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HABITATS FOR CHILDREN: The Impacts of Density

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END NOTE

1. For a detailed review of the non-human studies see Archer (1970) and for a more abbreviated examination of the research see Booth (1976, 1-5).

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The Role of Housing Type, Household Density, and Neighborhood Density in Peer Interaction and Social Adjustment

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INTRODUCTION

It is not unusual for social scientists to study aspects of children's social adjustment and peer interaction in relation to the environment. In these studies, the environment is generally conceptualized in terms of social relations. For example, investigators have focused on effects of family structure, social class, ethnic background, school organization, and various other institutional contexts. A common characteristic of these studies is a concern with implications of differences in the types of environments in which children are embedded. The comparisons are between children in different types of social "systems," for example, between children from broken homes and children from intact families, between working- and middle-class children, or between children in "open" and "traditional" schools.

With few exceptions, there has been little systematic consideration of how the *number* of social relationships within any given social environment may have independent effects on children's social adjustment and peer interaction or how this numerical factor might intervene in or interact with the *types* of social relationships through which children are integrated in their social milieu. In many instances, the types of relationships which children have may be *more* important for their social maturation than is the number of their relationships. However, it should be carefully noted that this does not imply that, therefore, the number of relationships is *unimportant*. For example, the number of children in the same age group in a neighborhood may facilitate or hinder the formation and maintenance of viable friendships. In early sociological writings, Durkheim (1893) has examined in detail the implications of

density for social organization, and Simmel (1908) has provided us with a discourse on the significance of group size for the nature of interpersonal relations and the quality of individual functioning. Wirth (1938), in an influential article, has analyzed the consequences of size, density, and heterogeneity of population on social interaction and personality development; consequences which, he argued, are predominantly negative. These early discussions have found extension in numerous sociometric studies and research on density effects. However, sociologists have not applied these lines of thought with respect to children. Psychological studies have focused more specifically on children, but have been restricted primarily to investigations of density effects under controlled laboratory conditions and in institutional settings¹ (e.g., Aiello et al., 1979; Loo, 1972; McGrew, 1970). The meaning of density in children's daily lives remains a relatively unexplored issue.

Elsewhere in this volume, density is conceptualized as a factor which may help to generate opportunities as well as risks for the developing child (see the chapter by Garbarino). In that discussion, attention is directed to the extent and ways that density may enrich the child's developmental experience and support the integrative functioning of the family, school, and other systems envionring the child. Density is conceived of in terms of the connections between children and these systems. In this conceptualization, density of people and the number of relationships may be inversely related and, in some instances, the number of people may be entirely inconsequential for the density of linkages joining children and settings. However, in other instances the number of people may carry significance, and in this chapter the concern is with implications for children of density in this numerical sense. This definition is deceptively simple; it subsumes, as we shall see later, a broad range of operational definitions. Common to these is, however, reference in one way or another to the actual or possible number of social relations in a given space.

In this chapter, I first discuss the role of peer interaction and social adjustment in children's development. Following this discussion, a review of the literature on effects of housing type, household density, and neighborhood density on peer interaction and social adjustment indicates the often inconclusive and at times contradictory nature of the research results that have been obtained. It is argued that the divergent findings are, in part, a reflection of both the lack of methodological standardization in density studies and the common failure to include proper consideration of contextual fac-

¹ A notable exception is the research by Roger Barker and other ecological psychologists on the implications of overmanning and undermanning (e.g., Barker & Gump, 1961; Wicker, 1968). In these studies, discussed elsewhere in this volume, density is conceived in terms of the number of children per available role (role density) rather than the number of children per environmental unit which will be the concern of this chapter.

tors. The diversity of density measures adopted in research is also seen as a necessary inquiry into the broad spectrum of density conditions affecting the child's residential experience. Results of a study of the effects of a heretofore little examined density condition, namely child density in the neighborhood, illustrate the potential value of further exploration of density factors impinging on children's development. The findings of this study—showing that high densities may, in fact, have positive effects as well—are discussed with reference to a conceptualization of neighborhood density as an attribute of the field of opportunities for social development; a conceptualization which offers a perspective on some contradictions seemingly apparent in studies of density effects. This conceptualization underlines the importance of including in research on density a consideration of contextual factors which may alleviate or exacerbate any effects that occur. This point is further amplified by a typology of basic planning principles which identifies four fundamental environmental contexts for conditions of neighborhood density. These environmental contexts are viewed, in turn, as evolving within and being inextricably interwoven with a more encompassing framework comprised of social, cultural, political, and economic factors. The chapter concludes with a summary of the main points.

The Importance of Peer Interaction and Social Adjustment

In this section, I briefly discuss the roles of peer interaction and social adjustment in children's development. This discussion provides a backdrop for a review of the literature on the effects of density on these two factors.

What is the significance of peer interaction? Are isolated children "at risk" for maladjusted behavior? Do they have diminished opportunities for the development of social competence? The burgeoning literature on children's peer interaction and friendships is indicative of the growing interest in the functions which different forms of peer interaction may have in the various developmental processes through which children and adolescents go. Rubin (1980, pp. 4-6) has identified three distinctive functions of peer interaction for children. First, peer interaction provides opportunities for the acquisition of social skills, a wide repertoire of techniques for establishing and managing social interactions. Second, relationships with peers serve as a frame of reference in which children can meaningfully compare themselves to others. Such social comparisons, it has been argued, are essential for the development of a self-concept (Mead, 1934). Third, interaction with peers satisfies strong early-felt needs for a sense of group belonging. In a related vein, Piaget (1932) has suggested that the capacity of moral reasoning emerges out of experiences of mutual respect among peers as opposed to the unilateral respect more typically associated with interactions between children and adults.

What are, one wonders, the implications of a scarcity of peers on these developmental processes. Do children who live in low-density neighborhoods lack adequate opportunities to learn social skills? Do they conform more to parental norms than do children in relatively high-density environments where peer pressure may form a more powerful influence? Do they grow up to be different personalities? Growing up means transition in manifold ways. During the period of adolescence in particular, there is typically a considerable reorganization of the social and emotional spheres of life. Circumstances of this sort usually result in greatly increased dependence on support from others, especially those who are facing or have recently faced similar events in their own lives (Coleman, 1980). In which ways and to what extent do different levels of child density affect young people's support systems?

Here, it is not possible to examine in depth the existing evidence for the significance of peer interaction and its relation to children's social adjustment. Let us, therefore, briefly review some of the findings researchers have come up with.

In discussions of human behavior, one always has to be cautious in drawing analogies from studies of animals. Such research may have heuristic value though, and may highlight potentially critical issues. In this light, Harlow and Harlow's (1962a, 1962b) experimental research with rhesus monkeys is valuable in hinting at the apparent significance of peer interaction for adequate social development. In these investigations, infant monkeys were deprived of peer contact. Vigilance and hyperaggressiveness characterized those animals not having had contact with age mates through the first four to eight months of life. Referring to similar work involving maternal deprivation, the investigators noted that monkeys can be successfully raised without a mother, provided they have other infant monkeys to play with; monkeys with a mother but without age mates could not be successfully raised, even if their mother was entirely normal. These findings led Harlow and Harlow (1962b) to suggest that the infant-infant system is a *sine qua non* for later adjustment in all spheres of monkey life.

