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# 9 Habitats for Children: The State of the Evidence

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## INTRODUCTION

At the outset, it should be noted that this concluding chapter is quite different in scope and focus from the preceding chapters. The latter were prepared following a first meeting of the SRCOD Study Group on the Role of Residential Density in the Development of Children in which an agenda of issues meriting attention was determined. Papers prepared by Study Group members addressing these issues were precirculated for a second meeting during which they formed the basis for a discussion of their implications for further research and policy. This discussion generated a set of nine questions around which this chapter is structured. These questions serve as an organizing framework adopted by the editors in the hope of pulling together the diverse perspectives and findings presented in the preceding chapters in a synthesizing review.

The first three questions concern overall impacts of high density on children's psychological functioning and health, the impacts of conditions of low density (i.e., isolation), and the role played by a specific factor ecologically correlated with density, viz. noise. The next set of questions concerns the role of adaptation to long-term exposure to particular conditions of density, as well as the role of factors that may mediate or modulate those effects, such as resource availability and institutional size. The role of particular residential characteristics is the subject of a further question, leading to the specific question of the relevance of existing zoning codes and housing standards for needs and requirements of children. Finally, current demographic trends are examined in terms of their significance for our topic. In a concluding section

of the chapter, major policy issues arising from the preceding review are pointed out, and directions for research required to provide answers to issues that remain unresolved are indicated.

#### Question 1

What are the impacts of high-density conditions in the home on the development of children?

As a very partial answer to this question, one that needs to be qualified in several important respects, the generalization appears to be warranted that high-density conditions in the home *can* negatively affect a young child's general development, although those effects may be less marked in older children. They may be mitigated as well, even for younger children, by counteractive forces operating within the psychosocial environment.

A more adequate answer to this question must take into account, first of all, the ways in which high-density conditions in the home affect a child. Among the most significant, particularly with regard to infants and young children, is the effect of crowding in the home in raising general activity-level and noise level. That is, the members of the young child's social environment, under conditions of crowding, function in a manner quite different from the responsive, interactive character that we commonly associate with it, notably in the case of the mother-child dyad. Because of the propensity of people (of any age) to move around and to make noise, verbal and of other kinds, the aggregation of persons in larger numbers within a small or moderately-sized home is apt to result in a considerable heightening of the level of activity surrounding the child, as well as in ambient noise levels. As a consequence we may expect the child's arousal level to increase, possibly leading to an impairment in the ability to attend selectively to relevant stimuli, along with other effects, both cognitive and motivational. (See chapter 3 for a fuller treatment of these questions.)

Unfortunately it is difficult to specify at what point positive social stimulation changes into negative background stimulation. Not only does this represent a continuum, rather than a threshold function, but the manifestation of the "significant others" around the child and the role they play in the child's environment are obviously dependent on a host of factors: the amount and kind of interaction they engage in with the child (itself based in part on age and sex, e.g., in the case of the child's siblings), the amount and kind of space available in the home, in relation to the number of persons occupying it, the permeability of the space in the home to visual and auditory stimuli, and to noise in particular, etc.

There is indeed research to support the proposition that infants and young children growing up under conditions of crowding appear to be impaired in

their early cognitive development (see chapter 3). Yet the same body of research (notably the work of Wachs and his associates, reviewed by Heft in chapter 3) also points to a particular influence that may act to mitigate effects of crowding, i.e., the availability to the child of a "stimulus shelter," typically a room of its own, into which it can retreat to reduce the amount and intensity of the physical and/or social stimuli impinging on it.

Evidence in this regard comes primarily from research on the first few years of life (up to the age of three). The situation is rather more uncertain once we move to the older age levels. While children of various ages have been shown to be susceptible to the effects of crowding under restricted laboratory conditions, or in nursery school settings — particularly with respect to aggressive behavior — both the epidemiological and the behavioral evidence suggests that crowding in the home exerts less consistent effects for older children and adults (see chapters 5 and 7; also Mitchell, 1971). These findings might be attributed in part to adaptation effects, but more likely represent the progressively lessening role that the home plays in the life of the child, as the latter's life-space expands to include an ever expanding range of loci and areas outside the home: playgrounds, streets, schools, stores, clubs, etc.

It might thus be argued that the "stimulus shelter" that plays such a major role in infancy becomes generalized for older children to the world outside the home, to the extent that a given child has access to it. Obviously this is a gross oversimplification, since the outside world — e.g., schools, buses and subways, playgrounds — may well be characterized by higher levels of density, as well as of activity level, noise, etc., than the home; in fact, typically it is. Nevertheless, the opportunity for a child living in a crowded, congested home to escape from it for periods of time undoubtedly plays an important part in permitting the child to cope with possibly stressful conditions within the home environment.

A further closely related factor, which probably increases in importance as the child approaches adolescence or adulthood, is that of the perception of control over its environment (see chapter 5). That is, a child who is able to temporarily escape from home may experience conditions of stress within the home as less severe because of the sense of control that it perceives having over the environment. Knowing that one can escape a disagreeable or stressful environment acts to make those very conditions more tolerable, even in the absence of action directed at implementing that sense of control — though one suspects that occasional exercise of it is necessary for the individual to retain the sense of perceived control.

The evidence thus suggests that providing children who are subjected to severe crowding in their home with a feeling of control may help to mitigate the untoward effects of such crowding to some degree. Clearly the most effective source of that feeling is the provision of relatively free and unimpeded access to less crowded settings outside the home, for children old enough to venture

into the outside environment on their own. This is in part of course a matter of providing the necessary conditions of access (e.g., through adequate transportation, reasonably safe streets, satisfactory playgrounds and other meeting places for children, etc.). At the same time promoting adults' awareness of children's needs in this regard, and the benefits to them from obtaining periodic relief from overly crowded conditions in the home is clearly important. By the same token such awareness may also be of help for much younger children, by enhancing the parents' sensitivity to the need for "stimulus shelters" in whatever form, and of periodic exposure to less congested settings outside of the home, e.g., through walks, excursions, etc.

While the preceding material has emphasized the child's behavioral and social development, the question of relationships between density and the physical health of the child needs to be considered as well. Here the bi-polar nature of the density continuum becomes particularly apparent. In principle one might suppose that high-density living conditions would foster the spread of contagious diseases. At least indirect support for this view comes from an investigation by Fanning (1967), comparing the incidence of various physical and psychological health problems in families living in apartments, as opposed to detached houses. In every age group, from infancy and early childhood through maturity, the incidence of persons consulting a general practitioner was substantially greater among the apartment dwellers. (Since all families included in this survey came from a homogenous population of families of Armed Forces personnel, they were presumably equated at least approximately in terms of socioeconomic status).

