

There are nine ways of explaining how development goes right and how it goes wrong. Which one is correct? All of them.

Developmental Psychopathology: A Nine-Cell Map of the Territory

Philip A. Cowan

As a clinical-developmental psychology student trained in the late 1950s and early 1960s, I was puzzled about the lack of integration between developmental and abnormal psychology. Although there were frequent professions of faith that principles of normal development and psychopathology must be intimately interconnected (Erikson, 1950), there were few detailed discussions, and even fewer empirical studies, examining the links between ideas about how some children grow up to be well-functioning adults, while others experience temporary or permanent setbacks along the way.

Later, during my clinical training, it puzzled me that there were few explicit references in the psychotherapy literature to concepts and studies of normal development, and that in articles on developmental theory and research I rarely found references to psychopathology and treatment. This lack of integration continued until the recent spurt of

This chapter was written while I was receiving partial support from NIMH grant MH-31109. I wish to thank Carolyn Pape Cowan for her helpful comments on earlier drafts of this chapter.

interest in developmental psychopathology (Achenbach, 1982; Cicchetti, 1984; Rutter and Garmezy, 1983; Santostefano, 1975; Sroufe and Rutter, 1984).

I am far from the first to note that there are close connections between theories of normal development, psychopathology, and intervention. My hope in this chapter is to show that these connections stem from the fact that developmentalists, diagnosticians, and therapists are all fundamentally concerned with the same question: How do we understand stability and change across situations and over time? Once we accept the centrality of this question, I believe it becomes clear that theories of adaptive and maladaptive development tend to converge on a common set of issues. As yet, these common issues give rise to no single theoretical solution. Instead, we are faced with an array of theories or schools, each claiming to follow the royal road to truth and to avoid the quagmires and bramble patches scattered along alternative pathways. My own work has explored the application of cognitive-developmental theory to psychopathology and intervention (Breslow and Cowan, 1984; Cowan, 1978), but my goal in this chapter is not to persuade the reader that this is the only reasonable point of view. I intend, rather, to provide an integrated, schematic map of the territory, describing cognitive-developmental theory as offering fresh ideas in a marketplace that includes nine major attempts to understand normal development and psychopathology.

The chapter begins with a brief outline of psychopathology from a developmental perspective. I believe that developmental psychopathology shifts our focus from the endless and perhaps fruitless debate about what psychopathology is, to how dysfunction emerges and is transformed over time. This question necessarily directs our attention to different and sometimes conflicting principles advanced in current theories of normal development, abnormal development, and intervention. Following the lead of developmental psychopathology, I argue that the best chance for integrating these theories lies in understanding how each has conceptualized the forces leading to individual stability and change.

As an organizing rubric for comparing and contrasting points of view, I propose that theories of normal development, psychopathology, and intervention come in "matched sets." Every theory of normal development contains within it an explicit or implicit theory of psychopathology. Conversely, every theory of psychopathology contains within it an explicit or implicit conception of normal development. Furthermore, every theory of psychopathology explicitly or implicitly dictates a course of action leading to prevention or treatment, though I will show at the end of the chapter that there is no necessary connection between theories of causation and the potential effectiveness of our choices concerning how, when, and where to intervene.

Developmental Psychopathology

The definitions of normality and psychopathology are open to widespread, sometimes vehement, dispute, particularly over the criteria that should be used to distinguish between normal and abnormal functioning. Traditional approaches look to statistical norms, social rules and values, or various conceptions of ideal psychological adaptation to define standards of normality. Marked deviations from these standards are labeled as pathological or dysfunctional. Diagnosis tends to be equated with the application of a categorical label summarizing a collection of symptoms indicating the presence of a specific form of mental illness (for example, schizophrenia, depression). The dominant diagnostic system now in current use in the United States, the newly revised *Diagnostic and Statistical Manual* of the American Psychiatric Association (DSM-III-R), does not claim that every category of disorder represents a mental illness, but the classification system has its conceptual roots in the medical model of psychopathology, with its assumption that psychopathology is a disease located somewhere in the patient.