As noted, due care should be taken when interpreting findings from animal studies. Extending the above argument on the social isolation of young monkeys to children's lives is, in many ways, subject to the same criticisms as inferring human pathological implications of high-density conditions from the "behavioral sink" found by Calhoun (1962) in experiments with rats. Nevertheless, a number of studies seem to indicate that for children a sparsity of human ties may result in impaired social development and poor adjustment. Comparisons of children raised exclusively in foster homes and foster children raised initially in institutions, for example, showed that the latter had more problem behaviors, lesser school achievements, and were more isolated and less capable of entering into meaningful social relationships (Goldfarb, 1943). Other studies of social deprivation during childhood point out simi-

larly negative implications for developmental outcomes (e.g., Davis, 1947; Jaco, 1954; Clarke & Clarke, 1976).

These findings are of limited generalizability in view of the small number and rather extreme nature of the cases involved. Nevertheless, they are in line with results from other studies which have found children's social functioning in interaction with peers to be related to adjustment in later life. For example, socially incompetent children are more likely to drop out of school (Ullman, 1957), exhibit aggressive behaviors (McCandless, 1967), and engage in delinquent activities (Roff et al., 1972; Freedman et al., 1979). In one study, successful peer relations in childhood were found to be very good predictors of adult mental health; other measures such as teacher ratings, IQ, grade point average, attendance records, and anxiety scores were not (Cowan et al., 1973). Further support for a relationship between poor peer adjustment in children and psychiatric problems in later life is provided by a number of other investigations (Kohn & Clausen, 1955; Michael et al., 1957; Pritchard & Graham, 1966; Roff, 1963; Watt et al., 1967), whereas there is also some evidence that inadequate relations with peers in childhood may carry over into adult social life (Maas, 1968; Roff, 1961). Noteworthy are the results of one study in which a random sample of 1,000 men enlisted in the U.S. army was classified by army psychiatrists as being normal, or suffering from mild psychoneurosis, severe psychoneurosis, or psychosis. Of those who reported having had no friends between the ages of four and ten, none was classified as normal and 85% as severe cases; for those who reported five or more friends during the same childhood period the corresponding figures were, respectively, 39.5% and 27.8% (Lantz, 1956).

The importance of peer interaction is further underlined by the function of peers as tutors (Allen, 1976) and role models reinforcing or modifying social behaviors (Salmon, 1969; Hartup & Lougee, 1975). Furthermore, support has been found for a relation between peer interaction and the development of moral reasoning (Keasey, 1971), the establishment of role-taking capability (Gottman et al., 1975) and personal identity (Hewitt, 1976), the extension of home range (Hart, 1979), and adolescent life satisfaction (Feldman & Gaier, 1980).

It should be stressed that the impressive evidence for a correlation between peer relations and social adjustment does not necessarily imply a causal effect of the former on the latter. It might well be that children interact little with peers because they are poorly adjusted.² Furthermore, peer interaction may

²There is also a contamination of variables when social adjustment is defined in terms of social competence which may be translated into having social skills or friends (Foster & Ritchey, 1979). The assessment of children's social skills raises a number of yet unresolved methodological issues which call for caution in statements linking social competence and adjustment to peer interaction (Curran, 1979; Green & Forehand, 1980). Furthermore, it is likely that many times children can and do develop into mature and responsible adults without extensive peer interaction.

have negative implications as well. It has been found to be related to, for example, vandalism (Lisko, 1973), some types of drug use, and other delinquent behaviors (Schaefer, 1980; Huba & Bentler, 1980). However, as Ruben (1980, pp. 11-12) notes, the potential harmfulness of peer relations only serves to underline their importance. Peers do matter.

The preceding discussion has linked peer interaction to social adjustment and has provided indications of the significance of peer relations for children's development. Whether or not peer interaction and social adjustment are affected by residential density is quite another question to which we will now turn.

EFFECTS OF DENSITY ON PEER INTERACTION AND SOCIAL ADJUSTMENT

The following review is restricted to research on effects of density as measured by objective indices. Not included, therefore, are considerations of crowding or children's subjective appraisal of these density conditions.³ Also excluded are studies of density effects under contrived conditions and in institutional settings. This delimitation helps to provide some focus to an otherwise diffuse field and has the added advantage of directing attention to variables more readily amenable to manipulations intended to alleviate possibly adverse effects.

The review is organized into three sections. First, I examine effects of housing type on children's peer interaction and social adjustment. Strictly speaking, housing type is entirely unrelated to density conditions inside the home or the neighborhood. However, numerous investigators have defined density in terms of space limitations and, as apartments tend to be smaller than houses, there has been a tendency to equate apartment living erroneously with living under high-density conditions. In actual practice, apartments do often provide comparatively cramped living quarters, to be sure, and also make for relatively high external densities by accommodating a large number of households on a limited land area. However, high densities, either inside the dwelling or in the neighborhood, are not *inherent* in apartment living. Confounding density and housing type obscures the effects which these variables may have independently of each other. In an attempt to sort out these effects, I first review research on effects of housing type on peer interaction and social adjustment and, secondly, examine the evidence for effects of density inside the home. The third section of the review covers effects of neighborhood density.

³See Stokols (1972) for a perceptive discussion of this distinction.

Housing Type

While there are several major housing types and numerous variations within each, parents and housing-policy officials have been most concerned about adverse effects of multistorey living. As compared to children living in other housing types—particularly single family dwellings—apartment children would suffer more often from ill-effects of their housing conditions on their health and well-being. Let us examine the evidence with respect to social adjustment and peer interaction. Are apartment children more often maladjusted? Do they have fewer friends?

The literature is replete with assertions regarding the negative effects of apartment living on children's social adjustment. For example, apartment children would be more aggressive, because they cannot get back quickly to the safe shelter of their homes and, in order to survive, must learn to be tough. Young apartment children would be more neurotic and bored and would develop a greater dependence on their parents who restrict their mobility because of the difficulty of supervising them outside the home. Older apartment children, on the other hand, would roam around freely and, through peer influence, would more likely become engaged in vandalism and other delinquent behaviors. The evidence supporting these allegations appears to be largely anecdotal in nature and based on the personal experiences which observers have had in professional roles such as housing manager (Macey, 1959), engineer (Downing & Calway, 1963), radio reporter (Grégoire, 1971), child welfare worker (Pearse, 1968), medical officer (Gunn, 1968), and psychiatrist (Cappon, 1972). The majority of the studies dealing with hypotheses like those named above are characterizable by a lamentable lack of scientific rigor in the operationalization of concepts, the selection of respondents, the gathering of data, and the control of external variables in the analysis.

These deficiencies, discussed in more detail elsewhere (van Vliet—, 1983a), do not negate the possibility of adverse effects of apartment living on children's social adjustment; there merely indicate that there has been no thorough investigation of such effects. Further research needs to identify the relevant features of different housing types and examine their effects on children's social adjustment in conjunction with extraneous variables as, for example, children's age, building height, and culture-bound housing norms.

The influence of apartment living on peer interaction and friendship formation is a moot point in the literature. British surveys conducted in the early 1940s expressed a concern that apartments limit children's social contacts (Cooney, 1974; Gittus, 1976; Chapter Two). This concern is echoed in later writings by Jephcott (1971), Young (1976), and Grégoire (1971) who suggested that apartments inhibit spontaneous social interaction and limit the

possibility of receiving friends at home. Also, Rosenberg (1968) has suggested that apartment living would result in anonymity and social isolation. The evidence, however, is mixed.