In regard to density as such, however, a number of studies (e.g., Booth and Johnson, 1975; Essen, Fogelman, & Head, 1978) show little if any evidence of a relationship between residential density and general health, or incidence of illness.<sup>1</sup> But Worth (1963), while confirming this result with respect to a density measure of number of persons per area, did find that the incidence of contagious diseases in children (particularly tuberculosis and mumps) reflected inside crowding, i.e., varied with the ratio of people to a room. (This study was carried out in various settlements in Hong Kong, and thus under comparatively severe conditions of crowding.)

Under low density-conditions, on the other hand, health-care delivery tends to become unreliable and access to it difficult, so that children's health should be expected to be impaired on the average. Information on this point is not, however, readily available, and would in any event be contaminated by the obvious effects of correlated socio-economic conditions differentiating low-density rural from higher-density (small town or urban) settings.

<sup>1</sup>A partial exception in this regard is represented in the finding by Booth and Johnson (1975) of an adverse effect of household crowding on physical growth (i.e., weight and height) showing up primarily in children beyond the age of nine years.

## Question 2

What are the effects of low-density environments and of relative geographic isolation on children?

This question might seem to be of more theoretical than practical interest, as isolation is undoubtedly a far rarer condition for children today than is the other end of the density dimension—crowding. Yet, if we consider some of the diverse settings in which children do in fact grow up—farms and homesteads that are miles away from the nearest town; small, inaccessible islands, parklands and wilderness-like areas, tiny fishing villages cut off from the outside except for occasional coastal vessels; remote outposts in desert and mountain areas being developed through mining or the like—the situation taken world-wide is by no means negligible. In the United States, furthermore, demographic patterns may be operating to bring families increasingly to relatively low-density areas beyond metropolitan regions, as indicated in the data from the 1980 census (cf. Long & DeAre, 1982). Thus the number of persons residing in counties containing no communities of population greater than 2,500 increased by about 565,000 (or 14.6%) over 1970, while counties whose largest settlement is between 2,500 and 10,000 increased by about 1,300,000 or 13.1%.

The available evidence of effects of low-density conditions on children remains quite limited and relates to problems of isolation only in a relative sense, since few if any children live under the more extreme forms of isolation studied in adults under special conditions, e.g., Antarctica, underwater laboratories, etc. (cf. Rasmussen, 1973). Furthermore, there has been a reversal in the nature of the effects that have been shown. In the 1930s, studies of children growing up in remote pockets of rural Appalachia (the so-called "hollows") disclosed a rather grim picture of across-the-board deficit which became increasingly pronounced with age. But more recent studies of children growing up on isolated farms (carried out in Norway and Hungary) as well as on canal-boats in Germany, indicate that whatever negative impact such isolation may exert is much more selective in nature, confined primarily to verbal, and social-role aspects of cognitive development, and possibly also more easily reversible.<sup>2</sup> The discrepancy between these two sets of findings may well reflect the much more widespread access of contemporary isolated children to school (as well as to television), although concrete evidence in this regard is not available.

Our information concerning the development of children living in low-density areas with regard to aspects of their development other than cognitive

<sup>2</sup>For a review of findings from earlier studies of the intelligence of children growing up under conditions of social, cultural, and geographic isolation, see Anastasi (1958). For more recent evidence, see Hollos and Cowan (1973) and Hollos (1975), as well as Hoehn (1974).

and intellectual growth is even less adequate. Yet it is quite possible that it is in areas such as exploration and curiosity, personality traits, and interpersonal behavior that more pronounced effects may be revealed.<sup>3</sup> Thus we are very far from being able to provide a good indication of the probable effects on children of the incipient movement of segments of the population to more rural areas, but the matter clearly deserves much additional study.

It is important to remind ourselves that, as argued in chapter 2, one cannot identify isolation with some arbitrarily chosen index of population density, but must take into consideration the "connectedness" of children to their peers, and to the broader social and cultural environment surrounding them. Thus, in a functional sense, a farm child may be less isolated than a child in a ghetto area, whose parents may confine him or her to the home or to a very restricted area surrounding it, out of fear of harm coming to the child from free contact with others on the outside. Furthermore, as Schoggen and Schoggen argue effectively in chapter 4, opportunity for exploration, and for participation in social activities, is more a matter of the number of behavior settings potentially available to a child than of geographic isolation or population density per se.

Assuming that isolation does exert some residual effects on children, the ways to mitigate them are fairly obvious, i.e., by providing for intermittent opportunities for increased levels of social interaction, both directly (through trips, visits, etc.) and vicariously (through telecommunications—telephone, tapes, mail). The latter may be of particular importance in the case of families that may be denied opportunities for trips and other temporary escapes from their residential quarters, whether for economic reasons, or for reasons of geographical inaccessibility and difficulty in traveling. In addition, there are cultural factors to be taken into account, which in some cases (e.g., the Amish) may lead families to actively preserve the conditions of isolation in which they find themselves. Note that television in and of itself is not likely to be very effective in this regard, because of its unidirectional, non-interactive nature, though it has probably contributed to reducing the overall impact of isolation in the cultural sense.

Finally, it should be pointed out that it would be a mistake to regard low-density conditions, such as are to be found in environmental settings in which children grow up today, as constituting necessarily a negative influence on the child's overall development. While there may be certain aspects of development that are adversely affected, such effects appear to be highly selective, as noted above. It is in fact quite possible that there are other aspects, e.g., in

<sup>3</sup> A considerable impact of cultural and geographic isolation on the development of farm children in Norway has, in fact, been documented by Haggard (1973) in the areas of personality, affect and interpersonal behavior. See also Haggard (1964) for a general review and theoretical analysis of the effects of isolation on personality.

the realms of exploratory behavior, personality, etc., where the reduction in amounts and intensities of stimulation from both the physical and the social environment may have a beneficial impact on the child, or perhaps more plausibly result merely in a difference in behavior patterns that cannot be termed as either positive or negative. Similarly, differences in the social structure and family interaction patterns characteristic of rural as compared to urban areas may be associated with different patterns of role performance (such as participation in household chores) on the part of the children. Again, with the notable exception of Haggard's work (see footnote 3), concrete data on these questions at the psychological level are hard to find.

### Question 3

What is the impact of environmental noise on children, and how is such impact related to density? How is it alleviated?

