

Ecology of the Family as a Context for Human Development: Research Perspectives

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This review collates and examines critically a theoretically convergent but widely dispersed body of research on the influence of external environments on the functioning of families as contexts of human development. Investigations falling within this expanding domain include studies of the interaction of genetics and environment in family processes; transitions and linkages between the family and other major settings influencing development, such as hospitals, day care, peer groups, school, social networks, the world of work (both for parents and children), and neighborhoods and communities; and public policies affecting families and children. A second major focus is on the patterning of environmental events and transitions over the life course as these affect and are affected by intra-familial processes. Special emphasis is given to critical research gaps in knowledge and priorities for future investigation.

The purpose of this article is to document and delineate promising lines of research on external influences that affect the capacity of families to foster the healthy development of their children. The focus differs from that of most studies of the family as a context of human development, because the majority have concentrated on intrafamilial processes of parent-child interaction, a fact that is reflected in Maccoby and Martin's (1983) recent authoritative review of research on family influences on development. By contrast, the focus of the present analysis can be described as "once removed." The research question becomes: How are intrafamilial processes affected by extrafamilial conditions?

Paradigm Parameters

In tracing the evolution of research models in developmental science, Bronfenbrenner and Crouter (1983) distinguished a series of progressively more sophisticated scientific paradigms for investigating the impact of environment on development. These paradigms provide a useful framework for ordering and analyzing studies bearing on the topic of this review. At the most general level, the research models vary simultaneously along two dimensions. As applied to the subject at hand, the first pertains

to the structure of the external systems that affect the family and the manner in which they exert their influence. The second dimension relates to the degree of explicitness and differentiation accorded to intrafamilial processes that are influenced by the external environment.

External Systems Affecting the Family

Research paradigms can be distinguished in terms of three different environmental systems that can serve as sources of external influence on the family.

Mesosystem models. Although the family is the principal context in which human development takes place, it is but one of several settings in which developmental process can and do occur. Moreover, the processes operating in different settings are not independent of each other. To cite a common example, events at home can affect the child's progress in school, and vice versa. Despite the obviousness of this fact, it was not until relatively recently that students of development began to employ research designs that could identify the influences operating, in both directions, between the principal settings in which human development occurs. The term *mesosystem* has been used to characterize analytic models of this kind (Bronfenbrenner, 1979). The results of studies employing this type of paradigm in relation to the family are summarized below, in the section "Mesosystem Models."

Exosystem models. The psychological development of children in the family is affected not only by what happens in the other environments in which children spend their time but also by what occurs in the other settings in which their parents live their lives, especially in a place that children seldom enter—the parents' world of work. Another domain to which children tend to have limited access is the parents' circle of friends and acquaintances—their social network. Such environments "external" to the developing person are referred to as "exosystems." The findings of investigations employing exosystem designs are reviewed below, in the section "Exosystem Models."

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Chronosystem models. Traditionally in developmental science, the passage of time has been treated as synonymous with chronological age; that is, as a frame of reference for studying psychological changes within individuals as they grow older. Especially during the past decade, however, research on human development has projected the factor of time along a new axis. Beginning in the mid 1970s, an increasing number of investigators have employed research designs that take into account changes over time not only within the person but also in the environment and—what is even more critical—that permit analyzing the dynamic relation between these two processes. To distinguish such investigations from more traditional longitudinal studies focusing exclusively on the individual, I have proposed the term *chronosystem* for designating a research model that makes possible examining the influence on the person's development of changes (and continuities) over time in the environments in which the person is living (Bronfenbrenner, 1986a).

The simplest form of chronosystem focuses around a life transition. Two types of transition are usefully distinguished: normative (school entry, puberty, entering the labor force, marriage, retirement) and nonnormative (a death or severe illness in the family, divorce, moving, winning the sweepstakes). Such transitions occur throughout the life span and often serve as a direct impetus for developmental change. Their relevance for the present review, however, lies in the fact that they can also influence development indirectly by affecting family processes.

A more advanced form of chronosystem examines the cumulative effects of an entire sequence of developmental transition over an extended period of the person's life—what Elder (1974, 1985) has referred to as the life course. During the past decade, studies of the impact of personal and historical life events on family processes and on their developmental outcomes have received increasing attention. Several of these investigations have yielded findings of considerable substantive and theoretical significance. These are described, along with other relevant researches employing a chronosystem design, below ("Chronosystem Models").

Family Processes in Context

With respect to explicitness and complexity, research paradigms can again be differentiated at three successive levels.

Social address model. At the first level, the family processes are not made explicit at all, because the paradigm is limited to the comparison of developmental outcomes for children or adults living in contrasting environments as defined by geography (e.g., rural vs. urban, Japan vs. the United States), or by social background (socioeconomic status, ethnicity, religion, etc.). Hence the name "social address" (Bronfenbrenner, 1979).

Given their restricted scope, social address models have a number of important limitations summarized in the following passage:

No explicit consideration is given . . . to intervening structures or processes through which the environment might affect the course of development. One looks only at the social address—that is, the environmental label—with no attention to what the environment is like, what people are living there, what they are doing, or how the activities taking place could affect the child. (Bronfenbrenner & Crouter, 1983, pp. 361–362)

Despite these shortcomings, social address models remain one of the most widely used paradigms in the study of environmental influences on development. Two reasons may account for their scientific popularity. The first is their comparative simplicity, both at a conceptual and an operational level. Indeed, they can be, and sometimes have been, employed without doing very much thinking in advance, a procedure, alas, that is reflected in the product. But social address models, when appropriately applied, can also serve as a helpful scientific tool. Precisely because of their simplicity, they can be implemented easily and quickly. Hence, they may often be the strategies of choice for exploring uncharted domains. Like the surveyor's grid, they provide a useful frame for describing at least the surface of the new terrain. A case in point is their application in identifying developmental outcomes associated with what Bronfenbrenner and Crouter (1983) have called the "new demography"—single parents, day care, mothers in the labor force, remarriage, or (perhaps soon) fathers in the role of principal caregiver.

Process-context model. Paradigms at this second level explicitly provide for assessing the impact of the external environment on particular family processes. As documented in Bronfenbrenner and Crouter's analysis (1983), such paradigms represent a fairly recent scientific development, appearing in a reasonably full form only in the late 1960s and early 1970s. Because the corresponding research designs tend to be more complex than those employed in social address models, a concrete illustration may be helpful. For this purpose, I have selected one of the earliest examples of its kind, but one that still deserves to be emulated as a model for future research. In a series of researches growing out of his doctoral dissertation, Tulkin and his colleagues (Tulkin, 1973a, 1973b, 1977; Tulkin & Cohler, 1973, Tulkin & Covitz, 1975; Tulkin & Kagan, 1972) sought to go beyond the label of social class in order to discover its manifestations in family functioning. The first study focused on families with an infant under one year of age. To control for the child's sex and ordinal position, the sample was limited to first-born girls, first studied when they were 10 months old. The initial publication (Tulkin & Kagan, 1972), based on home observations, reported that middle-class mothers engaged in more reciprocal interactions with their infants, especially in verbal behavior, and provided them with a greater variety of stimulation. The second study (Tulkin & Cohler, 1973) documented parallel differences in maternal attitudes; middle-class mothers were more likely to subscribe to statements stressing the importance of perceiving and meeting the infant's needs, the value of mother-child interaction, and the moderate control of aggressive impulses. Furthermore, the correlations between maternal behavior and attitudes were substantially greater in middle-class than in lower-class families. Next, in two experiments, Tulkin (1973a, 1973b) found that middle-class infants cried more when separated from their mothers, but were better able to discriminate the mother's voice from that of an unfamiliar female from the same social class. Finally, several years later, Tulkin and Covitz (1975) reassessed the same youngsters after they had entered school. The children's performance on tests of mental ability and language skill showed significant relationships to the prior measures of reciprocal mother-infant interaction, strength of maternal attachment, and voice recognition when the children had been 10 months old. Once again, the observed

correlations were higher for middle-class families. Even more important from a developmental perspective, the relationships of maternal behavior at 10 months to the child's behavior at age 6 were considerably greater than the contemporaneous relationships between both types of variables in the first year of life. The investigators, however, were quick to reject the hypothesis of a delayed " sleeper effect." Rather, they argued that mothers who engage in adaptive reciprocal activity with their infants at early ages are likely to continue to do so as the child gets older, thus producing a cumulative trend.

Although a number of other investigators of socialization and social class have observed mother-child interaction, Tulkin's work remains unique in combining three critical features: (a) an emphasis on social class differences in *process* rather than merely in *outcome*; (b) demonstration of the key role played by child rearing values and the higher correspondence between parental values and behavior among middle-class than working-class families; and (c) evidence of developmental effects over time.

Person-process-context model. As its name indicates, the next and last process paradigm adds a new, third element to the system. Although the process-context model represented a significant advance over its predecessors, it was based on an unstated assumption—namely, that the impact of a particular external environment on the family was the same irrespective of the personal characteristics of individual family members, including the developing child. The results of the comparatively few studies that have employed a triadic rather than solely dyadic research paradigm call this tacit assumption into question. Research by Crockenberg (1981) illustrates both the model and its message. Working with a middle-class sample, she found that the amount of social support received by mothers from their social network when their infants were 3 months old was positively related to the strength of the child's attachment to its mother at one year of age. The beneficial impact of social support varied systematically, however, as a function of the infant's temperament. It was strongest for mothers with the most irritable infants and minimal for those whose babies were emotionally calm. In addition, the author emphasizes that "the least irritable infants appear somewhat impervious to the low support environments which disrupt the development of their more irritable peers . . . the easy babies in this study were unlikely to develop insecure attachments even when potentially unfavorable social milieus existed" (p. 862).