Stevenson et al. (1967) found that parents in apartments insisted more rather than less on seeing their children's friends at home. This enabled them to have some control over possible bad influences which they could not supervise outside their homes. While the conclusion of one large Yugoslavian study was that, for many children, relations with friends stopped at the apartment entrance (Kara Pestic et al., 1975, p. 78), Filipovich (1975) failed to find any negative effects of apartment living on children's social interactions, and Farley (1977) found that children who had moved to high-rise apartments had *more* rather than fewer friends as compared to children who had moved to houses, although the difference had diminished one year after the move. Williamson (1978, p. 128) reported that German parents living in high rises considered the building structure a deterrent to their children's friendship formation. This, however, was not the case in his twin study in Italy where no such relation with building type was found, apparently because the home was the locus of family oriented activities which dominated over children's interactions with peers. This contrasts with some other studies which have found that apartment children spend *less* time with the rest of the family than children living in houses (Farley, 1977, p. 115; Hagarty, 1975, p. 144); these outcomes, however, may be better explained as a result of self-selection or cultural differences than as an effect of the housing situation.

The research findings summarized above fail to lend support to the notion that apartment living has deleterious effects either on children's social adjustment or on their interactions with peers. A majority of statements to the contrary appears to be based on casual observations or methodologically deficient research. The existing evidence points out inconsistent effects—sometimes positive, other times negative—suggesting that housing type interacts with extraneous variables such as household size and composition, child-rearing values, and age of the child.

Household Density

In a number of studies, juvenile delinquency has been selected as an indicator of social pathology. It is a somewhat dubious measure of social adjustment as it may mirror as much or more of the behavior of administrative officials as it does the behavior of young people. Nevertheless, bearing this qualification in mind, let us look at the findings obtained in these studies.

Following an early British report of a positive relation between overcrowding and juvenile delinquency (Burt, 1925), Carr-Saunders and Mannheim (1942) compared 7 to 17 year old boys brought to juvenile court in London with a matched sample of boys attending the same schools; they

found that boys in the delinquent group more often lived in crowded households. A similar finding was obtained in another British study of a sample of 16 to 20 year old adolescents (East et al., 1942). Morris (1957) found the mean number of offenses recorded in police charge books to be positively related to the mean number of persons per room and to the proportion of households in wards living with two or more persons per room. Using London boroughs as the areal unit of analysis, Wallis and Mahipant (1967, p. 255) reported that detention in penal institutions for a sample of 914 offenders in the 17 to 20 year age group was positively related to the proportion of the population living with more than 1.5 persons per room and to the number of persons per room. Bloom (1966, p. 316) examined the relation between various density measures and the number of charged delinquents in the active files of the county probation department as a proportion of the population age 18 and under in census tracts of a medium-sized U.S. city. He found negative correlations with the proportion of vacant housing units and, unexpectedly, with household size. Finally, Hassan (1977) compared the average floor area per person for 90 juvenile delinquents living in Singapore public housing with the average floor area for all public housing residents. The delinquents came from homes with higher densities, but, it appears, also from poorer families; the relation, therefore, might well have been a spurious one with social class as the underlying variable.

The above studies have been valuable by calling attention to the general ecological context of juvenile delinquents in regard to conditions of residential density. However, given the possibility of confounding influences of important extraneous variables, the specific findings do not clarify the relation between household density and delinquent behavior. A number of studies have attempted to control for such influences. In a multivariate analysis, Lander (1954) found that a positive relation between overcrowding and juvenile delinquency vanished after effects of social class related variables such as educational attainment, rent level, and housing condition were partialled out. However, this study has been criticized on methodological grounds (Gordon, 1967), and in a replication based on data from Indianapolis census tracts overcrowded housing was found to be the strongest predictor of juvenile delinquency rates in a series of partial correlations controlling for 17 different variables (Chilton, 1964, p. 80). Schmitt (1966) examined census tracts in Honolulu and, after introducing controls for income and education, found a moderate positive relation between the person per room ratio and the rate of juvenile delinquency. After partialling out effects of social class, Galle et al. (1972) found the persons per room ratio for 75 community areas in Chicago to be positively related to the number of 12 to 16 year old boys brought before the county family court. However, in a study of census tracts in Edmonton, Canada, juvenile delinquency was found to be unrelated to the proportion of dwellings with more than one person per room after removing effects of in-

come and ethnic background (Gillis, 1974). Similarly, Freedman (1972) obtained delinquency figures for more than 300 Health Areas in New York City and, holding social class and ethnicity constant, detected no relation with the person per room ratio. Finally, Herbert (1977, p. 93) in a study of census tracts in Cardiff, England, used the proportion of households sharing a dwelling, households with five or more persons, and households with more than 1.5 persons per room as independent variables in a stepwise multiple regression to predict the number of 10 to 19 year old offenders, contacted by police and receiving some kind of sanction, as a proportion of the total population in that age group in the same census tract. The proportion of households sharing a dwelling was the only density variable entering the equation, following the percentage of male unemployed, low social class, single parent, and sex ratio, and explaining a mere 2% of the variance.

To sum up, the evidence for effects of household density on juvenile delinquency is equivocal. After introducing controls for social class, population composition and other extraneous variables that might explain the positive relation reported in early studies, some more recent studies indicate continued support for a positive relationship (without establishing causality), whereas others do not. However, the question may not be whether or not a relation exists, but rather which specific relationships exist under which specific circumstances. Note that the seven more sophisticated studies were carried out in seven different cities in four different countries and employed six different measures of household density, in addition to using different delinquency measures and different areal units of analysis and introducing different controls. It is unclear to what extent and in which ways the diversity of samples and measures explains the differences in research results; it should not, however, contribute to comparability of findings. This is a point to which we return a little later.

Various investigators have employed other measures which may be taken as indicators of social adjustment. In the 1930s, Usher and Hunnybun (1933) and Plant (1937) suggested that high household densities have deleterious effects on children's social development. They noted, for example, that children from crowded homes tended to exhibit aggressive behaviors. However, their findings are difficult to interpret because the density conditions were not clearly specified and their observations were based on children from families which had sought their consultation of existing personal, social, or economic problems. Thus, any children living without problems in high-density households did not enter the picture. In a more carefully executed study of 250 British elementary school children, high household densities were found to be related to more aggression, extroversion, and neuroticism (Murray, 1974). The relation held only for boys though, and was reversed for girls. The findings may have been confounded because the negatively affected boys lived also in worse housing and in worse neighborhoods, but they are in line with the results of a recent study by Saeger (1980). In this investigation,

teachers rated elementary school children living in New York City Public Housing Authority housing ($N = 312$) on scales measuring their hostility, anxiety, and hyperactivity-distractability. Living in homes with higher densities was positively related to all three behavioral disturbance measures. As in Murray's (1974) study, boys were more negatively affected than were girls. Children in high-density households also reported that they felt angry more than those in less crowded homes. In addition, children from the more crowded homes dealt with anger more often by acting out, while those in less crowded conditions tended to withdraw (Saeger, 1980, p. 21; see the chapter by Aiello for a more extended discussion of this study).