Among the variables that are more likely to be implicated as mediators of density effects on psychological development that of noise deserves particular consideration for several reasons. First, noise is likely to be correlated with density both directly and indirectly. That is, the greater the number of persons in a given space, the higher the noise level that one may expect them to generate through their speech (consider the background noise at a cocktail party). In addition, the activities engaged in by individuals residing in a child's home (or within earshot of the child) are important sources of further noise: from machinery (large and small appliances; typewriters, tools, etc.), entertainment instruments (hi-fi and TV sets, musical instruments), and indoor sports and games (e.g., video-games). There is thus reason to believe that ambient noise level increases monotonically with density and quite probably in a non-linear and perhaps even exponential fashion, though good data on this question are not readily available.

At the same time, because of small children's relative lack of control over their environment and limited ability to self-select environments, as well as their lesser ability to tune out irrelevant stimuli, they appear to be particularly prone to detrimental effects of background noise, so that density-related noise becomes of particular concern.

We have seen that there is in fact some evidence of negative effects of noise levels in the home on the very young child, though this literature does not specifically establish a tie to density. While conclusive information on this point would obviously be valuable, there are sufficient grounds, as just noted, for assuming such a tie to exist to justify a *prima facie* concern over problems of noise under any conditions of relatively high residential density. More positively, we may suggest that such conditions call for particular attention to ways of mitigating the associated increase in noise level—notably by provid-

ing means for the child to escape from or insulate itself from such noise. Proper insulation, as well as the provision of the "stimulus shelters" referred to in the first section, are clearly important in this regard.

Additionally, the sources of noise external to the home require attention. Effects of environmental noise similar to those emanating from airports in the vicinity of the school, as discussed by Aiello, Thompson, and Baum in chapter 5, may be expected from traffic, industrial noise, and the like. Ecologically, such sources are apt to be most marked in neighborhoods of relatively high density (e.g., in inner-city areas). They are thus likely to combine with relatively high interior noise levels, enhancing the potential for negative impacts. A combination of measures for noise abatement through the design of housing and of planning to reduce major noise sources from residential areas is called for to deal with this problem.

Finally, it should be noted that there exists an entirely different type of noise-related stressor, namely constraints imposed by the parents on children's activities to keep their noise levels low enough so as not to annoy neighbors. Raven (1967) has suggested that such behavioral restrictions promote more sedentary hobbies and passive leisure activities such as television watching.

#### Question 4

To what extent do children adapt to environmental conditions of either high or low density through prolonged exposure to them, and how does such adaptation change with age? What are the long-term costs of such adaptation, if any?

It has been suggested (e.g., Booth, 1976) that one possible explanation for the relatively weak evidence of effects on behavior and social functioning related to density in adults may be the phenomenon of adaptation, that is, the tendency for the individual to come to terms with any set of environmental conditions compatible with life, given sufficient time. The pattern for density effects to be more pronounced the younger the child might seem to bear out this view, whether one interprets it as based simply on the lesser amount of time that the individual has had to adapt the younger his or her age, or assumes a lesser ability of the immature organism to adapt.

Despite the patent importance of this question, in both a practical and a theoretical sense, our lack of conclusive evidence concerning it is abysmal. The most plausible reason for this glaring void in our knowledge is undoubtedly the need for longitudinal information—or, more specifically, for data on children who experience a major change in their environmental conditions and are followed up for an extended period of time, subsequent to that change. While there is a scattering of studies dealing with children who have

moved from a rural to an urban environment or from an underdeveloped to a developed area or country,<sup>4</sup> this research is limited by its restriction to measures of cognitive development (generally IQ). Moreover, it does not provide specific information on the nature of the environmental change, so that the results obtained are difficult to interpret; adequate control groups from both the host and the receiving communities to provide a basis of comparison are generally lacking as well. In any event, none of this work gives any indication of effects of change in residential density conditions, much less of the child's mode of adaptation to these over the course of extended exposure to them.

It may be useful, in connection with this issue, to differentiate between two different ways in which adaptation may take place, all the more since that distinction is relevant to the possible role of age as a mediator of adaptation. On the one hand, adaptation may occur in an essentially passive manner, that is, the individual's response to his or her conditions or circumstances becomes attenuated, or more neutral—essentially a "getting used to it" kind of adaptation. This is to be contrasted to a different process, adjustment of the environment (Wohlwill, 1974), by which an individual may act to alter the conditions to which he or she is being exposed. In the case of density this might entail seeking a temporary change in the actual conditions of crowding, by escaping to less crowded quarters; it might be based on physical or psychological shielding from the impinging social stimulation (by turning off or avoiding such stimulation); finally, it might entail a direct intervention in the environment to create a change, e.g., by prevailing on certain members of a household to move elsewhere.

Young children's ability to adjust their environment in this active sense is rather limited—with the exception of the retreat to a stimulus shelter, where available, as discussed earlier. For the most part, one suspects that the young child is reduced to the more passive mode of adapting to its environmental circumstances. While there is abundant evidence that such adaptation can and does indeed occur over prolonged periods of time (cf. Wohlwill, 1974, for relevant evidence), again there is no specific evidence on adaptation to crowding. Furthermore, the possibility must be considered that such adaptation, even where it may occur, results in untoward side effects—e.g., a heightened tendency to disregard social stimuli; a lowered threshold of irritability or frustration-tolerance—at least in the light of laboratory evidence of such effects (Glass & Singer, 1972). On the other hand, reliance on such passive adaptation might be reduced by providing temporary respite from

<sup>4</sup>Lee (1951) has reported data on the intelligence of black children who had moved from the (predominantly rural) South to the Philadelphia area, while a similar study of rural-urban migration in Italy, employing Piagetian measures of cognitive development, has been contributed by Peluffo (1962). Rather more limited evidence comes from a study by Watson (1973) on changes in IQ of children who emigrated from the West Indies to England.

conditions of stress such as crowding may entail, either by taking the young child out of the home, on walks, car rides, short trips of various kinds, or, where feasible, encouraging the child to create desirable changes in the level of incoming stimulation on its own—a recommendation obviously more applicable to older children.

Atello, Thompson, and Baum (chapter 5) argue convincingly—backed up by some relevant evidence—for just this type of change in children's mode of coping with conditions of crowding, with older children resorting increasingly to avoidance and temporary escape. In fact, this strategy results in problems of its own, in leading to an increasing sense of lack of control by parents over their children under high-density conditions (see also Mitchell, 1971). At the same time it is apparent that to the extent that high-density conditions in the home and associated factors (e.g., noisiness) serve to encourage children to seek out alternative settings for their play, interaction with peers, etc., they act in a centrifugal direction, weakening the child's sense of satisfaction in and identification with its home. The other side of the coin is that such escape and avoidance strategies presumably lead to the development of a sense of control over their environment on the part of children, and thus serve to mitigate whatever sources of stress that environment contains. This, rather than adaptation *per se*, may well be the explanation for the much weakened role played by density in the behavioral functioning and experienced well-being of adults.