As documented subsequently in this review, the personal characteristics of parents, especially of fathers, are of no less—and perhaps even greater—importance than those of the child in determining the positive or negative impact of the external environment on family processes and their developmental outcomes.

Although research paradigms in the study of development-in-context have become progressively more complex over time both with respect to the analysis of family processes and of environmental systems, this does not mean that the correlation applies at the level of individual studies. Indeed, the opposite is often the case. Thus one encounters chronosystem designs that still rely primarily on social address models for analyzing data, and, conversely, person-process-context designs that give no consideration to the length of time that a family has been ex-

posed to a particular environmental context (for example, unemployment). Moreover, seldom in either instance is there recognition of the ambiguity of interpretation produced by the failure to use a more sophisticated design. Fortunately, a number of studies, reported below, do employ paradigms that are comparatively advanced on both dimensions and, thereby, produce a correspondingly rich scientific yield.

Mesosystem Models

Ecology of Family Genetics

Studies of twins have typically reported correlations between IQ scores of identical twins reared apart that are quite substantial and appreciably greater than those for fraternal twins reared in the same home. Thus Bouchard and McGue (1981), in their comprehensive review of studies of family resemblance in cognitive ability, report an average weighted correlation of .72 for the former group versus .60 for the latter. Such findings are typically interpreted as testifying to the primacy of genetic influences in the determination of intelligence (e.g., Burt, 1966; Jensen, 1969, 1980; Loehlin, Lindzey, & Spuhler, 1975). Underlying this interpretation is the assumption that twins reared apart are experiencing widely different environments, so that the substantial similarity between them must be attributable primarily to their common genetic endowment. A mesosystem model calls this assumption into question on the ground that, even though they are not living in the same home, the twins may share common environments in other settings. To test this assumption, Bronfenbrenner (1975) recalculated correlations based on subgroups of twins sharing common environments as follows:

1. Among 35 pairs of separated twins for whom information was available about the community in which they lived, the correlation in Binet IQ for those raised in the same town was .83, for those brought up in different towns, .67.
2. In another sample of 38 separated twins, the correlation for those attending the same school in the same town was .87, for those attending schools in different towns, .66.
3. When the communities in the preceding samples were classified as similar versus dissimilar on the basis of size and economic base (e.g., mining vs. agricultural), the correlation for separated twins living in similar communities was .86; for those residing in dissimilar localities, .26.

Subsequently, Taylor (1980) independently replicated the same pattern of findings in an analysis based on a reclassification of cases from the same studies as well as additional data from others.

Genetics-environment interaction in family processes

The pioneering investigation in this domain is one that has been much criticized on technical grounds by proponents of the hereditarian view (e.g., Jensen, 1973), but as a research paradigm it broke new ground. In the late 1930s, Skeels and his colleagues (Skeels & Dye, 1939; Skeels et al., 1938; Skodak & Skeels, 1949) published the first stage of what was to become a classical longitudinal study (Skeels, 1966). The investigators compared mental development of children brought up from an

early age in adoptive families and in a control group of youngsters raised by their biological parents. Building on earlier work in this area (Burks, 1928; Leahy, 1935), the investigation is important in three respects. First, following Burks, the researchers demonstrated, and took into account, the influence of selective placement (the tendency of children of more intelligent biological parents to be placed in more advantaged adoptive homes). Second, Skeels and his associates showed that, while parent-child correlations in intellectual performance were appreciably higher in biological families than in adoptive families, the mean IQ of the adopted children was 20 points higher than that of their natural parents. This phenomenon has since been replicated both in the United States (Scarr & Weinberg, 1976) and in Europe (Schiff et al., 1981, 1982). Third, and the most relevant for present purposes, Skeels and his colleagues gathered and analyzed critical data of a type never before examined in adoptive families—the nature of the home environments and parental behaviors that accounted for the more advanced development of children placed for adoption in middle-class families (Skodak & Skeels, 1949).

An even clearer example of the multiplicative effect of environmental and genetic forces are the Danish and American adoptive studies of the origins of criminal behavior. Taking advantage of the unusually complete multigenerational demographic and health statistics available in Denmark, Hutchings, and Mednick (1977) compared the incidence of criminal offenses for males adopted early in life and for their biological and adoptive fathers. Among adopted men for whom neither father had a criminal record, 12% had a criminal record of their own. If either the biological or the adoptive father had a criminal record, the rate rose appreciably (21% and 19%, respectively). If both fathers had recorded offenses, the proportion jumped to 36%.

An American study (Crowe, 1974) reported a more precise multiplicative effect; among adult adoptees whose mothers had a criminal record, the only ones who had criminal records themselves were those who had spent considerable time in institutions or foster homes prior to adoption. This effect was independent of age of adoption, because children transferred at the same ages directly from the biological to the adoptive family did not have criminal records later in life. Crowe's research provides a telling example of how a rather complex mesosystem effect can be demonstrated by applying a fairly simple social address model.

The use of more advanced and differentiated research design for the study of genetics-environment interaction in development is still comparatively rare. A striking finding demonstrates by contradiction the paucity of our knowledge in this sphere. The modest but significant association between family background factors in childhood and subsequent educational and occupational achievement in adulthood has been documented many times. Yet, it is only two years ago that Scarr and McAvay (1984) reported an important qualification with respect to this often cited relationship. Exploiting the methodological leverage provided by a longitudinal study of brothers and sisters brought up in adoptive and biologically related families, the investigators demonstrated that, within biological families, such family background characteristics are much more predictive for sons than for daughters.

The Family and the Hospital

Given the critical importance that hospital care can play in the life and development of young children, it is surprising that so little attention has been paid to the relationship between the hospital and the home as a moderating influence on the child's recuperation. The importance of this relation is illustrated by the results of two studies. Scarr-Salapatek and Williams (1973) assessed the effects of an experimental program carried out with a sample of black mothers and their premature infants from extremely deprived socioeconomic backgrounds. In addition to providing special sensory stimulation procedures by hospital staff, the program involved home visits to the mothers in which they were given instruction, demonstration, and practice in observing, caring for, and carrying out a variety of activities with their infants. At one year of age, the latter showed an IQ score 10 points higher than that of randomly selected control groups, and achieved an average level of 95, thus bringing them to "nearly normal levels of development" (p. 99).

An earlier experiment with an older aged group yielded equally impressive results. Prugh and his colleagues (1953) took advantage of a planned change in hospital practice to conduct a comparative study of the reaction of children and their parents to contrasting modes of ward operation. The control group consisted of children admitted and discharged over a 4-month period prior to the introduction of the contemplated change. They experienced "traditional practices of ward management" (p. 75) in which parents were restricted to weekly visiting periods of two hours each. The experimental group, admitted during the succeeding period, could receive visits from parents at any time. Parents were also encouraged to participate in ward care. Greater emotional distress was observed among the children in the control group, both before and as late as a year after discharge from the hospital.

The Family and Day Care

As pointed out by Belsky and his colleagues in a series of comprehensive reviews (Belsky 1985; Belsky & Steinberg, 1978; Belsky, Steinberg, & Walker, 1982), researchers on day care have limited themselves almost exclusively to the direct effects on the child while neglecting possibly even more powerful influences on family processes. In his most recent review of the few studies that depart from this pattern, Belsky (1985) qualifies previous more optimistic assessments regarding effects of infant day care on the formation of mother-infant attachment. After analyzing several recent investigations, Belsky (1984) concludes as follows:

These new data lead me to modify conclusions that have been arrived at in past reviews in order to underscore the potentially problematical nature of early entry into community-based, as opposed to university-based day care . . . There seems to be cause for concern about early entry to the kind of day care that is available in most communities. (p. 11)

An additional study by Thompson, Lamb, and Estes (1982) lends support to Belsky's caveat. These investigators report data from a middle-class sample showing that stability of secure attachment between 12 and 19 months was lower among infants placed in day care or whose mother had returned to work dur-

ing the first year. The effect for day care was greater than that for maternal employment.

The Family and the Peer Group

In the middle 1960s and early 1970s, a series of studies, conducted both in the United States and other countries (Bronfenbrenner, 1967; Bronfenbrenner, Devereux, Suci, & Rodgers, 1965; Devereux, 1965, 1966; Devereux, Bronfenbrenner, & Rodgers, 1969; Rodgers, 1971), demonstrated powerful and often opposite effects of parental and peer influences on the development of children and youth. Especially instructive is the comparative investigation by Kandel and Lesser (1972), who found that Danish adolescents and youth, in contrast to American teenagers, paradoxically exhibited both greater independence from and closer and warmer relationships with their parents and other adults as opposed to peers, with a corresponding reduction in antisocial behavior. More recently, the developmental importance of the interface between family and peer group has been corroborated in studies focusing on the antecedents of antisocial behavior in adolescence and the entrapment of youth in juvenile delinquency, alcoholism, and substance use (Boehnke et al., 1983; Gold & Petronio, 1980; Jessor, 1986; Kandel, 1986; Pulkkinen, 1983a, 1983b).