These results tie in with scattered findings from several other studies. In France, Chombart de Lauwe et al. (1959) found that misbehaviors by children, as reported by their mothers, increased sharply beyond a threshold of approximately 8 square meters per person or 2.3 residents per room. In another survey of households in Chicago, parents in high-density homes also mentioned problems with their children more often than did parents in less crowded households (Gove et al., 1979), and in a Toronto-based study it was found that parents in homes with higher densities tended to strike their children more often (Booth & Edwards, 1976). In a reanalysis of data from the Quality of Life Survey conducted in 1971 at the University of Michigan Institute for Social Research, the number of persons per room was found to be inversely related to parents' enjoyment of children, after controls for stage in the life cycle and social class (Baldassarre, 1979, 116). However, after removing also effects of the number of children living in the dwelling, only a weak relation between household density and enjoyment of parenthood remained. Finally, a related finding comes from a study of households in Hong Kong. In more crowded conditions, parents did not discourage their children from leaving the home; the parents in such households were less knowledgeable about their children's whereabouts, and appreciated the alleviation of forced interaction with their children (Mitchell, 1971). Comparable observations were made by Hassan (1977) in an investigation of density effects in Singapore households.

The results of these various studies would appear to offer some support for a relation between high levels of household density and the incidence of maladjustment and behavior problems in children. The relationships found may not always be impressive in terms of statistical significance, but in any case one would expect household density to be but one of a number of, in most instances probably more important, determinants of children's social adjustment; when taken together, the findings seem to form a fairly consistent pattern which may be more significant than the magnitude of their statistical significance.

Nevertheless, there are several important unresolved issues. In most of the above studies, social adjustment is measured by teacher ratings, parent perceptions, or legal standards. This raises the question to what extent these

measures are accurate and valid indicators of children's social adjustment. Tension between parents and children, for example, may be as much a manifestation of the parents' frustration with high-density conditions in the home as a result of children's inability to cope in those situations. Recent literature reviews indicate that children's social competence and adjustment may be assessed in multiple ways, each of which may yield different results (Foster & Richey, 1979; Green & Forehand, 1980). Research which is to clarify the relation between density and children's social adjustment would benefit from building on the insights contained in that literature.

Another question relates to the process(es) through which household density may affect children. As noted by Michelson and Roberts (1979), explanations of *how* those effects occur, if they occur, are not well articulated. Consequently, testing of theoretically derived hypotheses is rare, leaving potentially emerging issues unexplored.

Furthermore, it is unclear which the thresholds are beyond which adverse effects occur. Floor space standards recommended by the American Public Health Association (1950) are around three times higher than those considered acceptable in some European countries. Clearly, the critical levels are culture-bound and situation-specific (cf. Mitchell, 1971; Saegert, 1980).

One point, often overlooked by researchers intent on finding negative effects of density, concerns the possibility of deleterious influences resulting from an excessive amount of space in the dwelling. Evidence for this is provided by the work of Chombar de Lauwe et al. (1959) which indicated an increase in social pathologies *below* a certain level of household density. Also noteworthy in this connection is the relationship found in some studies between rates of admission to psychiatric facilities and various other measures of social isolation in the home (Galle et al., 1972; Bloom, 1966).

In comparison with studies of effects of household density on children's social adjustment, research on effects of household density on children's interaction with peers is conspicuous by its absence. The results from one investigation suggest that, in high-density households, parents tend to restrict their children's freedom to bring friends into the home (Davis et al., 1974). These findings seem to be in line with two other investigations in which boys were found to be out in the street more often if they lived in more crowded homes (Mitchell, 1971; Hassan, 1977). Again, it is unclear which are the thresholds and which are the conditions that make them critical. The problem has scarcely been studied.

Now let us turn to neighborhood density and examine its possible effects on children's social adjustment and interaction with peers.

Neighborhood Density

In a number of ecological studies, various measures of external density have been correlated with rates of juvenile delinquency. As noted earlier, the latter

may be a poor indicator of social adjustment in view of its connotations which are legal rather than behavioral, but it is the only indicator of social adjustment investigated in relation to neighborhood density. The results of these investigations are inconclusive. Some of the earlier studies suggested a positive relationship between high neighborhood densities and juvenile delinquency. In their classic work, Shaw and McKay (1942, pp. 43-90) showed that delinquency rates were highest in the central city and decreased towards the urban fringe, but their explanation did not stress the relation between this gradient and residential density. In a follow-up study of 1,349 boys who had left school at the minimum statutory age, those convicted between the ages of 8 and 18 were found to live in wards with higher population densities (Ferguson, 1952). In another investigation, it was found that the number of persons per acre in wards was positively related to police recorded criminal offenses committed by the under-17 population in those wards (Morris, 1957). Similar findings are presented by Wallis and Maliphant (1967) who found the distribution of 17 to 20 year old detainees from London boroughs to be positively related to the number of people per acre, and Bloom (1966, pp. 316) who reported a negative relation between the number of single family dwellings as a proportion of all housing units in census tracts and the number of charged delinquents as a proportion of the population age 18 and under. Housing type as a density measure in the latter study is likely to correlate strongly with social class and age distribution of the population, undermining the relation with juvenile delinquency. However, the lack of control for confounding influences hampers the interpretability of all of the above studies.

In some more recent investigations, researchers have attempted to partial out such external effects. Schmitt (1966) found a modest correlation after controlling for income and education, as did Levy and Herzog (1974) in a study with social class and population heterogeneity held constant, but Freedman (1972) and Galle et al. (1972) detected no such relation (although, in the latter study, juvenile delinquency was positively related to the number of housing units per residential structure). Gillis (1974) reported a weak relation between neighborhood density and juvenile delinquency, outweighed by effects of building type and insignificant with the effects of income and national origin removed. More recently, Herbert (1977) has indicated that in Britain population groups which have moved from inner cities to peripheral estates have taken their behavioral characteristics with them, so that the distribution of offender rates in the typical British city now shows clusters in both central and peripheral locations. Finally, Hagan et al. (1978) found a relation between a measure of housing density and police perceptions of "offensible space," that is areas perceived by the police as having a disproportionate incidence of juvenile delinquency and associated with more police-initiated preventive action. Results from these studies, as well as work of others (Sengel, 1978; Shichor et al., 1979), caution that the effects of density

are not necessarily simple and direct. In short, there is meager evidence that high neighborhood densities *per se* contribute to juvenile delinquency. Furthermore, the correlational nature of the relations found by some researchers does not preclude an explanation based on the notion of "self-selection" (Bell, 1958). The need to examine density effects within the context of a broader set of factors is a recurrent theme in this chapter and one to which I return later.

There has been virtually no research on the effects of neighborhood density on children's relations with peers. The architect Alexander (1967) has emphasized the presence of a minimum number of children as a condition for the formation of peer groups. He proposed a number of untested design solutions that would promote, if not determine, the amount and quality of local social interactions. In a similar vein, Jacobs (1960) has discussed the beneficial role of high densities in the socialization and protection of children. Sennett (1970), a sociologist, sees the development of individual identity and social competence as occurring in sequences, each of which can be resolved only by coping satisfactorily with internal and external conflicts. Such conflict situations would be promoted by heterogeneous high-density situations.