### Question 5

How is resource availability related to density, with particular regard to the needs of children?

A likely mediator of density impacts of a very different kind from that considered under the previous question is that of resource availability. It appears reasonable to assume that, as density increases—particularly within the home—material resources become relatively less available to its residents, and to children in particular. This is true by definition as regards the amount of space available to the child for play and other activities—certainly a resource itself of considerable importance for the child's development. But it undoubtedly extends to material resources, in the form of facilities and environmental supports (basic furniture, bathrooms), and above all in the form of resources that may be shared by all children of a household, or all of its members altogether—such as toys, games, television sets.

The assumption that these resources are inversely related to density might be questioned: numbers of TV sets in a household, and possibly even sheer numbers of bathrooms, do reflect to some extent the number of persons in the household. But economic factors necessarily operate to keep both

amount of space and amount of material resources from increasing linearly with the number of persons occupying a household, considering the population at large—especially given the fact that there is an inverse relationship between number of children in a family and family income. The net result is that one may confidently expect a negative relationship between density and resource availability.

Given this ecological correlation, the question arises to what extent density effects may be mediated by resource availability. Common sense suggests that competition for material resources can breed frustration and goal-blocking, and thus lead to aggression and other modes of response to frustration, e.g., withdrawal. Some evidence in support of this notion is provided by studies of children in nursery-school settings in which density and resource availability have been independently varied, which have shown that the latter variable is indeed correlated with aggressiveness. But more revealing is the suggestion that these two variables *interact*. That is, rather than resource availability accounting for effects of density, or the two variables operating additively, it is the combination of high density with low resource availability that tends to produce most consistent negative effects on child behavior, and on aggressiveness in particular. The significance of this finding is apparent, considering the prevalence of precisely this combination in inner-city and other economically disadvantaged areas.

It should be noted that the resource-availability factor, thus far considered only in regard to material resources, can profitably be extended to the social environment. Thus the question arises whether children in high-density homes or crowded playgrounds are the beneficiaries of equivalent amounts and—more important—kinds of stimulation and response from their elders and peers as children in less crowded areas. We don't have good evidence on this question as yet, but for diverse reasons it seems reasonable to assume that high levels of density impair the more intense, interactive kinds of social relationships that children enjoy with both their parents and teachers and their siblings and peers. Such an impairment may be deduced from the infringement on privacy—i.e., opportunity for interaction in dyads or small groups—that is a presumed consequence of high density levels, as well as from the fractionation of the individual's resources of time, energy, etc., in the service of interpersonal interaction, that results from the need to interact with a considerable number of others at close quarters. Number, rather than density, might seem to be the controlling variable here, and in the case of parent-child relations that may in fact be the case, though ecologically, as already noted, family size is apt to be correlated with density. On the other hand, density *per se* probably enters as a prime factor for children interacting with their peers, e.g., on the playground, since it is likely to affect children's ability to interact effectively in small groups. Increase in group size as such, on the other hand, need not create such problems, as long as sufficient space

for the children to spread themselves out properly is available—as many playgrounds attest. Note, finally, that we are undoubtedly dealing with a U-shaped relationship here. That is, groups that are too small, or too low in density may likewise inhibit the formation of optimal social-interaction patterns. This effect would be expected due to the lower opportunity for a child to select individual children as playmates, and the concomitant increase in competition for such playmates, which is apt to lead to an enhancement of isolate patterns of behavior. Although systematic data on this issue remain to be obtained, available research on children's friendships (Rubin, 1980; van Vliet—, 1981; see also chapter 2) and on children's outdoor play does bear out the potential disadvantage of residing in low-density suburban developments. (Admittedly, one would not generally consider these as representing conditions of isolation, but in an ecological sense they may, in fact, approximate some of the aspects of even more dispersed life in certain low-density rural areas, for instance.)

### Question 6

How adequate and appropriate to the special needs of children are standards for housing density and land use that have been specified for residential buildings and developments, and for public and institutional facilities? What evidence is available bearing on the effects of violation of those standards?

The United Nations periodically collects information on the housing situation of people in a great number of countries. Their most recent housing survey shows that people in different countries live under widely different density conditions (U.N. Department of International Economic and Social Affairs, 1976). In part, these differences are accounted for by differences in economic and industrial development which have an impact on the housing construction process. However, even in comparisons within Europe, between countries of approximately equal prosperity, appreciable differences in density conditions are found. For example, in 1979, floor space in dwellings varied from a high of 101 m<sup>2</sup> (square meters) in Belgium to a low of 81.8 m<sup>2</sup> in Ireland (in Eastern Europe, much lower levels are common, e.g., Hungary: 46.3 m<sup>2</sup>, and Poland: 41.8 m<sup>2</sup>) (Economic Commission for Europe, 1980). Likewise, the number of rooms per dwellings ranged from 5.7 in Ireland to 4.2 in Austria (ibid.) and the number of dwellings per 1000 of the population was 420 in Switzerland and only 337 in The Netherlands (ibid.). In spite of common national legislation, considerable differences in density conditions may also prevail between communities in the same country, and such differences even occur between subareas of communities governed by the same local building codes and zoning ordinances. For example, in 1980,

the average occupancy rate of dwellings in Amsterdam ranged from a low of 1.77 in one neighborhood to a high of 6.05 in another (Bestuursinformatie, 1981, pp. 236–237).

In addition to the variability in density conditions across space, density conditions also vary over time. Changes over time result from a number of factors, including demographic ones (e.g., growth and redistribution of population, declining household size), economic and technological ones (e.g., scale and means of housing construction), and normative ones (e.g., rising expectations). The point is obvious, and there is no need to belabor it—density conditions are not the same everywhere, and they change over time.

