER, 1977), but these deal primarily with safety and accident prevention. Empirically, very little is known about how children travel day-to-day from one place to the other. How do they go to school,

visit friends and reach a cinema or stadium? What difference does age make? How do features of the environment, attitudes of parents, socioeconomic status and other factors influence their traveling?

These and other questions are too important to be simply ignored, and yet, they have been little explored. It is known that parents' fears restrict children's travel. In a recent British study of children above nine years of age it was found that about 80 percent of the surveyed children owned bikes, but that only 2.5 percent of these were allowed to use them for the trip to school (SULLY, 1976). While parents considered some roads more dangerous than others, even streets with sporadic traffic were a source of concern. Not surprisingly, the restrictions were more stringent for girls than for boys, and more for younger than for older children. Holme and Massie (1970) report similar limitations on travel by children from Southwark borough in London.

Table 1
Mean distance travelled for selected activities by residential location

Activity	Mean distance travelled (in meters) ¹		Degrees of freedom		F-value	Sign. level
	City	Suburb	Between groups	Within groups		
Hanging around the street	420	1.410	1	59	3.4	.07
Worshipping	780	3.490	1	91	13.1	.0005
Hanging around a playground	890	1.410	1	58	.89	*
Taking lessons	1.090	3.490	1	47	5.0	.02
Going to library	1.200	1.820	1	134	3.6	.06
Doing an indoor sport	1.510	1.610	1	93	.03	*
Going to a club	1.510	4.900	1	62	15.3	.0002
Doing volunteer work	1.980	3.280	1	25	.88	*
Doing an outdoor sport	2.030	2.550	1	77	1.1	*
Playing pinball	2.290	3.750	1	105	3.3	.07
Going to a dance	2.290	2.450	1	97	.08	*
Eating at a restaurant	2.400	4.270	1	117	7.2	.008
Hanging around a comm. est.	2.660	2.710	1	114	.01	*
Going shopping	3.130	3.440	1	128	.21	*
Going to a sports event	3.910	8.020	1	92	13.8	.0003
Going to a movie	4.900	6.250	1	125	3.8	.05
Going to a museum	5.360	7.290	1	76	3.9	.05
Going to a concert	5.940	11.200	1	70	32.9	.0001
All activities	25.570**	48.230***	1	146	30.3	.0001

* Not significant at $p < .10$ level.

1) Minimum distance 211 meters.

** SD 17.710

*** SD 28.130

Table 2
Transportation for selected activities in city and suburb

Activity	Public transit	Walk	Bike	Car	Other	N
Going to a library						
city	11 %	78 %	6 %	5 %	—	(63)
suburb	23	55	13	10	—	(80)
Going to a movie						
city	66	8	—	27	—	(64)
suburb	74	3	1	22	—	(78)
Going to a restaurant						
city	16	54	—	30	—	(57)
suburb	24	27	3	47	—	(81)
Hanging around a comm. est.						
city	35	58	—	8	—	(52)
suburb	23	63	10	4	—	(78)
Hanging around the street						
city	3	92	5	—	—	(39)
suburb	5	86	9	—	—	(44)
Hanging around a playground						
city	11	73	11	5	—	(37)
suburb	9	61	30	—	—	(33)
Shopping						
city	52	32	1	15	—	(62)
suburb	38	45	5	12	—	(82)
Going to worship						
city	10	52	—	38	—	(50)
suburb	8	31	2	57	—	(63)
Going to club						
city	41	44	3	9	3	(32)
suburb	41	21	3	36	—	(39)
Doing an indoor sport						
city	30	60	—	10	—	(30)
suburb	7	54	13	26	—	(39)
Doing an outdoor sport						
city	16	65	6	12	—	(49)
suburb	10	43	13	33	—	(60)
Going to a sports event						
city	54	23	—	21	2	(39)
suburb	34	28	5	32	1	(76)
Doing volunteer work						
city	24	63	6	6	—	(16)
suburb	32	36	14	18	—	(28)
Taking lessons						
city	56	33	—	11	—	(18)
suburb	29	37	5	29	—	(14)

Beyond these rather common sense observations, however, evidence on children's transportation is conspicuous by being absent, with the notable exception of the study by Mayer Hillman and his colleagues, and another, more circumscribed investigation in which Durlak et al (1976) have looked at children's use and knowledge of the public transit system in Toronto.¹

There is no question, however, that spatial mobility plays a crucial role in children's physical, social, and intellectual development. In order to mature, children need to explore opportunities in their environment. The specialization and separation of land uses has dispersed those opportunities and has increased children's need to travel.

Against the above background I examined, as part of a broader study of children's use, evaluation, and knowledge of the environment, the travel patterns after school and in the weekend of two samples of teenagers in Toronto.² The first sample—consisting of 148 children, aged 14 to 16 years, living in "typical" city and suburban neighborhoods—provided data on the distances and modes of travel and on whether the distances and means of travel differed according to the purpose of the trip. I was especially interested to find out if the travel patterns differed by age, sex, socioeconomic status, and, above all, their home environment (city or suburb).