Particularly revealing are three recent investigations that have used more sophisticated designs to reveal the interplay between family structure and functioning on the one hand, and indexes of peer group deviance on the other. Thus Dornbusch and his colleagues (1985) first show that, with effects of socioeconomic status held constant, adolescents from mother-only households are more likely than their age-mates from two-parent families to engage in adult disapproved activities (such as smoking, school misbehavior, and delinquency). They then demonstrate that a key process involved in this relationship is the contrasting pattern of decision-making prevailing in the two types of family structure, with more unilateral decisions (parent alone, child alone) predominating in the single-parent setting. Substantial difference in antisocial behavior still remained after control for patterns of decision-making. These differences were considerably reduced, however, by the presence of a second adult in the single-parent home, *except* in those cases in which the second adult was a stepparent, when the effect was reversed. In other words, having a stepparent increased the likelihood of socially deviant behavior. The effect of the child's own characteristics on the family process is reflected in the fact that all of the above relationships, especially the disruptive influence of a stepparent, were more pronounced for boys than for girls.

A subsequent study by Steinberg (1985) not only replicates the above pattern of findings but further illuminates the nature of the processes involved by using a measure not of the frequency of antisocial behavior per se such but of susceptibility to peer-group pressure for such activity. Finally, in his most recent report, Steinberg (1986) adds a caveat to conclusions drawn from prior studies of the growing phenomenon of the "latchkey child." Using a conventional "social address" model, these investigations had failed to detect any behavioral difference between such children and those who came home from school to a house in which the parent was present. By employing a person-process-context mesosystem model, Steinberg identified as a

crucial variable the extent of parental monitoring and "remote control" of the child's activities in the parent's absence. For example, children whose parents knew their whereabouts were less susceptible to antisocial peer influence. Where such parental monitoring was weak, latchkey children were indeed at greater risk of becoming involved in socially deviant behavior. And once again, the importance of the characteristics of the child was reflected in the fact that males were more susceptible to antisocial influences than females and were less responsive to the moderating effect of increased parental control or monitoring.

Family and School

Research in this sphere has been heavily one-sided. Although there have been numerous investigations of the influence of the family on the child's performance and behavior in school, as yet no researchers have examined how school experiences affect the behavior of children and parents in the home. Several studies, however, have explored how the relation between these two settings might affect children's behavior and development in school environments (Becker & Epstein, 1982; Bronfenbrenner, 1974; Burns, 1982; Collins, Moles, & Cross, 1982; Epstein, 1983a, 1984; Hayes & Grether, 1969; Henderson, 1981; Heyns, 1978; Lightfoot, 1978; Medrich et al., 1982; Smith, 1968; Tangri & Leitsch, 1982). Smith's study (1968) is especially noteworthy. She carried out a planned experiment involving a series of ingenious strategies for increasing home-school linkages that brought about significant gains in academic achievement in a sample of approximately 1,000 elementary pupils from low-income, predominantly black families.

Almost all of these investigations, however, including Smith's, have focused on techniques of parent involvement rather than on the associated processes taking place within family and classroom and their joint effects on children's learning and development. A notable exception is Epstein's research on "Longitudinal Effects of Family-School-Person Interactions on Student Outcomes" (1983a, 1983b). Working with a sample of almost 1,000 eighth graders, she examined the joint impact of family and classroom processes on change in pupil's attitudes and their academic achievement during the transition between the last year of middle school and the first year of high school. Children from homes or classrooms affording greater opportunities for communication and decision-making not only exhibited greater initiative and independence after entering high school, but also received higher grades. Family processes were considerably more powerful in producing change than classroom procedures. School influences were nevertheless effective, especially for pupils from families who had not emphasized intergenerational communication in the home or the child's participation in decision-making. The effects of family and school processes were greater than those attributable to socioeconomic status or race.

Exosystem Models

In modern, industrialized societies, there are three exosystems that are especially likely to affect the development of the child, primarily thorough their influence on family processes.

The first of these is the parents' workplace, the second parents' social networks, and the third community influences on family functioning.

Family and Work

In their review of research on the effects of parental work on children, Bronfenbrenner and Crouter (1982) pointed out that, until very recently, researchers have treated the job situation of mothers and fathers as separate worlds having no relation to each other and, presumably, leading to rather different results. For mothers, it was the fact of being employed that was thought to be damaging to the child, whereas for fathers it was being unemployed that was seen as the destructive force. Because of this "division of labor," the principal research findings in each domain are most conveniently summarized under separate headings.

Parental Employment and Family Life

The first studies in this sphere appeared in the late 1930s and dealt with the impact on the family of the father's loss of a job during the Great Depression (Angell, 1936; Cavan & Ranck, 1938; Komarovsky, 1940; Morgan, 1939). The husband's unemployment resulted in a loss of status within the family, a marked increase in family tensions and disagreements, and a decrease in social life outside the home. At the same time, the father became increasingly unstable, moody, and depressed. In these early studies, no reference was made to any effects of these disruptive processes on the children; the latter were treated simply as participants playing secondary roles in the family drama. It was not until the 1970s that Elder (1974) began his exploitation of archival data to trace the life course of "Children of the Great Depression" (1974). Because he also employed a more powerful chronosystem paradigm for this purpose, Elder's findings will be presented in a later section, in which such models and their results are reviewed.

In 1958, Miller and Swanson called attention to another aspect of the father's work situation that appeared to affect parental childrearing attitudes and practices. The investigators distinguished between two main types of work organization: bureaucratic and entrepreneurial. The first, represented by large-scale businesses, was characterized by relatively more secure conditions of work, manifested by such features as regular hours, stabilized wages, unemployment insurance, and retirement funds. The second, exemplified by small-scale family-owned businesses, involved greater initiatives, competitiveness, risk taking, and insecurity regarding the future. Miller and Swanson reported that wives of men from bureaucratic backgrounds described styles of upbringing that were more permissive and laid greater stress on the development of interpersonal skills; by contrast, wives of husbands working in entrepreneurial settings were found to be more concerned with individual achievement and striving. A decade later, similar findings based on Miller and Swanson's occupational dichotomy were obtained by Caude and Weinstein in Japan (1969).

The hypothesis that the structure and content of activities in the father's job can influence the family's childrearing values has been investigated by Kohn and his colleagues. In his first

study, Kohn (1969) demonstrated that working-class men whose jobs typically required compliance with authority tended to hold values that stressed obedience in their children; by contrast, middle-class fathers expected self-direction and independence, the qualities called for by the demands of their occupation. Occupational values were also reflected in both parents' childrearing practices. Subsequently, Kohn and Schooler (1973, 1978, 1982, 1983) examined the nature of work in a more fine-grained analysis, focusing on the dimension of "occupational self-direction"—the extent to which a job requires complex skills, autonomy, and lack of routinization—and its relation to worker's "intellectual flexibility" as measured in a series of standardized tests. Using causal modeling techniques with longitudinal data, the investigators demonstrated that the occupational self-direction of a job could affect one's intellectual flexibility 10 years later. This finding was subsequently replicated in a comparative study including samples both from the United States and Poland (Slomezynski, Miller, & Kohn, 1981).

The key question left unresolved in the work of Kohn and his colleagues concerns the last step in the developmental sequence that he posits: Does the opportunity for self-direction in the parent's job, and the intellectual flexibility that it generates, influence the actual child rearing behavior of the parents and, thereby affect the development of the child? The one study I have been able to find that bears on this issue did not yield very powerful results. Using data from a sample of several hundred 12th-graders, Morgan, Alwin, and Griffin (1979) found the expected association between father's occupation and mother's childrearing values. But when these value measures were related to various aspects of the adolescent's academic career, the findings presented a somewhat mixed picture. Neither the adolescents' school grades, academic self-esteem, expected educational and occupational attainment, nor their generalized sense of personal control were affected. The mother's childrearing values, however, did predict the child's curriculum placement (measured on a continuum from vocational-commercial courses to college preparation), as well as the young person's involvement in school activities. The latter finding, however, held only for white students, not for blacks. Note that even in this study, no data are available on the parents' behavior, which constitutes a critical link in the postulated causal chain.

A closer approximation of the processes involved appears in a longitudinal research conducted by Mortimer and her colleagues (Mortimer, 1974, 1975, 1976; Mortimer & Kumka, 1982; Mortimer & Lorence, 1979; Mortimer, Lorence, & Kumka, 1982). Applying Kohn's theoretical schema in a reanalysis of panel study data, the investigators were able to demonstrate a strong tendency for sons to choose an occupation similar to their fathers', as defined along dimensions of work autonomy and the function of work activities. The most effective transmission of occupational value and choice occurred under a combination of a prestigious parental role model and a close father-son relationship. Mortimer's most recent study (1986) establishes the mediating role of the family in adult development by documenting that, compared to men who remained single, men who married during the decade following graduation had greater career stability, income, and work autonomy and exhibited greater job satisfaction. There was substantial evidence that these findings were not attributable to se-

lection processes. The special strength of Mortimer's work lies in the inclusion of family relationships as intervening links in her model.