The question which now arises is: to what extent are variations across space in actual density conditions accompanied by corresponding variations in density standards, and to what extent are changes over time in actual density conditions preceded by corresponding changes in density standards? There has been very little research on this question. However, it is clear that different countries apply quite different criteria to define density conditions. Some illustration of this point may be enlightening. Consider the following different definitions of what constitutes a room. In West Germany and Norway, rooms with a floor space of less than 6 m<sup>2</sup> are not counted as rooms; in Ireland kitchens with a floor space of less than 10 m<sup>2</sup> do not qualify as rooms, whereas in Canada only bedrooms are counted, and kitchen and living rooms are excluded; in the Netherlands, kitchens are not included, regardless of size; and the Swedes disregard all rooms with a floor space of less than 7 m<sup>2</sup> and not receiving daylight (U.N. Department of International Economic and Social Affairs, 1980). Similarly, outdoor play space requirements are determined by the number of square meters per bedroom (Brazil), the number of square meters per bedroom excluding the master bedroom (Canada), and the number of square meters per dwelling unit (Denmark), and the number of square meters per child (Yugoslavia). Obviously, discrepant definitions and criteria such as these hinder accurate interpretation of comparative data. In an international inventory and comparative study of legislation and guidelines for children's play spaces in the residential environment, Esbensen (1979) circumvented these definitional problems by developing a conversion model in order to create a common unit of measurement so as to permit comparisons of standards for different countries. National and municipal standards and guidelines in 25 different countries were found to range from 35 m<sup>2</sup> per dwelling unit in Denmark (for projects consisting of 40 more units) to 18 m<sup>2</sup> per dwelling in Spain to 9 m<sup>2</sup> per dwelling in England to 4 m<sup>2</sup> per dwelling in the U.S.S.R. (Esbensen, 1979, pp. 14–15).

Although the conversion model employed by Esbensen clearly improves the possibilities for international comparisons, the difficulties go beyond differences in standards. For example, in Canada local play space requirements may be traded for cash which is applied toward large recreational facilities

erving a regional area (located beyond distances recommended for children). Also, standards do not necessarily apply to all housing developments; low-density environments are generally excluded. And there are further differences. For example, Sweden supplements the purely quantitative standards with guidelines concerning the preservation of the national environment in residential areas; The Netherlands and Sweden are increasingly concerned with "infill" play spaces in older quarters; Hong Kong and Finland provide financial aid, and in Israel the government itself often takes full responsibility, whereas in many other countries the cost is shifted to the residents; standards in countries like West Germany and Yugoslavia designate play spaces for different age groups (Espensen, 1979). Unfortunately, Espensen's report remains very descriptive, offering very little insight into the processes and conditions which may be responsible for differences in play space requirements. However, the list of countries suggests that those with the more generous standards are characterized by a well-developed economy and a pro-child ideology as well as public acceptance of government interference in planning.

Equally sparse is research on changes in actual conditions as they relate to changes in standards. In Israel, the average square floor area per dwelling has increased from 44.6 m<sup>2</sup> in 1955 to 66 m<sup>2</sup> in 1968 to 80.7 m<sup>2</sup> in 1980 (Israel Ministry of Housing, 1982). During the same period, the average number of rooms per dwelling increased from 2 to 3.25. Rising standards for floor space in public housing paralleled those increases. However, it is unclear to what extent the former mirror the latter, and to what extent the standards were really instrumental in bringing about changes in actual conditions.

One rather comprehensive investigation reviewed research conducted over the past 20 years in the Netherlands in order to compare standards for play spaces, recreational facilities, shopping, and transportation with the actual usage of these environments by residents (Van Eijkeren, 1979). One of the report's findings with respect to play space was that the numerous studies had rarely concerned themselves with the appropriateness of standards and had rarely adopted a combination of environmental, behavioral, and personal variables of sufficient specificity to permit the testing of standards through secondary analysis. An examination of the evolution of standards showed the emphasis on functional segregation and large scale open spaces in low-density environments, typical of the 1960s, changing to a more holistic approach in the 1970s, stressing enclosure of multifunctional spaces and preservation of natural elements, integrated in more compact "total" residential environments.

Summing up the scant literature, the plain truth is that we know very little about the antecedents and implications of differences in child-related planning standards and how they are related to actual living conditions, or about the consequences of living in "substandard" conditions. Some studies have

shown that improvement in rather extreme housing conditions may have favorable effects on children's school performance and health (Wilner et al., 1962; Wegelin, 1978). Additional data come from the British National Child Development Study, a unique longitudinal investigation monitoring the development of 16,000 children at age 7 (1965), 11 (1969) and 16 (1974). Results from this research show that 7% of all 16-year olds lived in households which exceeded the crowding criterion of 1.5 persons per room and, further, that one in five of all children at school-leaving age had experienced an overcrowded home, these figures being considerably higher in the private rental sector, in lower social classes, and in some geographical regions (Essen & Parrinder, 1975; National Children's Bureau, 1977). At the age of seven, children in overcrowded homes were, on the average, three months behind in reading, and at age 16 the truancy rate was higher among them. Also other studies have sometimes found adverse affects of high residential densities on children (e.g., Schmitt, 1966; Galle et al., 1972; see chapters 5 and 8 for reviews), but have failed to specify the exact threshold(s) involved. In this regard, it is somewhat disconcerting to note that little advance has been made beyond painstaking research conducted some 25 years ago in France in which minimum (and maximum!) space requirements for family living were empirically established (Chombart de Lauwe et al., 1959). Since such critical ranges are space- and time-bound, replication of this research would certainly be in order.

At a more general level, the question of the appropriateness of standards for housing density and land use raises both normative and practical issues. First, the question has to be resolved whether the benefits of inserting minimum environmental requirements into residential planning outweigh the externalities associated with such interference. This is essentially a political decision based on the perceived need to structure a planning process which would otherwise be propelled by a free market mechanism. Once standards have been accepted as an integral component of the planning process, the normative issues narrow down to the specific nature and implications of given standards. These issues were discussed earlier. Next to the normative issues, there are practical ones concerning the implementation of standards, often constrained by economic factors. In this connection, developing countries with relatively few resources allocated to residential planning have frequently developed criteria which are used as guidelines, rather more than enforceable standards.

Objections to the use of standards need not exclusively stem from an ideology of permissive planning.<sup>5</sup> It may be argued that standards of physical

<sup>5</sup>Weber (1969) and Heywood (1969) provide a polemical discussion of permissive planning, explicating the pros and cons of planning with minimum standards versus non-interference in the free market mechanism.

space are meaningless because children's use and experience of *physical space* are modulated by their positions in *social space*. Thus Ashcraft and Schefflen (1976: 171-5) excoriate building codes in New York City which prescribe that each child in a household shall have 60 square feet of living space, arguing that the amount of space needed by children depends on the activities they engage in, the times of day, the layout of the dwelling, and provisions in the neighborhood supporting the interior living space. In much the same way, it has been suggested that a factor shown to carry developmental significance, rather less to the amount of available space than to the functionality of that space, that is, the range of activities which it can accommodate, either successively or concurrently (Priemus, 1969). And there are further studies providing ample evidence of how environmental experiences in general, and those of density conditions in particular, are modified by features of social space such as family structure, ethnic background, social class, and so forth.