While there is little empirical research substantiating these claims, the evidence that exists does point out negative effects of low-density, typically suburban environments. Popenoe (1977), in his comparison of adolescents' social lives in Vällingby, Sweden, and Levittown, Pennsylvania, observed that friendships in the latter, as compared to those in the former, were shaped by locality constraints rather more than by common interests. Gans (1967) studied teenagers' evaluations of Levittown, New Jersey, through a content analysis of essays written in response to a question about what they liked and disliked about living in Levittown, and what they missed from their former place of residence. Gans concluded that the likes and dislikes reflected, in large part, the absence of social opportunities and lack of public transportation, making it difficult to meet friends.⁴

Also relevant are research findings reported by Berg and Medrich (1978) which seem to indicate that the friendships of children living in low-density neighborhoods are more formal in nature than those of children from neighborhoods with higher densities. In the low-density neighborhoods, visits to friends were not spontaneous, as they usually required a planned trip, often with the parents. Friendships were also more "privatized" and involved fewer children of a smaller age range. Berg and Medrich are careful to note that the different spatial accessibility of other children was not the only difference between the low- and high-density neighborhoods. However, the results of their study are in keeping with the observations of Popenoe (1977) and Gans

⁴However, neighborhood density was *not* specifically singled out for study as a factor which might potentially affect peer interaction.

(1967); relatively high densities seem to be conducive to the formation and maintenance of relations with peers.⁵

This raises an interesting question. How does it accord, one may ask, with the allegedly negative effects of high densities on social adjustment suggested by some of the ecological studies of juvenile delinquency (Schmitt, 1966; Levy & Herzog, 1974)? One possible answer is suggested by the critical mass perspective which will be discussed later. Another answer may lie in a feature characterizing the field of density studies generally: the diversity of research methodologies. Let us examine some aspects of this lack of methodological standardization.

DENSITY EFFECTS RECONSIDERED

The preceding review provides no evidence that living in apartments or under "high" densities results in deleterious effects on children's social adjustment or their interaction with peers. In principle, the absence of evidence may be due to three reasons: there has been no research at all, the topic has not been studied; there has been sound research, failing to demonstrate effects not attributable to extraneous variables; there has been research with inconsistent findings for want of conceptual and methodological qualities. It would appear that, by and large, the studies reviewed above fall in the third category. To support this assertion, I illustrate in the following the lack of methodological standardization that has prevented accumulation of knowledge on the topic at hand. Furthermore, attention is directed to contextual factors which may counter-balance or aggravate effects of housing type and density and which, therefore, need to be incorporated in research designs.

It would go beyond the scope of this chapter to present a full-scale analysis of the methodological aspects of all pertinent studies. It would also be unnecessary, as the purpose here is to bring out the diversity of approaches taken in investigations of density effects. In this light, it suffices to scrutinize a little more closely one crucial step in the research process, viz. the operationalization of variables. Even when limiting oneself to the independent variables only, one cannot help being impressed by the variety and ingenuity of the measures that have been employed.

To begin with housing type, in the literature, the terms apartment building, high rises, multifamily housing, and flats are used almost interchangeably. The loose usage of these terms is reflected in the operational definitions. Among those used for high rises are the following: buildings higher than safety ladders can reach, higher than 50 feet, higher than 75 feet, higher than four stories, higher than six stories, and higher than eight stories. The British

⁵See note 4.

Bureau of the Census has used a definition of flat regardless of building height (Kendall & Hill, 1952), and there are almost as many definitions of multifamily housing as there are national census bureaus (cf. U.S. Department of Housing and Urban Development, 1978; Statistics Canada, 1978; U.N. Statistical Office, 1979). Others have managed to stay clear of this terminological morass by avoiding any operational definition, giving free play to the readers' interpretation. A further feat is accomplished by those offering conclusions about the effects of living in apartments (alias high rises, etc.) without consideration of comparative data from other housing types.

The situation with respect to density is not very different. Table 8.1 gives an overview of the arsenal of density measures at the disposal of investigators. To give but a few examples, household density has been defined as the number of possible relationships between household members divided by the square footage of floor space, the square footage of residential floor space per occupant, the number of rooms per household, the number of people per room, and the number of persons per bedroom. Operational definitions of neighborhood density include, among others, population per net residential acre, number of people per gross acre, number of people per square kilometer, number of persons per 10,000 square feet of living space, and average number of dwellings per acre. Among the areal units of analysis are census tracts, boroughs, and wards of a vastly different spatial scale, and denominators in density ratios may be, for example, acres, square miles, or square kilometers (See Table 8.1).

Add to the above the variety of dependent variables singled out for study, their different operationalizations, the differences in sampling procedures, and — last but not least — the different age groups of children, and there is little reason to expect anything but inconsistent results from studies of the effects of housing type and density on children's social adjustment and peer interaction. Among the factors further confounding findings from research are extraneous variables which set the context for the child's residential experience. Some of the obvious ones include demographic and socioeconomic characteristics such as age, sex, family income, and parents' educational level. Research also indicates the need to consider household composition, building height, and the ability to schedule activities at home (Mitchell, 1971), interactions between household density and density in school (Rubin, 1980) and neighborhood (Sobal, 1980), and flexibility of the housing market (Michelson, 1977). Common sense suggests additional variables which may interact with density levels to modify any relationships found to exist. Still other variables such as parental relations and perceived control may have intervening effects as they themselves are affected by density. The point is obvious, and there is no need to belabor it. Density effects vary according to the values of a complex constellation of variables.

At the same time, Table 8.1 indicates the broad spectrum and multivarieted nature of density conditions in children's residential experience.

Curiously, density of children in the neighborhood is not among the measures selected for study of their significance in children's behavior and development. In the research reported below, this factor was specifically singled out for examination of its possible relation to various aspects of children's friendship behavior. The findings are of interest empirically, as they indicate the possibility of positive effects of high densities, and also theoretically, as they serve to illustrate a conceptualization of neighborhood density as a factor contributing to children's field of opportunities for social interaction.

Neighborhood Density and Friendship Behavior: An Empirical Examination

While there are studies galore of children in a variety of environments, there are relatively few investigations of either city or suburban settings as habitats for children. In these investigations, the terms "urban" and "suburban" are used rather loosely to describe two supposedly different types of environment; furthermore, there has been no systematic comparison of city and suburban environments as being possibly two distinctly different places to live for children, providing them with different opportunities, and perhaps affecting their development (van Vliet—, 1981, 1983b).

What is it about city and suburban environments that makes them different from each other? What, if any, are the implications of these differences for children? In one study which sheds some light on these questions, child density was extracted as one "objective" environmental dimension. Although this dimension discriminated between high- and low-density neighborhoods corresponding strongly with areas administratively labeled as being, respectively, "city" or "suburb," it cut across this dichotomy and at times differentiated children's environmental experiences where the city-suburban distinction failed to do so. Below, I first briefly describe the background of this research before presenting some of its results.