Activity range

The suburban children travelled far greater distances than the city children for each of 18 different activities, ranging from hanging around commercial establishments to doing sports to doing volunteer work to going to movies. In city and suburb alike children found the church and the library nearby. If they took lessons, this too was usually done not very far from the home. However, for other activities such as going to fast-food outlets, shops and sport events, suburban children travelled much further than city children (see table 1). Their frequent complaints about poor accessibility and the lack of "something to do" in their own neighborhood were entirely in line with objective data from land use analyses of the individual home environments (VAN VLIET, 1981). These environments contained few or no functions other than residential and were characterized by much lower child densities (on the average, 124 children in the 15 to 17 year old age group per square kilometer as compared to 520 per square kilometer in the city).

Older children travelled to more distant places than younger children and boys travelled further away from home than girls, but *only* in the suburbs. Apparently, the city children in this study had most places within reach. Suburban parents of the same social class seemed to declare distant places "off-limits" for their daughters and younger children.

Many studies have demonstrated that people with higher socioeconomic status tend to have a larger activity range. Also in this study, children from higher social class families, in both city and suburb, had a larger radius than did their counterparts from lower status families. There may be several reasons for this. For one, the lower social class children were not chauffeured around as much by their parents. They may also have received less money for the bus or subway and not have owned a bike as often.

Means of travel

The different accessibility of places for city and suburban children should influence the ways they travel. This is confirmed by table 2, which gives an overview of the means of transportation used by the city and suburban children for each of 18 different activities. It is immediately apparent that children travel on foot more often than by public transportation, car or bicycle.

Further inspection of table 2 shows that the dominant mode of travel is not the same for every activity, and indicates the different travel modes selected by the city and suburban children. The biggest city-suburban difference was in walking. The suburban children walked much less, no doubt because of the larger suburban distances. On the other hand, they went more often by bike than did the city children. The suburban children also went more often by car, especially for activities which have a family orientation, such as going to a restaurant or church, and to places not as easily reached by public transportation. However, Toronto has an exceptionally efficient, safe and low cost public transit system, and overall, bus, subway and street car were used by most children in city and suburb alike.

Girls walked more and were more frequently taken by car than boys. Also children from higher social class backgrounds, as well as younger children, were more often driven around. These findings clearly indicate that the effects of distance on children's mode of travel are mediated by such factors as age, sex and social class. These factors, in turn, should be considered in the context of parental norms, traffic hazards and children's previous experience in negotiating traffic.

Self-esteem and independence

In another study of 13 and 14 year old high school students, all living in the Toronto City area (N = 162), I compared children for whom a bicycle was an important means of transportation to children for whom bikes were not as important. Children who frequently used their bicycle were significantly more satisfied with their neighborhood than the other children (fig. 1). The former were also more socially integrated, as indicated by the number of friendly people they knew in their neighborhood.

Furthermore, the feelings of self-esteem and control of these children (measured by the Rosenberg and Nowicki-Strickland scales) were significantly higher. Hillman (1973) has already called attention to this link between children's travel and the development of their independence and maturity. However, on the basis of these data, it is impossible to say which came first, self-esteem and independence or frequent use of a bike. Possibly there exists a relationship of mutual reinforcement.

Other findings from a weekend diary kept by children in this same study show that children who usually travelled without adults on the bus, streetcar and subway got away from home more often and did so for a greater variety of activities. Furthermore, children were also asked to draw "mental maps" of their neighborhood. A content analysis of these maps revealed that the spatial scale and the amount of detail they showed were related to the mode of travel which children typically selected and to their home range. This finding is of interest, because the literature suggests that cognitive representations



Fig. 1: Cycling contributes to a child's sense of self-esteem and independence (photo by the Bicycle Manufacturers' Association of America, Inc).

of the environment may be a *sine qua non* for competent functioning in that environment (eg, WEISMAN, 1981). (See figures 2 and 3).

Conclusions

The results of these two studies suggest a number of things. To sum up, first, city and suburban children differ in how they travel and how far they travel. Second, large activity ranges are associated with low child densities and the absence of nonresidential land uses in the home environment. Third, age- and sex-related differences in travel are more pronounced in the suburbs. Fourth, children make more "excursions" away from home when they use public transportation without adults. Fifth, children's cognitive representations of their neighborhood are related to how they travel. Sixth, children's self-esteem and independence are related to the possibility of travelling by bike.

The aim of the analyses briefly reported here was to explore in a systematic fashion some correlates of children's travel behavior. Only some of the more salient

findings have been presented. One has to be cautious in generalizing these results to other settings. However, the purpose was not to arrive at universally valid empirical observations of children's travel behavior. The objective was rather more to challenge the fallacious assumption that children "just walk" or "get a ride" and, further, to raise questions concerning the ways in which we can rearrange public and private transportation and create environments which accommodate children as full-fledged participants in their own right. Such arrangements may include, for example, youth discount fares, jitneys and special bicycle lanes which in Denmark and The Netherlands are a familiar feature of the urban landscape (figs. 4 and 5).

In the past, planners' concerns for children have generally been limited to the siting of schools and the provision of playgrounds. And yet, there is ample evidence that many of children's activities do not take place in such specialized settings segregated from the "real world." It is time to recognize this fact and create environments in which children can safely negotiate in their daily pursuits.