However, few people will doubt the intervening and interacting effects of social factors; the question of the appropriateness of standards really goes beyond this obvious fact to another obvious fact: children do not exist in a vacuum but need, *mirabile dictu*, a space to live. In other words, there are minima; and this returns us full cycle to the original question — what are these minimal requirements? The answer is that we simply do not know much beyond the distances which children will walk to schools and playgrounds (Levin & Bruce, 1968; Dee & Lieberman, 1970). It is quite obvious, however, that the functional value of a patch of space reserved for children very much depends on qualities other than its quantitative dimensions: the objects in that space, the use of it made by other persons with whom it is shared, and its integration into the surrounding environment are just some of the variables having an influence in this regard. Cognizant of factors such as these, Hill and Alterman (1979) examined the implementation of public land use norms in 36 Israeli development towns. The extent to which space was over- or underallocated according to those norms was found to be dependent on the particular type of land use and on socioeconomic, demographic, institutional, and environmental properties of the communities involved. Hill and Alterman propose to use information of this kind as a basis for establishing norms which recognize the behavioral needs of specific user groups. In view of the pervasive variability of standards and actual conditions observed in the previous pages, further development of such flexible allocation schemes is warranted.

## Question 7

Which density-related characteristics of housing are either conducive or in-

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effects, whether positive or negative? How may adverse effects be mitigated by social and environmental factors?

The implications of residential density for children are best understood not as a factor *sui generis*, but rather as variables intervening in and interacting with other environmental conditions and social processes to produce positive as well as negative effects on children. Foremost among the relevant residential conditions are housing interior and type and location of residence. Regarding the first, the number of rooms is of obvious significance in light of the needs for privacy and a stimulus shelter, discussed elsewhere in this volume. Thus, for a family of four, a dwelling of 120 m<sup>2</sup> with three rooms will be less suitable than a same sized dwelling having four rooms. Beyond the number of rooms the type of room is important, as is relative size. It is desirable, for example, that a four bedroom house have a kitchen adequate in size and furnishings to the needs of the individuals occupying the four bedrooms. The layout of the house and other aspects of its design are similarly of importance. In this connection mention was made already of the multifunctionality of dwelling space, allowing it to be used for various different activities, if not simultaneously, at least successively. Also modular design may modulate density effects by enabling a family to adjust design features to its needs as these change over time, although there are indications that when this flexibility exists the design solutions chosen tend not to be innovative and restricted by experiences with conventional designs (Priemus, 1969). Furthermore, Hefi's analysis of the incidence of sounds as a correlate of density conditions (chapter 3) implies that adequate soundproofing is a sine qua non in residential settings which bring people in close proximity to each other.

Chapter 8 has discussed in some detail the role of housing type as a special density-related variable potentially affecting children's peer interactions and social adjustment. There appears to be little evidence for consistent effects, either positive, or negative. However, one unanimous finding, reported by research conducted world-wide, is the importance of easy access to the immediate outdoor environment (van Vliet—, 1983a). Such easy access permits spontaneous play by children and supervision by their parents and other adults. More pertinent to a concern with density, easy access facilitates the staggering of the activity schedules of individual household members in such a manner that the number of people at home during given periods of the day may be regulated so as to have the least disruptive effects.

The staggering of activity schedule points to two further factors of importance. First is the local environment. Easy access to what? To a busy traffic artery, a playground, or a wooded field? To a strictly residential area or to one where there are shops, a community center, a library, and public transportation stops within walking distance? Clearly, the amount and type of re-

sources available in the local environment *and* accessible to families play an important role in alleviating possible adverse effects of household density. Therefore, in addition to aspects of housing interior and housing type, location of housing relative to community facilities is a third major environmental condition that needs to be taken into account when considering effects of residential density.

The staggering of activity schedules also calls attention to more generic processes whereby the behaviors of family members become or do not become synchronized in time and synchronized in space with respect to each other as well as to institutional structures supporting the family's functioning (e.g., schools, daycare centers, places of employment, stores). These processes have been extensively studied, most notably by time-geographers,<sup>6</sup> and represent an as yet little exploited focus for interventions directed at alleviating congestion levels and orchestrating optimal participation patterns in public and private activity junctions in space and time.

Further factors interacting with density are household structure and culture. The ages of the children, their gender, and the presence of a grandparent or boarder are all factors which have an impact not captured by household size. Also, the parents' child-rearing values and their preferred lifestyles may aggravate or alleviate density effects.

Finally, an important factor that directly affects density conditions of families with children is the functioning of the household market. The availability of appropriate dwellings not only depends on the responsiveness of private and public housing policies to demographic trends and changing family lifestyles and needs, but also on the openness of the market. A study, conducted recently in the U.S. (Marans & Colten, 1985), surveyed a national sample of renters and the owners of their units. The aims of the study were to assess the attitudes of the owners or managers renting to families with children, as well as the attitudes of renters toward living near children and, further, to document the effects which exclusionary policies have had on families with children. The results show that restrictive practices have increased (in 1975, one in six units was not available to families with children; in 1980, it was one in four) and place a real burden on families with children by reducing the available options, resulting, among other things, in a greater incidence of crowding and substandard housing conditions (Greene & Blake, 1980, pp. 15-19, 20-21). A data base compiled by the Children's Environment Advisory Service (1979) on the housing situation of Canadian children also indicates problems experienced by households with children living in rental housing, and for the U.S. it has been established that such problems are much worse still among female headed households (Yezer, 1978).

<sup>6</sup>See e.g., Carlsstein et al. (1978); Parkes and Thrift (1980); and Mårtensson (1977) for an application to children specifically.

### Question 8

What is known concerning the effects of institutional and community size on children? To what extent do these effects occur independently of density?

There exists a very extensive and diverse literature on the implications of group size. One of the first theoretical discussions was Simmel's treatment of dyadic and triadic relationships. His analysis preceded numerous psychological and sociological studies which have empirically examined the significance of size in institutional settings such as factories, hospitals, churches, correctional centers, schools, political organizations, and housing developments. Another strand of psychologically oriented research has concerned itself with the variation in individual behaviors and attitudes as a function of community size or its correlates; research along this line is paralleled by anthropological work which has explored differential patterns of cultural organization along a folk/rural-urban continuum and by studies in political science regarding effects of community size on participation and voting behavior. Economists have been interested in the relationship between income, cost of living and urban size, and geographers have examined the market functions of communities of different size and patterns of diffusion along settlement hierarchies. Still others have studied how community size may be linked to structural differentiation, status attainment, residential satisfaction, and housing preferences.

Thus, size has implications along a number of dimensions and on multiple levels. It is beyond the scope of this discussion to review what the specific implications are for the development of children. However, using some selected findings, it is possible to make some general observations concerning the mechanisms which transmit effects of size as they manifest themselves in two contexts of children's daily experiences: the school and the community.