A third line of investigation, emerging in the middle 1960s, reflects a significant elaboration in the latent structure of research designs in this sphere. The earliest studies in this domain focused on the effects of conflicting time schedules. For example, Mott, Mann, McLoughlin, and Warwick (1965) found that workers on the late afternoon shift rarely saw their school-age children during the work week. The job of discipline fell to the mother, and the shortage of time shared by both parents produced family conflicts over what to do with that time. A subsequent study (Landy, Rosenberg, and Sutton-Smith, 1969) examined the impact on daughters of the fathers' working on a night shift. The daughters of men so employed showed significantly lower scores in tests of academic achievement.¹

Kanter (1977) introduced the concept of "work absorption" to describe the extent to which work made demands on one's physical and mental energy. In the same year, Heath (1977) studied the effects of this phenomenon and reported that it had a "narrowing effect" on men who had little time for nonwork activities, including spending time with their children. Work absorption tended to generate guilt and increased irritability and impatience in dealing with the child. Two studies have gone a step further to demonstrate the interaction between work and family as a two-way system, with "spillover," in both directions, of tensions, satisfactions, and modes of interaction (Crouter, 1984; Piotrkowski, 1979).

Finally, Bohen and Viveros-Long (1981) exploited an experiment of nature to investigate the impact of flexible work hours (flexitime) on family life. They compared two federal agencies engaged in similar work and staffed by similar personnel, but differing in arrangement of working hours. In one agency the employees worked a conventional schedule from 9:00 a.m. to 5:00 p.m.; in the other, they could choose to arrive within a 2-hr range in the morning and adjust their leaving time accordingly. The results of the experiment were somewhat ironic. Measures of family strain and participation in home activities showed a significant difference favoring flexitime for only one group of families—those without children. One proposed explanation is that flexitime arrangements did not go far enough to meet the complex scheduling problems experienced by today's parents. A second interpretation suggests that the flexible time may have been used for activities outside the home unrelated to childrearing, such as recreation, socializing, or moonlighting. Unfortunately, no data were available to verify either hypothesis.

Maternal Employment and the Family

As documented in three recent reviews (Bronfenbrenner & Crouter, 1982; Hoffman, 1980, 1983), an analysis of research in this sphere reveals a consistent contrast, summarized in the following passage:

By 1980 there had accumulated an appreciable body of evidence indicating that the mother's work outside the home tends to have a salutary effect on girls, but may exert a negative influence on boys . . . The results indicate that daughters from families in which the mother worked tended to admire their mothers more, had a more

positive conception of the female role, and were more likely to be independent . . . None of these trends was apparent for boys. Instead, the pattern of findings, especially in recent investigations, suggests that the mother's working outside the home is associated with a lower academic achievement for sons in middle-class but not in low-income families . . . A similar tendency for maternal employment to have a negative influence on the development of boys was apparent in investigations conducted as far back as the 1930s. (Bronfenbrenner & Crouter, 1982, pp. 51–52)

The processes underlying this complex but consistent set of findings are illuminated in a study by Bronfenbrenner, Alvarez, and Henderson (1984). The basic data consisted of parents' free descriptions of their 3-year-old children. A systematic content analysis revealed that the most flattering portrait of a daughter was painted by mothers who were working full-time, but this was also the group that portrayed the son in the least favorable terms. A further breakdown by mother's educational status indicated that the enthusiastic view of a daughter in the full-time group occurred only among those mothers who had some education beyond high school. In the light of both quantitative and qualitative findings, the authors make the following interpretative comment: "The pattern brings to mind the picture of an aspiring professional woman who already sees her three-year-old daughter as an interesting and competent person potentially capable of following in her mother's footsteps" (p. 1,366). The most salient feature of the findings for sons was the exceptionally positive description given by mothers working part-time, in contrast to the much lower evaluation offered by those fully employed. The advantages of part-time employment, so far as maternal perceptions are concerned, were appreciably greater for a son than for a daughter. The results of interviews with fathers (conducted separately) revealed the same highly differentiated profile, but in somewhat lower relief.²

Revealing as the foregoing studies are of the dynamics of the family-work exosystem, they fail to take account of what turns out to be a critical third dimension—that of continuity versus change in employment status over time. Research bearing on this issue is discussed below.

Parental Support Networks

Investigations in this domain first began to appear in the 1970s. In a study of child neglect among low-income families

¹ A growing phenomenon in this regard that has received surprisingly little research attention is paternal employment requiring frequent and extended absence from the home. Results from one of the few studies of the developmental effects of this pattern, Tiller's (1958) investigation of Norwegian sailor and whaler families, suggests that the outcomes may be rather different from those observed for children of divorced, separated, or widowed parents.

² Regarding the basis for the observed sex differences in the effects of maternal employment, the authors speculate as follows: "One possible explanation draws on the recurrent and generally accepted finding in research on early sex differences (Maccoby & Jacklin, 1974) that male infants tend to be more physically active from birth and hence require more control and supervision. Full-time work may limit opportunities for such necessary monitoring. Viewed from this perspective, the findings suggest that the reported sex difference in effects of maternal employment derive from the cumulative interaction of familial, organismic, and employment factors evolving in a larger socioeconomic context" (p. 1371).

Giovanni and Billingsley (1970) found that neglect was less frequent among families characterized by strong kinship networks and regular church attendance. The authors conclude the "among low-income people, neglect would seem to be a social problem that is as much a manifestation of social and community conditions as it is of any individual parent's pathology" (p. 204). Corroborative data come from a large-scale correlational analysis of child abuse reports and socioeconomic and demographic information for the 58 counties in New York State (Garbarino, 1976). In the investigator's words, "a substantial proportion of the variance in rates of child abuse/maltreatment among New York State counties . . . was found to be associated with the degree to which mothers do not possess adequate support systems for parenting and are subjected to economic stress." (p. 185)

Subsequent research in this sphere has continued to focus almost exclusively on mothers of young children, particularly mothers in specially vulnerable groups such as teen-age mothers, single-parent mothers, or families living in poverty. In general, these studies revealed that support was more likely to come from kin than nonkin, with the father being the principal source of help, even in single-parent households; the mother's mother was next in line, followed by other relatives, and then friends, neighbors, and professionals (Belle, 1981; Brown, Bhrolchin, & Harris, 1975; Crockenberg, in press-a, in press-b; Tietjen & Bradley, 1982). In the area of attitudes, Tietjen and Bradley (1982) found that mothers who had access to stronger social networks during their pregnancy reported lower levels of stress, anxiety, and depression, a better marital adjustment, and a more positive attitude toward their pregnancy. Support from the husband was more effective than that from friends, neighbors, or relatives outside the home. Studies conducted of families with young infants revealed that low family support evoked maternal attitudes of hostility, indifference, and rejection of the infant (Colletta, 1981), whereas mothers experiencing help and comfort, primarily from the immediate family and relatives, felt less stress and had more positive attitudes toward themselves and their babies (Aug & Bright, 1970; Colletta, 1981, 1983; Colletta & Gregg, 1981; Colletta and Lee, 1983; Mercer, Hackley, & Bostrom, in press). In the realm of maternal behavior, mothers receiving higher levels of social support responded more quickly when their infants cried (Crockenberg, 1984a, 1984b) and provided more adequate caretaking behavior (Epstein, 1980; Wandersman & Unger, 1983).

With respect to the behavior of the children themselves, Fursenberg & Crawford (1978) has documented effects of family support on the child's social and emotional development. Working with a predominantly black sample of teen-age mothers, he found that children of mothers who continued to live with their families of origin experienced fewer behavior problems, showed less antisocial behavior, and scored higher on cognitive tests than did children of teenage mothers who lived alone without adult relatives.

A more differentiated picture of sources of external support, stress, and their interaction emerges from a study by Crnic and his colleagues (1983). These investigators devised separate indexes of stress and of support experienced by the mother from the beginning of her pregnancy until the infant had been home for 1 month. Moreover, the measure of support distinguished

between help coming from three different sources: the mother's husband (or partner), friends, and other persons in the neighborhood or community. The analysis revealed that both environmental stress and environmental support had independent effects on the family. Maternal attitudes were influenced most; social support was associated with more positive orientations, stress with more negative ones. Effects on both the mother's and the infant's behavior, when observed after a 3-month interval, were less powerful, but still significant. Mothers who had received higher levels of support when the infants had been 1 month old were more responsive and positive in interacting with the child 3 months later. Correspondingly, the babies acted more responsively and positively toward their mothers and gave clearer cues regarding their emotional state, needs, and desires. The infant's behavior was affected somewhat more than the mother's. The findings with respect to source of support were equally instructive. Whereas support from either spouse, friends, or community was about equally influential in increasing maternal levels of satisfaction, support from the father had an appreciably stronger and more general effect on the actual behavior of both mother and child than did help from friends or community. Finally, environmental stresses and supports interacted with each other, with support serving to buffer the disruptive effects of stress.

An analogous interaction effect appears in a study of the impact of environmental stress and social support in single- and two-parent families (Weinraub & Wolf, 1983); stress proved to be more debilitating and social support more effective when the mother was not married. Once again, it would appear that social support is most potent under conditions of stress.

This conclusion must be qualified, however, in the light of a subsequent study by Crockenberg (in press-b) with an extremely deprived sample—a group of teenage mothers who were also unmarried, uneducated, poor, and predominantly Black and Mexican-American. Her findings indicate that, for mothers living under highly stressful conditions, social networks not only cease to exert a positive influence but can even become a source of stress.