Fourteen to sixteen year old high-school students ($N = 148$) — attending schools in Metropolitan Toronto selected because of their "typical" city and suburban locations — filled out during regular class hours a questionnaire in which they were asked, among other things, to evaluate their neighborhood. The responses, solicited by a mixture of open- and closed-ended questions,

⁶The research reported here is taken from a broader investigation of children's environmental experiences conducted for a doctoral dissertation in the Department of Sociology at University of Toronto (van Vliet—, 1980a). Part of the data were collected for a pilot study for the Whole City Catalogue at the Child in the City Programme, University of Toronto, and obtained with the kind cooperation of Marsha Friendly and Fred Hill. William Michelson provided very thoughtful advice. The research was made possible by a fellowship awarded within the framework of a bilateral exchange program between Canada and The Netherlands. The support of the Social Sciences and Humanities Research Council and the Department of External Affairs of Canada is gratefully acknowledged.

TABLE 8.1
Operational Definitions of Density Used in the Literature*

<i>Reference</i>	<i>Operational definition</i>
Bossard (1951)	<ul style="list-style-type: none"> • number of possible relationships between household members divided by the square footage of floor space
Morris (1957)	<ul style="list-style-type: none"> • proportion of population in wards living in dwellings with more than 2 persons per room • mean number of persons per room • number of people per acre in wards
Schmitt (1957)	<ul style="list-style-type: none"> • population per net residential acre • average household size • dwelling units in structures with 5 or more people per room • number of married couples without own household
Schmitt (1963)	<ul style="list-style-type: none"> • number of people per gross acre • square footage of residential floor space per household • square footage of residential floor space per occupant • average household size • number of rooms per household
Winsborough (1965)	<ul style="list-style-type: none"> • number of people per community area
Bloom (1966)	<ul style="list-style-type: none"> • proportion of housing units occupied by more than one person per room • proportion of single family dwellings in census tracts • household size
Schmitt (1966)	<ul style="list-style-type: none"> • number of people per net residential area • households with 4 or more members as a proportion of all households • dwelling units with more than one person per room as a proportion of all units • dwelling units in structures with 2 or more units as a proportion of all units
Wallis and Maliphant (1967)	<ul style="list-style-type: none"> • proportion of population in boroughs living in dwellings with more than 1.5 persons per room • number of people per room • number of people per acre in boroughs
Ministry of Housing (1970)	<ul style="list-style-type: none"> • number of persons per acre
Mitchell (1971)	<ul style="list-style-type: none"> • number of people per square foot in home
Freedman (1972)	<ul style="list-style-type: none"> • number of people per residential area • average number of people per room
Galle et al. (1972)	<ul style="list-style-type: none"> • number of people per acre • number of people per room • number of housing units per structure • number of rooms per housing unit • number of residential structures per acre
Zehner and Marans (1973)	<ul style="list-style-type: none"> • average number of dwellings per gross acre
Gillis (1974)	<ul style="list-style-type: none"> • number of persons per room within a household • number of people per square unit of space with a given area of residential land
Levy and Harzog (1974)	<ul style="list-style-type: none"> • number of people per square kilometer • number of people per room
Carnahan et al. (1974)	<ul style="list-style-type: none"> • median number of persons per room • dwelling units with more than one person per room as a proportion of all units
Webb et al. (1975)	<ul style="list-style-type: none"> • number of people per acre • number of people per room • number of people per dwelling • number of dwellings per acre

(continued)

TABLE 8.1 (continued)

<i>Reference</i>	<i>Operational definition</i>
Booth and Johnson (1975)	<ul style="list-style-type: none"> • a measure of room deficit • a summary measure composed of (1) the number of hours the mother was at home and awake when the number of people is equal to or greater than the number of rooms; (2) the number of hours the mother was at home and awake when the number of people in the room with the respondent was two or more; and (3) whether the kitchen was set in the wall of another room • a summary measure composed of (1) housing type; (2) number of households in the block face containing the child's household and on the block opposite; (3) whether or not the space adjacent to the child's household was shared with non-household members; and (4) street width as an indicator of the amount of automotive traffic adjacent to the household
Herbert (1977)	<ul style="list-style-type: none"> • households with 5 or more persons • households with more than 1.5 persons per room • households sharing a dwelling
Patterson (1978)	<ul style="list-style-type: none"> • number of residents per room
Essen et al. (1978)	<ul style="list-style-type: none"> • households with more than 1.5 persons per room
Nelson (1978)	<ul style="list-style-type: none"> • number of residents per acre
Baldassare (1979)	<ul style="list-style-type: none"> • number of persons per room • number of persons per residential acre in census tracts
Gillis (1979)	<ul style="list-style-type: none"> • number of persons per bedroom • number of people per acre • number of dwelling units per building
Gove et al. (1979)	<ul style="list-style-type: none"> • number of persons per room • proportion of households with more than one person
Chapin and Kaiser (1979)	<ul style="list-style-type: none"> • number of dwelling units per acre of land actually in use or proposed to be used for residential purposes • number of dwelling units on net residential land plus traversing streets, alleys, and drives, one-half of bounding streets, and one-quarter of bounding street intersections • number of dwelling units per acre of land area in use or proposed for development as a neighborhood area, including residential land, areas for local shopping, schools, and public open spaces, and land taken up in streets
Borukhov (1979)	<ul style="list-style-type: none"> • fraction of net residential land covered by buildings • total floor area divided by net residential land • floor area of each dwelling unit • number of rooms per dwelling unit
Fox et al. (1980)	<ul style="list-style-type: none"> • a logarithm of the number of dwelling units per acre
Verbrugge and Taylor (1980)	<ul style="list-style-type: none"> • household size • number of persons per room • number of persons per 10,000 square feet of living space • population on both sides of street face • street population per 1000 feet • population for blocks in "neighborhoods" as defined by respondents • population density per acre for blocks in "neighborhoods" as defined by respondents
Saegert (1980)	<ul style="list-style-type: none"> • median split on the density distribution of the number of persons per room

*Excluding definitions of density under experimental conditions or in institutional settings such as schools or dormitories. Also not included are subjective appraisals of objective density conditions.

were supplemented with information on the students' home environments. Here, the most relevant of these environmental data is child density which was determined by dividing the square land area of the census tract in which a student's home was located into the number of 15 to 17 year old children living in that census tract.⁷ Thus it was possible to obtain for each individual child an objective figure for the number of children he or she could find in his or her neighborhood. Inspection of Table 8.2 shows that the city and suburban children lived in environments which differed significantly from each other qua child density. A one-way analysis of variance indicated that, on the average, the city neighborhoods contained about five times more children than did the suburban neighborhoods, $F(1,137) = 138.1, p < .0001$.

The most significant city-suburban difference was found in the frequency of complaints about a lack of neighborhood friends generated by the open-ended question, "What do you dislike most about your neighborhood?" Quite clearly, the city children enjoyed the company of friends much more often than did the suburban children ($X^2 = 15.2, df = 1, p < .0001$). Probing beyond the relatively crude city-suburban dichotomy, the children mentioning "a lack of friends" in response to the above question lived in neighborhoods with levels of child density which were significantly lower than those in neighborhoods of children not making this complaint. Results of a one-way analysis of variance showed that the neighborhoods of those not complaining about a lack of friends typically contained a larger number of 15 to 17 year olds, $F(1,137) = 16.2, p < .0001$. The data also point out an inverse relationship between the mentioning of a lack of friends and the actual number of neighborhood friends which the children reported. As the actual number of friends increased, the frequency of complaints about a lack of friends decreased (Table 8.3). Not surprisingly, the number of neighborhood friends correlated positively with the level of child density in the neighborhood.