Ecological psychologists have conducted various studies bearing on the effects of school and community size (see chapter 4). With respect to schools, it has been found that, compared to students in large schools, those in small schools reported more satisfactions related, among others, to the development of competence, to being challenged, to engaging in important actions, and to being valued. Furthermore, in small schools the participation of academically marginal students in voluntary behavior settings was more strongly encouraged than in a large school where only the involvement of more qualified students was sought and accepted. These findings, suggesting that smaller schools are more supportive of enhanced development, seem to be corroborated by the results of a secondary analysis, based on a nationally representative sample of 21,371 U.S. college applicants, which indicated higher accomplishment in several activity spheres (e.g., writing, leadership, dramatic art) by students from smaller schools (Baird, 1969). Several other

studies have obtained results in regard to the role of community size similar to those just cited. It thus appears that small-scale communities may represent more protective and nurturing developmental environments, providing more challenging opportunities for close involvement.

The neighborhood unit formula, advanced by Perry (1939), has been an attempt to specify guidelines that would create small-scale communities in large cities by applying principles of physical planning. Before long the neighborhood unit idea became closely intertwined with the notion of a socially balanced neighborhood population, displaying all the virtues of (romanticized) small-town life. Sociologists have not been remiss in criticizing proponents of this strand of planning, accusing them of nostalgia, a-historicism, faith in physical determinism, and a wish to foster inward-looking communities, focused on local issues, in order to prevent conflict over societal inequalities (e.g., Mann, 1958; Dennis, 1958).

Returning to the effects of larger size, at least in regard to communities, an argument could also be made for a beneficial role, counteracting the kinds of negative effects just cited and emphasized by the ecological psychologists on the basis of behavior-setting considerations, as detailed by Schoggen and Schoggen in chapter 4. Increases in size generally go hand in hand with a greater differentiation of the community's structure, thus offering a greater diversity of resources and opportunities for the development of specific competencies. For example, in a small town it will be harder to become an apprentice in a symphony orchestra or to learn Finnish wood carving.<sup>7</sup> Of course, the greater opportunities for the acquisition of specialized skills found in large cities may also act in a less benign direction, i.e., in diverting youth into forms of delinquent or otherwise socially disapproved behavior (e.g., vandalism, theft, gambling).

The issue of the effects of community size on the individual, and on behavioral development, is thus far from simple. The problem is further complicated by the generally imprecise nature of standard measures of size based on population (in the case of cities or towns), or on membership (in the case of institutions such as a school); such measures may be more meaningful when applied to homogeneous subsystems (e.g., a neighborhood, or a class) than to the heterogeneous system of a large institution or a major city.<sup>8</sup>

Effects of size, moreover, do not operate in isolation but in conjunction with influences from other contextual variables. In this regard, there is a

<sup>7</sup> Also relevant to this point are data indicating that Nobel Prize winners originate in disproportionate numbers in metropolitan centers (Berry, 1981, p. 384); the same is true of patents on inventions (Ogburn and Duncan, 1964, p. 143).

<sup>8</sup> This is not to say that environmental dimensions are irrelevant with respect to institutional size. A case in point would be the positive relationship found between size of student dormitories and occupancy density (e.g., number of students per room) (see chapter 5). Here environmental adjustment is as pertinent as socio-behavioral adaptation.

noteworthy difference between schools and communities. Negative effects of large school size may be mitigated by the social organization of activities, for example, the introduction of another schedule or the development of a greater number or diversity of behavior settings and roles commensurate with developmental needs. In comparison, on a community scale the spatial organization of activities is more important with respect to overcoming negative effects of size. One crucial factor in this regard is density, to the extent and in the ways that land uses generally require a certain minimum level of population density. In practice, size tends to be positively correlated with density (see chapter 1), at least in modern western cities. Nevertheless, there are cities of similar size with widely different population densities. In this connection, density is relevant in providing the critical mass of people needed to support particular land uses and, thus, in influencing the accessibility of opportunities in the environment. The response to the next question more fully addresses the issue of population distribution.

#### Question 9

What are the implications and consequences for children of the current patterns of movement of the population (a) from the center of metropolitan areas to the periphery, and (b) from metropolitan to non-metropolitan areas? What directions for a national population-distribution policy are suggested by these considerations? How congruent are these with actual population policies presently under discussion?

Chapter 1 identified the movement of population away from metropolitan cities to fringe areas, and away from metropolitan areas to small towns and rural areas as two major trends in the redistribution of the U.S. population. During the 1970s, the population growth in rural areas and small towns for the first time surpassed that of metropolitan areas (Herbers, 1981). This reversal of the historically contrary pattern has been well documented for the U.S.A., for Canada, and for a number of West European countries.<sup>9</sup>

In an economic view, these population shifts might be explained as a function of the relocation of jobs due to employers' cost-benefit considerations (e.g., the price of land, wages, taxes) and changes in the structure of productive activity (e.g., the growth of the electronics industry which is less dependent on historically developed transportation nodes). Critics of this traditional view might attribute the population deconcentration to corporate expansion

<sup>9</sup> Data for the USA are reported by Beale (1977), Berry and Silverman, (1980), Brown and Wardwell (1980), Heaton and Fugairi (1980) and Long and DeAre (1982); while a similar trend in Canada has been shown by Bourns and Simons (1979). European evidence comes from research reported by Klaassen (1978); see also Hall and Metcalf (1978).

(Sewell, 1977) or to spatial expressions of the functional requirements of the capitalist mode of production (Gordon, 1978). In both the traditional and radical view, residential location of families is very much seen as a function of economic factors; volition and choice are highly subordinate factors.

An opposite view acknowledges preferences on the part of the population for a bucolic lifestyle and processes of self-selection (Bell, 1958) as important instigating forces behind patterns of population redistribution. The American aspiration for detached houses in low-density environments has been well established in the literature (Fischer, 1976; Michelson, 1967, 1977). According to a public opinion poll conducted in the fall of 1973, about 75% of all Americans—regardless of race, community size, or region—preferred single-family dwellings spread more or less evenly across the whole region over clustered multifamily housing with open spaces in between (Gallup, 1978, pp. 300-301). This preference has two components: deconcentration and low density. It is likewise manifested in a marked preference for living in exurban and even rural areas (DeJong, 1977; Fuguitt & Zuiches, 1975), a preference which seems to have been increasing in recent years (Zuiches & Rieger, 1978). These preferences are, of course, reflected in the movement of people from metropolitan to rural areas and also accord with the space usage by Americans, which has increased from .2 acres of urban land per average resident in 1950, to .35 acres in 1960, to .4 acres in 1970 (Regional Plan Association, 1975, pp. 32-3).