A similar result is reported in a recent article by Riley and Eckenrode (in press). In a study of stresses and supports in mothers' lives, the investigators found that the influence of social networks on psychological well-being shifted in direction from positive to negative as a function of three kinds of factors: (a) reduced socioeconomic status, (b) the occurrence of misfortune in the lives of significant others (e.g., a close relative suffers an accident), or (c) low levels of belief either in one's capacity to influence one's own life (i.e., locus of control) or in the probable success vs failure of one's own help-seeking efforts.

Processes and outcomes of social support are set within a still broader social context in Crockenberg's most recent study (1985), in which she compared English teenage mothers with a matched sample of their American counterparts. She found that "English mothers engaged in more smiling and eye contact, less frequent routine contact, and responded more quickly to their babies' crying than did American mothers" (p. 422). Control of possibly confounding variables through regression analysis pointed to the amount and type of social support as the factor accounting for the difference. Crockenberg elaborates as follows:

In the United States most mothers rely on private doctors to serve their own and their children's health needs. . . . Public health nurses or social workers may be assigned to families in need of special assistance, but there is no comprehensive system designed to provide health-related and child care advice to parents. . . . In contrast, through the National Health Service, England incorporates community-based social support for parents in a comprehensive program of health care. This care begins before the child's birth and continues through his school years. . . . Midwives provide postnatal care for mothers and babies after they leave the hospital following delivery, and home health visitors see new mothers on a regular basis. . . . In England, mothers had only to be home and open their doors. (pp. 414-425)

Although this provocative cultural contrast clearly requires replication, in terms of research design it provides an excellent example of the power of a process-context model for analyzing external influences on family processes and their developmental effects.

The Family and the Community

The outstanding studies in this domain have been those conducted by Rutter and his colleagues, beginning with their classical comparison of rates of mental disorder in inner-London and the Isle of Wight (Rutter et al., 1975; Rutter & Quinton, 1977). In order to control for possible effects of migration, the investigators confined their samples to children of parents born and bred only in the given area. Their findings reveal that rates of psychiatric disorder were much more frequent in the metropolis. Nor could the observed effects be explained by any community differences with respect to ethnicity, social class, or demographic factors (Quinton, 1980; Rutter & Madge, 1976). Indeed, the same social class position appeared to have a different significance in urban versus rural environments, with low socioeconomic status being a much stronger predictor of mental illness in the city than in the country. In the light of this series of findings, Rutter concluded: "It seemed that there must be something about living in the city which predisposed to mental disorder" (1981, p. 612).

What is this "something?" Rutter's own efforts to answer this question have yielded results of particular relevance for child development. For example, taking advantage of the longitudinal design of the London-Isle of Wight study, Rutter (1981) analyzed community differences as a joint function of age of onset and type of disorder.

The results were striking in showing that the biggest difference between London and the Isle of Wight applied to *chronic* disorders of *early* onset. . . . The least difference was found with psychiatric conditions beginning in adolescence for the first time. Moreover, the difference also mainly applied to disorders associated with serious family difficulties. In short, the problems most characteristic of city children were those beginning early, lasting a long time, and accompanied by many other problems in the family. (Rutter, 1981, p. 613, italics in original)

These findings raise the possibility that the observed community differences may simply reflect the aggregation of vulnerable families. To clarify this issue, Rutter and Quinton (1977) compared rates of psychiatric disorder in different neighborhoods controlling for such factors as the proportion of low status, low-income families, and single-parent households. They found that families were affected irrespective of their back-

ground characteristics, so that, in general, persons living in a vulnerable area shared a higher risk of psychiatric disorder. In short, to use Rutter's words, the effect was to some extent ecological as well as individual.

Such an effect can operate in two ways. It can impinge on children directly, or indirectly through the child's family. To investigate these possibilities, Rutter and his colleagues (1975, 1977) developed an index of "family adversity" including such factors as marital discord and dissolution, mental disorder or criminality in the parents, large family size, and other conditions known to be associated with higher levels of psychiatric disturbance and social deviance. Again, the results were striking, but now in the opposite direction. With the degree of family adversity controlled, the difference between London and the Isle of Wight in rates of child psychiatric illness all but disappeared. The authors interpret this result as indicating that the main adverse effects of city life on children are indirect, resulting from the disruption of the families in which they live.

Similar evidence of indirect effects on the child via the family have also been found for juvenile delinquency. The relevant research has been summarized by Rutter and Giller (1983). For example, using a longitudinal design that permitted control for prior characteristics both of the child and of the family, West (1982) was able to demonstrate that delinquency rates for boys declined after the family moved out of London. As Rutter notes in a personal communication (1984) what is lacking in studies of this kind (including his own) is an identification of the particular features of an area that produce the given effect, and the process through which the effect takes place. "It is all very well to note the 'stresses' of inner-city life, but what is needed is to determine just what it is that makes inner-city life stressful for some families in some circumstances. Personally, I would see this as the most important needed direction for future research."

Finally, whereas the indirect effects of urban residence appear to be negative for social and emotional development, particularly in young children, there is evidence that the direct influence of the city environment may be beneficial for intellectual development among *older* children. The principal support for this conclusion comes from a two-stage investigation carried out in rural and urban areas of Switzerland. The first study (Meili & Steiner, 1965) was conducted with 11-year-old school children. The researchers found that performance in both intelligence and achievement tests increased as a direct function of the amount of industry and traffic present in the area. The relationship was still significant after controlling for social class, but the influence of the latter variable was more powerful than that of locality. Four years later, in a follow-up study, Vatter (1981) undertook to investigate the nature of the more immediate influences accounting for this result. Drawing on earlier work by Klineberg (1935, 1938) and Wheeler (1942), Vatter hypothesized that the superior cognitive functioning observed in city children was a product of exposure to richer and more differentiated cultural environment typifying the urban scene. To investigate his "stimulus hypothesis," Vatter obtained information from his subjects about their daily activities within the community, and about the nature of existing community facilities (for example, availability and use of libraries, learning opportunities outside the home, etc.). In support of the author's hypothe-

sis, there was a significant positive relation between indexes of the community environment and mental test scores. Moreover, community factors appeared to exert a stronger influence than intrafamilial variables (median r of .41 vs. .26). Vatter acknowledges, however, that his design did not permit adequate control for migration effects, because his follow-up study did not include all of the original cases, and it was impossible to identify and reanalyze Time 1 data for the Time 2 sample.³

Chronosystem Models

The impact of a single life transition on family processes and the development of the child is well illustrated in the work of Hetherington and her colleagues (Hetherington, 1981; Hetherington, Cox, & Cox, 1978), which traced the progressive impact of divorce on the mother-child relationship and the child's behavior in school. The disruptive effects of separation reached their peak 1 year afterward and declined through the second year, although the divorced mothers never gained as much influence with the child as their married counterparts wielded. Two of Hetherington's findings illustrate the power of exosystem forces in influencing family processes. First, the mother's effectiveness in dealing with the child was directly related to the amount of support received from third parties such as friends, relatives, and especially her exhusband. Second, the disruptive effects of divorce were exacerbated in those instances in which the separation was accompanied by the mother's entry into the work force.

The potentially destabilizing impact of extrafamilial transitions on intrafamilial processes is elegantly demonstrated in a doctoral dissertation by Moorehouse (1986). This researcher employed a two-stage model in order to investigate how stability versus change over time in the mother's work status during the child's preschool years affected patterns of mother-child communication, and how these patterns in turn influenced the child's achievement and social behavior in the first year of school. The complex nature of the feedback systems operating in the family-workplace-school interface is illustrated by the following seemingly paradoxical sequence of findings;

1. As reflected by grades and teacher ratings, the children experiencing the greatest difficulty in adapting to school were those whose mother was working full time. This relationship remained significant after control for mother's education.

2. As hypothesized, the generally positive relationship between mother's communicative activities at home and the child's performance at school varied systematically as a function of the mother's work status, and was strongest among the children of mothers working full time. In the author's words,

Rather than weakening the effectiveness of the mother-child system, a full-time job appears to increase the positive impact of this system on the child's school competence . . . When high levels of communicative activities are maintained, these children are as competent, or more competent, than their peers with mothers who work fewer hours or not at all. Thus, mother-child activities seem to compensate or prevent detrimental consequences of maternal employment for children who are first entering school. (p. 129)

3. Moorehouse carried out a comparative analysis of mothers who had maintained the same employment status over the period of the study versus those who had changed in either di-

rection: that is, working more hours, fewer hours, or none at all. The results revealed that significant effects of work status were pronounced only in the latter group. Moreover, "instability, on the whole, is associated with less favorable school outcomes than stability" (p. 89).

Moorehouse cautions that her findings should be viewed as tentative, because her sample was comparatively small ($N = 112$), resulting in only minimally acceptable frequencies in some of the subgroups. Nevertheless her conclusion regarding the importance of stability in the family's environment finds independent confirmation in the results of a longitudinal study in Finland conducted by Pulkkinen (Pitkanen-Pulkkinen, 1980; Pulkkinen, 1982, 1983b, 1984). The investigator examined the influence of environmental stability and change on the development of children from 8 to 14 years of age. Specifically, the "steadiness" versus "unsteadiness" of family living conditions was measured by the occurrence of events such as the following: the number of family moves, changes in day care or school arrangements, parental absences, changes in family structure, and altered conditions of maternal employment. Greater instability in the family environment was associated with greater submissiveness, aggressiveness, and anxiety among children in later childhood and adolescence, and higher rates of criminality in adulthood. Moreover, the factor of stability of family living conditions appeared to be a stronger determinant of the child's development than the family's socioeconomic status. (The relation of socioeconomic status to family stability, however, was not examined.)