The children were also asked whether they had ever participated in each of 14 different activities including, for example, going to a library, hanging around the street, shopping, doing volunteer work, and attending sports events. If the answers were in the affirmative, a next question inquired about their companions, if any, for each of these activities. The number of activities engaged in with "friends" or "the whole family" yielded index scores which were used as the criterion variables in one-way analyses of variance which showed significant city-suburban differences. The suburban children shared, on the average, fewer activities with friends, $F(1,146) = 4.3, p < .04$, and more with the rest of the family, $F(1,143) = 8.3, p < .004$. This is a behavior pattern which accords with a family-centered lifestyle typically found in traditional residential suburbs (Bell, 1958).

The following discussion transcends the specific context of the findings

TABLE 8.2
Child Densities in City and Suburban Neighborhoods (15 to 17 Year Olds)

City	Number of Children in the Child's Neighborhood			N
	Low ¹	Medium ²	High ³	
City	16%	27%	58%	(64)
Suburb	75%	25%	—	(84)

¹Between 17 and 73 children per KM² in the Census Tract in which the child lives.

²Between 108 and 113 children per KM² in the Census Tract in which the child lives.

³Between 131 and 1051 children per KM² in the Census Tract in which the child lives.

$X^2 = 74.6, df = 2, p < .0001$

presented above. To begin with, I put forward a conceptualization of neighborhood density as a factor contributing to opportunities for interactions with peers; interactions which may manifest themselves in well-adjusted as well as delinquent behaviors. Second, a typology of planning principles is proposed as one possible way of identifying basic environmental contexts of neighborhood density conditions. Finally, it is argued that the environmental context of children's residential experience is inextricably interwoven with a more encompassing framework comprised of personal, social, cultural, economic, and political factors.

DENSITY AS OPPORTUNITY

The above findings indicate the possibility that the physical environment, specifically the level of child density, may function to facilitate or hinder the formation and maintenance of friendships. Such influences are suggested by the relationships that were found to exist between child density and the fre-

TABLE 8.3
Mentioning of Lack of Friends in Neighborhood
by Actual Number of Friends in Neighborhood

Actual Number of Friends in Neighborhood	Mentions lack of friends		
	< 4	4-7	> 7
mentions lack of friends	48%	24%	18%
does not mention lack of friends	52	76	82
N	(21)	(58)	(38)

$X^2 = 6.2, df = 2, p < .04$

quency of complaints about a lack of neighborhood friends, the actual number of friends, and the number of activities shared with friends. Obviously, one has to be careful in inferring causality in these relationships. For example, it might be that, through a process of self-selection, parents with child-rearing values stressing affability and sociability choose to locate in neighborhoods which seem to offer a good potential for such traits to develop—neighborhoods with relatively high child densities. Children in such families would presumably be more strongly inclined to develop friendship relations. While it is likely that the physical and social environment interact to produce conditions which are more or less conducive to children's relations with peers, the influences of the social and physical environment appear to operate in different ways.

The physical environment may be viewed as providing in different degrees opportunities for children's social interactions. The physical environment poses questions concerning the possibilities for social contact. Are there other children in the neighborhood? How far away do they live? Are there any meeting places? In this light, child density can be considered an attribute of the field of opportunities for children's social development. *Ceteris paribus*, higher densities provide more opportunities for social interaction than do lower densities.⁸ This simple notion is also implied by the construct of "institutional completeness" of communities, developed by Breton (1964) in a longitudinal study of the social integration of immigrants as measured by the number of their relationships with representatives of the absorbing community. A theoretical parallel is provided by the concept of critical mass which proposes that density has an "enabling" effect, making possible the emergence of diverse activities; the higher the density, the more varied the range of opportunities that is generated (Fischer, 1976; cf. Mumford, 1961). The implication for children's social interactions is enhanced social choice and a diminished role of spatial constraints in molding the pattern of peer relations.⁹

⁸Note that the effects of density on peer interaction may follow a curvilinear relationship. The present study provides no information in regard to an optimal density level; there are, no doubt, multiple optima as a function of contextual factors to be discussed later. Furthermore, it is important to point out that the theoretical perspective expounded here is not an exclusive approach to the study of effects of neighborhood density; neither is it necessarily appropriate for the study of household density or other types of density. See the chapter by Wohlwill for a review of various alternative and supplemental perspectives.

⁹The origin of the idea that opportunities have a certain spatial range and require a certain population threshold goes back to the German geographer Von Thünen who formulated in 1826 a model of concentric zones which expressed accessibility of agriculture products to the city. Christaller (1933) developed this line of thought further in central place theory which assumes a hierarchical hexagonal pattern for the distribution of goods and services. This theory holds that, as distance from the center increases, population densities decrease, and each unit of settlement accordingly supports an incrementally decreasing amount of retail trade, employment, community services, and so on.

While the physical environment is bound to affect also the nature of peer interactions—for example, the degree of spontaneity (cf. Berg and Medrich, 1978)—the qualitative aspects of peer relations would seem to be primarily a function of sociocultural and personal factors. From a planner's standpoint, these factors may be seen as constituting children's propensity to make use of the opportunities available to them in a given physical environment and as predisposing and preconditioning them as to the manner in which this is done. In other words, whether or not the potential for social interaction associated with high densities is indeed realized and the particular quality of the relations that come about is, in large part, contingent on factors which constrain children from or motivate them to initiate and sustain contacts with peers.

Along these lines, it is not difficult to see how high densities may have positive as well as negative implications for children. Densities support opportunities for both socially acceptable and deviant behaviors. The nature of peer interactions, made possible by the propinquity of other children (i.e., density), needs to be examined within the context of the norms governing those interactions.

Commenting earlier on methodological aspects of density studies, I stressed the need to include a consideration of contextual factors. This need is further accentuated by the conceptualization of neighborhood density as contributing to diverse opportunities which may or may not be utilized, dependent on, for example, the child's familial and economic context. The remainder of this chapter is an amplification of this point. First, a typology of basic planning principles will identify fundamental patterns and dimensions of the environmental context of neighborhood density. Following this, it is argued that this environmental context should be studied in conjunction with a broader set of social structural and other factors constituting the overarching societal context.

CHILD DENSITY IN CONTEXT: I

Several authors have noted the importance of spatial segregation in environmental research (e.g., Gerson & McGrath, 1977, p. 171; Sommer, 1969, p. 153). Spatial distance, implied by spatial segregation, is a simple and powerful concept with which to approach the relation between children and their environment. Michelson (1976, p. 47), for one, has suggested that the notion of spatial separation be taken as the most fundamental environmental concept. It is fundamental because at all spatial levels people are, in different ways and in different degrees, separated in space from other people and from places of human activity. For population groups with a limited mobility—as, for example, children—accessibility of friends and available community facilities and services gains further in importance.

	Dispersal		Concentration	
Integration	X 0	△	X0	X0 △
	△	X 0		X0 △
	0	△ X		
Segregation	0	X △	XX	00
	0	X △	X	0
	0	X △		△△ △

FIG. 8.1 Typology of basic planning principles. Symbols represent hypothetical categories of variables along the demographic, morphological, and functional dimensions.

Spatial separation seems relevant with respect to at least three environmental dimensions:

- demographic*, that is, related to population characteristics such as age, social class, and ethnic background;
- functional*, that is, related to the uses to which land is put, for example, residential, retail, and industrial; and
- morphological*, that is, related to the form and structure of artifacts, for example, housing types such as single family dwellings and apartment buildings.