However, low densities are not necessarily concomitant with deconcentration. Possible future energy shortfalls have generated a polemical discussion regarding the savings purportedly associated with different settlement patterns. In 1974, the Real Estate Research Corporation published "The Costs of Sprawl," a three-volume report on a study commissioned by the Department of Housing and Urban Development, the Environmental Protection Agency, and the Council on Environmental Quality. In a comparison of different settlement patterns it concluded that high-density developments would cost about 40% less than low-density developments (RERC, 1974). The study has been severely criticized on methodological grounds (Windsor, 1979), but there are others who have maintained that more compact and integrated urban forms will result in energy savings, however modest relative to other conservative strategies (Van Til, 1979; Keyes, 1982). In a thoughtful analysis, Rickaby (1981) has identified six alternative configurations of energy-efficient settlement, indicating that low-density patterns may be an acceptable option when they provide for small-scale integration of land uses in an array of quasi-self-sufficient settlements. In other words, concentration and density are not necessarily interdependent (cf. Figure 8.1, in chapter 8). For example, in The Netherlands planning policy has promoted "bundled deconcentration," the development of well-defined settlements outside urban areas.

The preceding discussion leads to several questions bearing more directly on children: to what extent can we devise settlement patterns which are most congruent with children's needs? In which ways do these settlement patterns diverge from the deconcentration trend which, as the 1980 census figures indicate, shows no signs of abating (Long & DeAre, 1982)? The response has to be informed by some sobering realities. To begin with, to put it mildly, children's developmental needs have never formed a high priority in the formulation of policies of population redistribution, and the previous pages suggest that more structural factors will continue to be the major determinants. The improbability of effective policy recommendations is increased by the lack of clearcut conclusions as to what the implications of different settlement patterns are for children. Weisner (1981) recently reviewed the literature to determine whether a relation existed between type of habitat and the incidence of stress in children. His intra- and intercultural assessment offered no support for the existence of systematic differences. Of course, this finding may be explained either by the actual absence of such differences or by deficiencies of the research on this topic. In the latter case, advice concerning desired population patterns based on children's needs suffers in credibility, while in the former there is little point in formulating such advice.

The above observations should be seen in the context of the overall practicality of influencing population patterns by public policy. Attempts in this direction have been only moderately successful, even in countries such as Great Britain and The Netherlands where the central government has traditionally played an important role in spatial planning (DeJong, 1981). Some have even suggested that patterns of population growth follow a dynamics of their own, and that the best policy would be one of "benign neglect" (Banfield, 1974) or one which fosters the effective performance of the economic processes underlying spontaneous developments as they historically evolve (Oosterbaan, 1980; cf. Kasarda, 1980).

Elsewhere in this volume the concept of spatial separation was chosen as a tool to analyze the relation between children and their environment (chapter 8). Adopting this notion, it becomes possible to rephrase the questions stated earlier to inquire about ways which maximize children's access to and involvement with people and settings needed for their optimal development. This new approach would appear to be a more fruitful one, since it goes beyond broad variables such as size and density. These, to be sure, delineate population distributions in the aggregate, but also leave room for widely different habitats for children; both small towns and large cities have in principle the potential of supplying children with enriching as well as impoverishing developmental experiences, the particular outcome being dependent on the configuration of specific features making up the child's environment. At this level of analysis, there are empirical findings indicating that, for example, city and suburban types of habitats may be distinctly dif-

ferent contexts for growing up (van Vliet--, 1981, 1983b; Medrich et al., 1982). At a conceptual level, attempts to derive guidelines for environmental design from children's developmental needs hold promise (e.g., Pollowy, 1977; Alexander, 1977). Inductive and deductive work along these lines may converge to identify environmental types possessing manipulable characteristics and differing in developmental implications. Such a habitat typology might then become an integral component in policy making regarding human settlement patterns.

### CONCLUDING COMMENTS<sup>10</sup>

The material reviewed under the foregoing nine questions has distilled some of the major findings presented in the main part of this volume, while pointing to significant gaps in our knowledge. We believe that it provides the outlines for a comprehensive picture of the role of the residential environment in the development of children, and of the diverse ways in which given conditions of density may affect development. In a broader vein we see this material as a contribution to the emergence of a true ecology of child development, in a sense similar to that intended by Bronfenbrenner (1979), but transcending it in terms of a view of the environment which encompasses both the social and the physical realms.

But the Study Group's objective was not defined exclusively in terms of theoretical concerns. An implicit assumption underlying its formation was that, both directly and indirectly, particular conditions of density do make a difference in interfering with or enhancing the optimal development of children's potential. The Group was clearly concerned with possible adverse effects of high- and low-density situations on the child and with ways of alleviating such adverse effects. Thus its work should be seen as having relevance for child-oriented public policies. Indeed, we would have liked to include a separate section in this final chapter which would have drawn together the various domains studied by our group in a coherent set of statements, outlining implications for the formulation of public policy, comparable to those that sociologists and planners (e.g., Doxiades et al., 1979; Michelson et al., 1979; Jordan, 1982) have recently enunciated. We decided, however, that such a section was not warranted, for three reasons. First, research to date has simply not demonstrated unequivocally any direct, adverse effects of density on children, except under atypical and extreme conditions. Thus, generally, there is no firm basis for enjoining particular courses of action. Secondly, some manifestations of residential density (e.g., national

population redistribution) refer to a high level of aggregation (e.g., that of an urban area, or of a region). Policies in this realm tend to lose their significance for the real-life world of children, which is primarily defined by home and community contexts. Thirdly, at the other end of the spectrum, there are applications of knowledge gathered in this volume that are of greater specificity, concerning aspects of children's environments such as the need for adequate sound-proofing of dwellings and the provision of suitable opportunities for interactions with adults and peers. These points are not enumerated here, since they are already discussed in the constituent chapters and reviewed in this chapter.

A broader question confronting the work of the Study Group concerned the appropriate role of researchers in the formulation of public policy. Just what is this role? We believe that the primary responsibility in this regard is one of raising the quality of public debate. Rather than presenting answers, the researchers' task is to help formulate and articulate the questions, to comment on the logical and empirical character of those questions, and to help evaluate existing answers (cf. Habermas, 1968). Accordingly, this volume has attempted to explicate alternative and conflicting assumptions about the role of residential density in the development of children, and, more generally, to promote rational argumentation among and between the producers and consumers of relevant policies in the public arena. To the extent that this book succeeds in achieving that aim, the Study Group will have fulfilled its mission.

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