A similar finding was reported in a longitudinal study carried out in Hawaii (Werner & Smith, 1982). The investigators focused special attention on a subgroup of their sample whom they designated as "Vulnerable but Invincible." These were adolescents and youth who, over the course of their lives, had been "exposed to poverty, biological risks, and family instability, and reared by parents with little education or serious mental health problems—who remained *invincible* and developed into competent and autonomous young adults who worked well, played well, loved well, and expected well" (p. 3). A major environmental factor that distinguished this group from their socioeconomically matched "nonresilient" controls was a low number of chronic, stressful life events experienced in childhood and adolescence, and the presence of an informal multigenerational network of kin.

The Hawaiian research also validated in a longitudinal design a pattern of reversing sex differences previously detectable only in fragmented fashion from cross-sectional designs (Hetherington, 1972, 1981; Hetherington & Deur, 1971). Through the first decade of life, boys appeared to be substantially more vulnerable than girls both to biological and environmental insult; during the second decade of life, however, the pattern was reversed.

Boys seemed now more prepared for the demands of school and work . . . girls were now confronted with social pressures and sexual expectations that produced a higher rate of mental health prob-

³ Similar findings were reported in an earlier study by Clausen and Kohn (1959). The correlations between neighborhood characteristics and the development of psychiatric disorders were greater in large cities than in smaller ones.

lems in later adolescence . . . often control of aggression appeared to be one of the major problems for the boys in childhood, dependency became a major problem for the girls in adolescence . . . In spite of the biological and social pressures which in this culture appeared to make each sex more vulnerable at different times, more high-risk girls than high-risk boys grow into resilient young adults. (pp. 153–154)

The reader will have observed that the investigations just described are no longer confined to the developmental impact of a single event in a person's life. Rather they examine cumulative effects of a sequence of developmental transitions over time—what Elder has referred to as the *life course*. The scientific power of this paradigm is best illustrated by Elder's now classic study of "Children of the Great Depression" (1974). To investigate the long-range effects of this experience on children's development, Elder reanalyzed archival data from two longitudinal studies that had been conducted in California with samples of children born in the early versus late 1920s (Elder, 1974, 1981, 1984). The basic design in these investigations involved the comparison of two otherwise comparable groups differentiated on the basis of whether the loss of income as a result of the Depression extended or fell short of 35%. The availability of longitudinal data made it possible to assess developmental outcomes through childhood, adolescence, and adulthood. Finally, the fact that children in one sample were born 8 years earlier than those in the other permitted a comparison of the effects of the Depression on youngsters who were adolescents when their families became economically deprived versus those who were still young children at that time.

The results for the two groups presented a dramatic contrast. Paradoxically, for youngsters who were teenagers during the Depression years, the families' economic deprivation appeared to have a salutary effect on their subsequent development, especially in the middle class. As compared with the nondeprived who were matched on pre-Depression socioeconomic status, deprived boys displayed greater desire to achieve and a firmer sense of career goals. Boys and girls from deprived homes attained greater satisfaction in life, both by their own and by societal standards. Though more pronounced for adolescents from middle-class backgrounds, these favorable outcomes were evident among their lower-class counterparts as well. Analysis of interview and observation protocols enabled Elder to identify what he regarded as a critical factor in investigating this favorable developmental trajectory: The loss of economic security forced the family to mobilize its own human resources, including its teenagers, who had to take on new roles and responsibilities both within and outside the home and to work together toward the common goal of getting and keeping the family on its feet. This experience provided effective training in initiative, responsibility, and cooperation. In the words of the banished Duke, "Sweet are the uses of adversity."

Alas, adversity was not so sweet for male children who were still preschoolers when their families suffered economic loss. The results were almost the opposite of those for boys in the earlier investigation. Compared with controls from nondeprived families, these youngsters subsequently did less well in school, showed less stable and successful work histories, and exhibited more emotional and social difficulties, some still apparent in middle adulthood. These negative outcomes were much

more marked in boys than in girls and were accentuated in families from lower class backgrounds.

Subsequently, Elder and his coworkers have emphasized the importance of mediating processes and conditions within the family as the vehicles through which economic hardship reaches into the child's life and shapes the course of subsequent development (Elder, Caspi, & Downey, in press; Elder, Caspi, & van Nguyen, 1986; Elder, Van Nguyen, & Caspi, 1985). Perhaps the most important factors in this regard were the personality characteristics of fathers and children. The presence in the family of an irritable father or an irritating child significantly increased the likelihood that unemployment would have long-range negative consequences for life course development. Also critical was the marital discord that often arose, or became exacerbated, following the father's loss of a job.

In an especially revealing analysis, Elder, Caspi, and Downey (in press) have traced the impact of life course experience across four generations, and shown the effects of unstable parents and family life during the Depression on problem behavior of the children, who in turn are followed into their adult roles: work, marriage, and the raising of sons and daughters. Within a generation, it is the unstable personality of the parent, particularly the father, that gives rise to tension both in the marital relationship and the parent-child dyad. Across generations, it is disturbance in either of these family relationships that leads to the development of an unstable personality in the child as an adult.

In recent years, a number of developmental studies employing a life course perspective have yielded important research results. Some, like the researches of Scarr, Mortimer, and Pulkkinen, have already been mentioned. An additional example appears in the work of Furstenberg and Gunn (Furstenberg, 1976; Furstenberg & Brooks-Gunn, in press). These investigators have shown that, contrary to conclusions drawn from previous research, teenage pregnancy does not necessarily lead to academic and personal failure in the rest of a woman's life. A special strength of the second volume is its emphasis on the feasibility of alternative pathways that could be provided through the development of appropriate policies and programs.

Although the advantages of a chronosystem model are best achieved within the framework of a longitudinal design, important benefits can also be gleaned from cross-sectional studies that gather key retrospective data and use appropriate analytic procedures, such as causal modeling. An example is the work of Schneewind and his colleagues (1983). Their sample consisted of 570 children (ages 9–14) from schools in six German states. Data were obtained independently from both children and their parents. The productivity of such a multigenerational path analytic model is best conveyed by some illustrative findings. For example, one of the analyses focused on the environmental antecedents of two contrasting clusters of children's maladaptive behavior: aggressiveness and antisocial behavior on the one hand and anxiety and helplessness on the other. Both patterns were influenced by factors outside the child's immediate family, but in each instance the causal path was indirect rather than direct, with the parental use of corporal punishment serving as a key intervening variable. Parents most likely to employ physical discipline were those who occupied a lower socioeconomic status or who themselves had experienced an unhappy childhood. But even here the influence on parental prac-

tices was not direct but operated principally through effects on parental personality structure, marital conflict, and child rearing attitudes. Moreover, these findings, obtained from a cross-sectional sample in Germany, were strikingly similar to Elder's results from a longitudinal study in the United States.

Turning from the problematic to the constructive aspects of the child's behavior, Schneewind and his colleagues also examined the environmental and personality antecedents of children's creativity and social extravertedness as measured in psychometric tests. In both instances, a key intervening environmental variable was the family's social network. Moreover, in contrast to most American studies in which social networks are viewed as support systems influencing the family (e.g., Cochran & Brassard, 1979; Crnic et al., 1983; Crockenberg, 1981), Schneewind et al. (1983) interpreted social networks as a product of an expressive and stimulating climate within the family. This stimulating atmosphere also emerged as a major determinant both of the child's creativity (especially in girls) and social involvement (especially in boys), including establishment of the children's own social networks and their engagement in group and extracurricular activities.

Research Gaps and Opportunities

From the scientist's perspective, perhaps the most important function of a review of existing knowledge in a particular area is to identify promising directions for future investigation. As in other spheres of exploration, there is uncharted terrain at all four points of the compass.

Ecological Variations in the Expression of Genotypes

Identification of discordant phenotypes. Studies of the role of family inheritance in human development have focused almost exclusively on concordant cases; that is, the fact that persons related by blood tend to exhibit similar psychological characteristics; almost no attention has been paid to discordant instances. For example, when one twin has been diagnosed as schizophrenic, or has a criminal record, or has failed to graduate from school, but the other twin has not, what patterns of behavior or life career does this other twin exhibit? In the absence of such comparative data, investigators are prone to draw conclusions about the existence of familial genetic dispositions that are highly specific; for example, one assumes a hereditarian proclivity for criminal behavior, or particular forms of mental disorder. The possibility exists, however, that the biological predisposition may be of a more general order. The issue could be resolved by examining the nature of variation and behavior patterns exhibited by persons of identical genetic constitution in different contexts. In reviewing the research literature, I have been able to find only one investigation that examines the career lines of discordant cases. In a study of psychiatric disorders among foster home-reared children of schizophrenic mothers, Heston (1966) reports that nonschizophrenic offspring tended to be persons of unusual creativity and competence. Unfortunately, there are a number of flaws in the study design. More rigorous investigations of this kind, encompassing positive as well as negative outcomes, would not only help define the scope of genetic predispositions but also elucidate the operation of

both intra- and extrafamilial environments in shaping alternative courses of psychological development for persons of similar genetic endowment.