Attributes along each of these dimensions may be organized into four distinct environmental situations. These four situations are contained in a matrix formed by two continua dichotomized by two basic planning principles: dispersal-concentration and integration-segregation (see Fig. 8.1).

The matrix, presented in Fig. 8.1, yields four "ideal types" in the sense of analytical constructs.¹⁰ In reality, these ideal types are rarely found in their pure forms. However, children's environments tend to approximate one rather than another of these four patterns. The typology has value as a heu-

¹⁰The use of ideal types in the social sciences, exemplified by Max Weber's classic work on bureaucracies, involves the abstraction from reality of those characteristics judged to be essential for the creation of a caricatural framework within which actual situations may be typified. The environmental ideal types distinguished in Figure 1 are a further simplification of reality in that the visualization of the four patterns does not bring out that (variations of) these patterns exist simultaneously along all three dimensions (i.e., demographic, functional, and morphological) and are often closely intertwined.

ristic device which identifies—along three dimensions—"extreme" types of environments. Should children's experiences in such environments differ in minor ways only, we should expect to find even more minimal differences in comparisons involving less contrasting environments. Should, however, the environmental opposites furnished by the typology be associated with clear differences in children's experiences, this may provide some indications regarding environmental features that might usefully be studied in more finegrained investigations (van Vliet—, 1981). At the same time, the three-dimensional typology emphasizes that effects of neighborhood density are likely to vary according to the presence or absence of other environmental conditions. The need to study density effects within the context of these and other factors is further elaborated upon in the concluding section of this chapter.

CHILD DENSITY IN CONTEXT: II

A persistent theme in this chapter has been the need to study density within the context of extraneous variables which may exacerbate or alleviate any effects that occur. This observation does not detract from the potential significance of residential density in children's daily lives. It serves to indicate that density should be considered a composite element of a more encompassing framework comprised of a range of personal, social, cultural, economic, political, and environmental factors.

The typology of basic planning principles clarifies the role of neighborhood density amidst a broader set of environmental factors. It points out that children are spatially segregated, in varying degrees, from other children with respect to age, social class, ethnic background, and so forth. Effects arising from patterns along this demographic dimension need to be studied in relation to different patterns along the functional and morphological dimensions. To complicate matters further, different patterns of segregation-integration may reinforce or counterbalance effects resulting from a given density level. This situation is illustrated by a recent study of neighbor interaction among a national sample (Fox et al., 1980). In this investigation, the frequency of meeting with neighbors at home was found to be positively related to neighborhood density, *provided that public open space was present*. When it was absent, density affected neighboring negatively. In much the same vein, Baum et al. (1978) have examined how features of the neighborhood—specifically, the presence or absence of stores—may mediate effects of high-density conditions.

While variables along the demographic, functional, and morphological dimensions should be viewed as being interrelated and constituting the environmental context for children, these dimensions, in turn, need to be considered

within a broader framework of personal, social, political, and other factors. Certainly, age would appear to interact with density in regard to social relations. Children are less mobile than most adults and, therefore, more dependent on the local environment for opportunities for social interaction. Hence, neighborhood density—particularly density of peers—is important to children. For the elderly, density seems to carry a comparable significance (Patterson, 1978). Maternal employment status may be a relevant variable within the familial context. Full-time, employed mothers do not have as much time, for example, to chauffeur their children (Stone, 1972). Suburban children rely more heavily than city children on maternal transportation and typically lack adequate public transportation. Their mobility in such situations would appear to be limited. This, in turn, may affect their relations with peers. Some evidence for this comes from the Toronto study, mentioned before, in which maternal employment and suburban location were found to interact in such a manner as to reduce the number of activities children shared with friends.

A final point to stress is that the multidimensional density patterns, identified earlier, evolve situated within a context of decision-making processes governing both the use of land and buildings and their allocation to specific user groups. For example, available housing accommodation may not be accessible to families with children because of exclusionary zoning (Galvan, 1979) or restrictive rental practices (Marans & Cohen, 1985). Children's environmental experiences are molded by such socio-political factors which help to create different, and often unequal, opportunities for social development.

CONCLUSIONS

The conclusions of this chapter may be summarized as follows:

1. Research findings indicate interaction with peers and social adjustment as playing an important role in children's development.
2. Peer interaction may have both positive and negative implications; peers may reinforce desirable behaviors and they may model delinquent activities dependent on the prevailing norms, available opportunities, and other contextual factors.
3. In many studies, living in apartments has been confounded with living under high-density conditions; this has tended to obfuscate the effects which housing type and density may have independently of each other.

4. There is no evidence that apartment living per se has ill-effects on children's social adjustment. The lack of evidence is due to methodologically deficient research. The occurrence of effects and their nature seem to depend on contextual factors as, for example, building height and cultural values.
5. Studies show inconsistent effects of housing type on children's interactions with peers. Findings suggest that apartment living may be associated with having fewer friends as well as with having more friends. The relationship needs to be examined further within the context of additional variables such as children's age and parents' child-rearing values.
6. Research findings seem to offer some support for a relation between high household densities and the incidence of behavior problems and maladjustment in children. The anti-social nature of children's behavior has been determined principally by adult perceptions and legal definitions. The critical threshold beyond which adverse effects occur has not been identified. This threshold is likely to be culture-bound. Other factors found to affect the relationship include gender and household composition. Theories explaining the process(es) through which density effects occur have not been well articulated and tested. There are indications that also low household densities may have adverse effects.
7. Effects of household density on children's interactions with peers have been little examined. There are some indications that in high-density households parents tend to restrict their children's freedom to bring friends into the house.
8. Research findings do not demonstrate convincingly that high neighborhood densities contribute to maladjusted behavior. Some studies have found a relation between density levels and rates of juvenile delinquency; others have detected no such relation after removing effects of extraneous variables. Moreover, the existing evidence is based on aggregate correlations; an explanation involving "self-selection" may be equally plausible.
9. Some studies suggest that, in suburbs, children's interactions with peers are less frequent and less spontaneous and fewer times revolving around common interests than is the case in city environments. In these investigations neighborhood density has not been singled out for study as a variable which may, in part, be responsible for these differences.

10. Results from one study indicate that the density of children in the neighborhood is a potentially important factor in the friendship behavior of teenagers. As compared to their counterparts living in low-density neighborhoods, teenagers from high-density neighborhoods complained less frequently about a lack of friends, shared more activities with friends, and also had a larger number of friends.

11. Neighborhood density may be conceptualized as a factor contributing to the field of opportunities for interactions with peers. Such interactions may be either socially desirable or deviant. Except possibly for situations of extreme crowding or isolation, the acceptability of children's social relations does not appear to be related to the conditions of neighborhood density under which they come about.

12. Studies of density effects have tended to produce inconclusive findings because of a lack of methodological standardization and inadequate consideration of contextual factors which may aggravate or counterbalance any effects found to occur.

13. Neighborhood density patterns may be viewed as having a demographic, a functional, and a morphological dimension. Together, they constitute the environmental context for children's social development; this context, in turn, needs to be considered within a broader framework of personal, social, cultural, economic, political, and other factors.

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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 SRCD 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