Child rearing processes in adoptive families. In a series of publications, Scarr and her associates (Scarr, 1981; Scarr & McCartney, 1983; Scarr & Weinberg, 1983) have argued that results of numerous studies purporting to demonstrate the environmental effect of parental behavior on children's development are in fact ambiguous because they are confounded by the genetic similarity between biological parents and their children. This similarity, Scarr contends, obtains both in the realm of perception and behavior, so that each party of the dyad is likely on genetic grounds to be especially responsive to the action (or passivity) of the other. In Scarr's view, such multiplicative effects account for most of the developmental variance within what she calls "the normal range"; that is, persons not severely damaged by organic or environmental insult. Implied in this provocative formulation is the assumption that patterns of parent-child interaction in adoptive families are quite different from those occurring among biological-related family members. Should such a difference in fact exist, it would have profound implications for the development of children raised by biological parents who possess psychological characteristics known to have a significant genetic basis. Microanalytic techniques for the analysis of parent-child interaction, such as those developed by Patterson (1982) would be particularly well-suited for the comparative study of adoptive and biological families as contrasting contexts of family functioning.

Relations Between the Family and Other Child Settings

Existing theory and research point to the importance for the child's development of the nature and strength of connections existing between the family and the various other settings that a young person enters during the first two decades of life. Of particular significance in this regard are the successive transitions into (and within) day care, peer group, school, and work. In relation to each of these extrafamilial settings, three stages of transition deserve attention:

Preexisting intersetting relationships. How is the process of transition, and its developmental effects, influenced by the presence or absence of prior connections between the two settings. Such linkages may take the form of previous social interactions between participants in the two settings (e.g., parent and teacher are friends, the child has an older sibling at school) or of information, attitudes, and expectations existing in each setting about the other.

Transition feedback. Once the child has entered the new setting, this event can markedly alter attitudes, expectations, and patterns of interaction within the family, especially in relation to the child. Such reorganization of the family system following the child's transition into a new role in a new setting can have even more significance for the child's development than his or her experience within the new setting.

Posttransition changes in relations between settings. The child's development may be further affected by shifts over time in the nature and extent of linkages between the family and the other principal settings in which the child spends his or her time (for example, the parents encourage or discourage the child's

contact with peers; there is a decline or increase of parental interest in the child's school experience).

A particularly effective research strategy for investigating the development of relations between the family and other settings is a controlled experiment designed to create or strengthen linkages between settings (for example, the experiment by Smith, 1968, cited previously).

The foregoing consideration is applicable to setting transitions and linkages in general. In addition, the relations between the family and specific settings in the child's life deserve further comment.

Family and day care. A major gap in research in this area is the absence of studies of how children's development is affected not directly but indirectly through the role of day care as a support system for parents, especially for mothers. Although a number of research reviews have emphasized the importance of such indirect influence (e.g., Belsky, 1985), no investigation has yet been specifically focused on this issue. A second and related omission is the failure to investigate the interrelation between day care and parental employment. It seems likely that the observed developmental effects in the latter sphere may be moderated by day care as a family support system.

Family and the peer group. As documented above, previous research in this sphere has focused primarily on the family's capacity to counteract pressures toward socially deviant behavior emanating from the peer group. Yet, a number of developmental theorists, most notably Piaget (1932), have emphasized the constructive role of experience with peers for both the child's moral and cognitive development. Subsequent investigations demonstrating the powerful interplay between parent and peer influences in the genesis of antisocial behavior by no means rule out the possibility of constructive processes emanating from the same parallelogram of forces. Of particular promise is the application of chronosystem designs in tracing alternative pathways from family to peer group and then, from both of these contexts, into adult roles in the areas of school, work, family formation, parenthood, and participation in the social and political life of the community.

Family and the school. The available research evidence suggests that a powerful factor affecting the capacity of a child to learn in the classroom is the relationship existing between the family and the school. Although, as previously noted, a number of investigations have addressed this interface, the majority are descriptive rather than analytic and are limited almost entirely to the role of parents as educators, with scholastic achievement serving as the principal psychological outcome. Lacking are process-oriented field studies or experiments that trace the emergence of a broader range of characteristics and employ research designs addressed to each of the three stages of intersetting relationships set forth in the opening paragraph of this section. Of particular importance are investigations of feedback effects from school experience to family functioning.

Family and children's work experience. The developmental effects of this important life transition are only beginning to receive the attention they deserve. The gap in knowledge is all the more striking given the fact that, according to recent figures, about half of all American high school students engage in some form of paid employment. Moreover, a pioneering series of studies (Greenberger & Steinberg, in press; Greenberger,

Steinberg, & Vaux, 1981; Steinberg et al., 1982) has shown that, contrary to the expectations and recommendations of several blue ribbon panels (e.g., National Commission on Youth, 1980; President's Scientific Advisory Commission, 1979), such job involvement, rather than furthering the development of responsibility, diminishes the adolescent's involvement in the family and school, increases use of cigarettes and marijuana, generates cynical attitudes toward work, and encourages acceptance of unethical work practices. From this perspective, the role of the parents in influencing the timing, selection, and interpretation of the child's work experience, and the resulting feedback effect of such experience on the family's treatment of the child, may have considerable significance for the child's subsequent development in the adult roles of worker, spouse, parent, and citizen.

Relations Between Family Processes and Parental Participation in Other Settings of Adult Life

The directions for future research in this sphere are well indicated by the gaps in existing knowledge. These fall under two now-familiar headings.

Family and the conditions of parental work. Especially lacking in this sphere are studies examining the developmental impact of the *joint* employment patterns of father and mother. Of particular significance is conflict between the work schedules of the two parents, and the hecticness it may generate in their lives as these conditions affect the intensity and quality of parent-child interaction. A second omission is the failure to include within the same research design provision for investigating both links in the presumed causal chain: (a) the influence of parental employment on parental functioning and (b) the effect of the induced change in family processes on the behavior and development of the child. Finally, there is evidence to suggest that, as in other domains, both the sex and the age of the child may be critical in mediating the impact of parents' work. Specifically, conditions of employment may be more consequential, both positively and negatively, for younger children, although the full effect may not be observable until the children are older, and the outcome may be rather different for daughters and sons.

Family and parental social networks. Research in this sphere is plagued by the lack of clarity in the operationalization of concepts and causal processes. First, both agents and types of support need to be differentiated and related to the degree of environmental stress to which the family is subjected. Second, research designs must take into account the possibility that causal processes may actually be operating in the reverse direction, with supportive social networks being a creation rather than a condition of constructive family functioning. Finally, as in research on parents' working conditions, social network studies should be expanded to encompass the full, two-step causal sequence: first, from the network properties to family functioning (or vice-versa) and second, from family functioning to the behavior and development of the child (or vice versa).

Families in Broader Social Contexts

Five topics are especially relevant here.

Unravelling social class. An essential task is to penetrate behind the label of socioeconomic status to identify the specific

elements of social structure and substance that shape the course and content of human development. This unravelling process requires the decomposition of the typically composite measures of social class into their most common components (occupational status, parental education, and family income).

Family's occupational status. In their most recent work, Kohn and his followers (Kohn & Schooler, 1978, 1982, 1983; Miller, Schooler, Kohn, & Miller, 1979; Miller & Kohn, 1983) have used causal modeling techniques in order to demonstrate that the degree of occupational self-direction in the job promotes the development of the worker's intellectual flexibility. But, no evidence is available as yet on how the opportunity for self-direction at work, and the intellectual flexibility that it engenders, relate to parental patterns of child rearing or how these, in turn, affect the behavior and development of the child. A related issue is whether and how parental experiences at work operate through the family to influence the selection, timing, and psychological content of the child's successive transitions into, and experience in, other settings such as school, peer group, and, especially, the world of work.

Parents' education. This variable takes on special significance in an ecological systems model on several counts. First, it offers a unique advantage for the analysis of causal pathways, because, unlike either occupational status or income, it usually precedes both family formation and the birth of the child, and hence provides an index of social background, separately, for each parent, that is unlikely to be influenced by subsequent family processes, and therefore can be interpreted primarily as unidirectional in its effects. Second, as revealed in the work of Tulkin and others, education appears to be an important source for parents' conceptions of the nature and capacities both of the child and of the parent at successive stages of the child's life. A more complete understanding of the connection between parental schooling and family perceptions is clearly in the interest of both developmental science and of educational policy and practice.

Family income. As this author has pointed out elsewhere (Bronfenbrenner, 1982, 1984, 1986), income plays an especially telling role in American family life because, to a greater extent than in other modern industrialized societies, the resources and services required for sustaining the health and well-being of family members and furthering the development of the child are dependent on the family's financial resources. This issue becomes critical to families that are chronically poor or in which the principal breadwinner becomes unemployed. Because of the magnitude of the resultant effect on children, this issue is given separate consideration in the final section of this review.

Families in the community. It is a striking fact, and a provocative question for the sociology of knowledge, that the overwhelming majority of systematic studies of community influences on families and children have been conducted in Europe. In addition to the British and Swiss studies reviewed above, a seminal line of investigation in France takes its impetus from the classic two volume work by Chombart de Lauwe (1959-60), "Famille et habitation," and focuses primarily on neighborhood and housing as physical environments. In German-speaking Europe, a research tradition stimulated by the Muchows' (1935) classic study of the life-span of city children has led to

investigations that are more diversified. For example, a recent compilation by Walter (1981, 1982) fills two volumes with well-designed studies by more than a score of investigators representing a variety of theoretical orientations.

The European work is distinguished not only for its quantity, but also for the comparative sophistication of the research paradigms that have been employed. Whereas American studies have been confined almost exclusively to social address models documenting associated differences in the behavior of children (Barker & Schoggen, 1973; Garbarino, 1976; Hollingshead, 1949), European investigations have focused on variations in socialization processes arising in different types of communities or neighborhoods defined by their particular physical and social characteristics. For example, in the first volume of Walter's *Region and Sozialisation*, Bargel and his associates (1981) developed the concept of "Soziotope" for classifying types of residential areas. They then applied their taxonomy both to rural and urban districts in the West German state of Nordhessen in order to demonstrate that particular styles of child rearing are associated with contrasting forms of Soziotope. The more differentiated taxonomies for describing communities developed by European researchers provide a point of departure for addressing what Rutter has designated as "the most important needed direction for future research" in the study of community influences on the family: identifying the particular features of community life that impair or enhance family functioning.

Family and geographic mobility. One key aspect of family ecology has been equally neglected by researchers in Europe and the United States—the impact on family functioning, and on children, of moving from place to place. The only research that has given at least partial attention to this problem is the previously mentioned longitudinal study by Pulkkinen (Pitkanen-Pulkkinen, 1980; Pulkkinen, 1982). Geographic mobility was one of the components in Pulkkinen's index of the instability of the family environment. This index, in turn, proved to be a major predictor of the child's subsequent development in adolescence and early adulthood. Although, to this writer's knowledge, no reliable figures exist for the United States on the frequency of moves among families with children, it seems likely that the incidence is quite high in certain occupations, for example, the military (McCubbin, Dahl, & Hunter, 1976). The much-needed studies in this area should take into account both the direct and indirect effects on the child of simultaneous disruption of established patterns of relations within the peer group, the school, and the family, as well as the subsequent processes of rebuilding linkages in the new location. Of special significance in this regard is the experience of newly immigrant families, particularly those who come from, and enter into, markedly contrasting environments with respect to values, customs, and socioeconomic conditions.

Television and the family. In terms of research, this area is truly a terra incognita. As this reviewer has written elsewhere (Bronfenbrenner, 1974a), the primary importance of television for child development may lie "not so much in the behavior it produces as the behavior it prevents," and the behavior that can be prevented is family interaction—"the talks, the games, the family festivities, and arguments through which much of the child's learning takes place and his character is formed" (p. 170). The trouble with this seemingly authoritative conclusion

is that it is based almost entirely on subjective opinion. To be sure, the opinion has subsequently been echoed in two necessarily brief reviews of research on television's role in family life (Garbarino, 1975; Dorr, 1981). But, insofar as I have been able to determine, the only empirical study that has examined the effect of television on patterns of family interaction is the pioneering research of Maccoby, published more than three decades ago (1951). Her principal conclusion: "The nature of the family social life during a program could be described as 'parallel' rather than interactive, and the set does seem quite clearly to dominate family life when it is on" (p. 428). Given the massive expansion of the medium in the interim, it is clearly time to follow up on Maccoby's lead, employing research models that will be revealing not only of family processes but of the developmental outcomes that they may generate.

Family, poverty, and unemployment. Elder's follow-up studies of "Children of the Great Depression" carry special significance for the contemporary scene. As revealed in recent census data, the most rapid, and perhaps the most consequential, change taking place in American family life in the 1980s has been the widening gap between poor families and the rest of society. To quote an official census report (U.S. Bureau of the Census, 1981), recent data document "the largest decline in family income in the post-World War II period." As of March of last year (U.S. Bureau of the Census, 1985), almost a fourth (24%) of the nation's children under 3 years of age, and between 3 and 6 as well, were living in families below the "poverty line," compared to 15% for the population as a whole, and 16% for those over 65 (Bronfenbrenner, 1986b, c). The effects of the current economic trend are already being reflected in research findings (Farran & Margolis, 1983; Steinberg, Catalano, & Dooley, 1981). For example, Steinberg and his colleagues studied the impact of unemployment on 8,000 families in California in a longitudinal design. Analyses of data over a 30-month period revealed that increases in child abuse were preceded by periods of high job loss, thus confirming the authors' hypothesis that "undesirable economic change leads to increased child maltreatment" (p. 975). More recently, Farran and Margolis (1983) have reported yet another more subtle but no less insidious impact of parental job loss. In families in which the father had been unemployed for several months, children exhibited a significant increase in susceptibility to contagious diseases. The authors offered two explanations for these effects: (a) reduced use of preventative health services because of income loss and (b) the greater vulnerability of children to contagious diseases in response to increased family stress.

As this author has written elsewhere:

It is the irony and limitation of our science that the greater the harm done to children, the more we stand to learn about the environmental conditions that are essential for making—and keeping—human beings human. As we enter the 1980s, there are indications that these essential conditions are being seriously undermined in broad segments of American society. It therefore becomes our professional obligation to employ the most advanced research designs at our disposal in order to forestall the tragic opportunity of significantly expanding our knowledge about the limits of the human condition for developing human beings. (Bronfenbrenner & Crouter, 1983, p. 412)

Research on the effects of child and family policy. Implied

in the above statement is the responsibility of developmental science to go beyond the analysis of the status quo in order to design and evaluate strategies that can sustain, enhance, and, where necessary, create environments that are conducive to healthy human growth. And indeed, in accord with this responsibility, during the 1960s and the 1970s a substantial number of investigators developed, carried out, and researched a variety of intervention programs that had both rehabilitation and prevention as their aims. Although some of the impressive initial gains appeared to attenuate over time (Bronfenbrenner, 1974b), more recent analyses have revealed encouraging longer-term effects. For example, children who were enrolled as preschoolers more than two decades ago subsequently showed significantly higher rates of meeting school requirements than did controls as measured by lower frequency of placement in special education classes and of retention in grade (Berrueta-Clement, Schweinhart, Barnett, Epstein, & Weikart, 1984; Consortium for Longitudinal Studies, 1983; Darlington et al., 1980). Today, preliminary reports of the most recent findings indicate that the same children, as they grew older, were better achievers in school and were more likely to graduate from high school. These experiences, in turn, predicted indexes of subsequent success as measured by such criteria as continuing one's education, being gainfully employed, or having income other than public assistance (Lazar, 1984).

Along the same line, follow-up studies of several guaranteed-income experiments conducted in the 1970s have revealed higher levels of school achievement by children of families in the randomly assigned experimental groups compared to their controls (Salkind, 1983). Also, a post hoc analysis of pregnant mothers participating in the WIC Program (Kotelchuck, 1983) showed that the treatment group had achieved the desired objective of increasing birth weight and reducing infant mortality as compared to findings for a carefully matched control group. That beneficial effects of community-based maternal care programs can extend into the realm of mother-child relations is indicated by the results of nurse home-visiting programs conducted with pregnant mothers at risk (Olds, 1983). Along with increased birth weight of babies born to teenage mothers, the experimental group, compared with carefully matched controls, showed a reduction in verified cases of child abuse, more positive maternal perceptions of the infant, and less restrictive and punitive behavior in the home.

In recent years, however, such studies of the consequences to children and parents of various forms of family policies and programs have become less frequent. Instead, the newly established field of family policy studies has shifted the focus of research attention to organizational issues. In the following passage, Bronfenbrenner and Weiss (1982) offer their assessment of the current trend as reflected in a recent collection of papers on child and family policy (Zigler, Kagan, & Klugman, 1983):

Policy research is now a thriving enterprise encompassing such diverse and essential topics as legislation at national, state, and local levels; the evolution and nature of programs serving families and children; educational policies and practices; legal and judicial procedures; policies governing mass media; the role of advocacy in the policy process; the development of strategies for dealing with drugs, child abuse, and other social problems; the construction of childhood social indicators; and analyses of the policy process itself. Least salient in this newly evolving field is a concern that emerges

as central in an ecological perspective on human development—namely, how do policies affect the experience of those whom they are intended to serve? To put the issue more succinctly: What is the nature of the interface between policies and people. (pp. 393–394).

At a time of financial retrenchment, when many children are being placed at greater risk as a result of parental unemployment, other income losses, and reduction of health and family services, it is essential to determine which policies and programs can do most to enable families to perform the magic feat of which they alone are capable: making and keeping human beings human.

The foregoing statement has yet another significance that is at once both broader and more concrete. Taken as a whole the body of research reviewed in these pages is curiously one-sided, for its predominant focus is on the ecologies of family disorganization and developmental disarray. Yet, for every study that documents the power of disruptive environments, there is a control group that testifies to the existence and unrealized potential of ecologies that sustain and strengthen constructive processes in society, the family, and the self. Nor is there reason to believe that the progressively more powerful paradigms that have illuminated our understanding of the roots of alienation cannot be turned about to shed light on the ecologies of social and psychological integration. Herein lie the challenge, and the opportunity, for the developmental science of the future.

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Change in Distribution of APA Convention "Call for Programs"

In an effort to facilitate distribution of the APA "Call for Programs" for the annual convention, the "Call" for the 1987 convention will appear in the December issue of the *APA Monitor* instead of being a separate mailing to APA members. The 1987 convention will be in New York from August 28 to September 1. Deadline for submission of program and presentation proposals is January 20, 1987. Additional copies of the "Call" will be available from the APA Convention Office in December.