In the past decade, the newly emerging field of developmental psychopathology has begun to challenge the current static focus on classification of psychopathology at a single point in time (Cicchetti in Chapter Six; Sroufe and Rutter, 1984; Rutter and Garmezy, 1983). Investigators within this tradition concluded, in effect, that it is not possible to answer the question of what constitutes the essence of normality and abnormality, so they accepted commonly used assumptions, procedures, and diagnostic categories. Their view is that important questions, centrally relevant to psychopathology, can be answered if we focus on the understanding of stability and change over the course of development. Adopting a longitudinal perspective and following individuals over time, they argue that we should pay attention to four developmental patterns, each one requiring an explanation of how it is that individuals come to follow that pathway:

- a. Some individuals are symptom-free at Time 1 and remain so at Time 2.
- b. Some individuals are symptom-free at Time 1 but develop symptoms or syndromes at Time 2.
- c. Some individuals have clinically diagnosed symptoms or syndromes at Time 1 and continue to have them at Time 2.
- d. Some individuals have clinically diagnosed symptoms or syndromes at Time 1 but have recovered by Time 2.

Developmental psychopathologists are concerned with understanding both group trends and individual variations as people change over time, with a special interest in factors that place some children at risk for dysfunction or that protect and buffer them from life's slings and arrows

(Garmezy, 1981). Developmental psychopathology begins with an interest in normal development and descriptions of the normative life course, and it attempts to explain how some individuals seem to be less vulnerable than others to developing clinically diagnosable symptoms or disorders (Pattern *a*). Developmental psychopathologists then seek to understand the emergence of psychological disorders (Pattern *b*). They do so by attempting to learn why some symptoms or syndromes tend to show relatively high incidence at specific developmental points in a population (for example, autism in early childhood, schizophrenia in adolescence), and why a particular disorder emerges at a given time in a single individual.

These theorists do not stop with the initial diagnosis. They assume that even though individuals may exhibit psychological disorders continuously over time, their symptoms and syndromes may show systematic transformations (Pattern *c*). There may be continuity in the fact that early problems predict later ones, but the form or category of the problem may change markedly over time. We know that some symptoms identified early in development (for example, trouble with peer relationships in the early years of elementary school) predict a variety of negative outcomes of adolescent development (learning problems, aggression, delinquency). However, there is no one-to-one correspondence between early and later symptoms (Kellam, Brown, Rubin, and Ensminger, 1983). Somehow we must begin to trace the developmental pathways from one form of psychopathology to another. We also must discover principles of continuity and transformation in the fact that a schizophrenic child may grow into a schizophrenic adult, maintaining the same label but changing most of his or her behavior.

Finally, developmental psychopathologists are interested in the fact that many individuals are at risk for psychopathology, or have actually been diagnosed, but the symptoms disappear after therapy, or even without treatment (Pattern *d*). In summary, contrasting individuals in Pattern *a*, who remain symptom-free, and Pattern *b*, who become dysfunctional, will tell us a great deal about the emergence of psychopathology. Studying individuals in Pattern *c*, who remain dysfunctional but may change their diagnostic category, and those in Pattern *d*, who manage to give up their symptoms, will reveal a great deal about the curative factors that can be harnessed for deliberate intervention. The central message of developmental psychopathology is that researchers should be less concerned than they currently are in distinguishing between normality and abnormality, and more concerned with understanding the conditions regulating stability and change in development.

The Unifying Question: How Do We Explain Stability and Change?

Understanding change is a central task of the developmentalist, the clinical diagnostician, and the therapist. No matter how the concept of development is defined, it always involves some degree of modification

between successive measurement periods and responsiveness to alterations in situation or context. Too much change, however, is usually taken as a sign that something is wrong: sudden shifts in behavior over short periods of time, or hyperresponsivity to the slightest alteration in external or internal stimulation, are often interpreted as symptoms of psychological distress or dysfunction.

Stability is also a central defining attribute of both normal and pathological development. Normally, individuals of all ages display a great deal of predictability over time and consistency across situations. However, individuals of families who come to therapists often show excessive stability in that they fail to move past a given developmental milestone at the usual rate, or they cannot shift their behavior in response to changing environmental demands.

Let me introduce Robert, a ten-year-old boy, brought by his parents to a clinical psychologist:

A creative, charming child, Robert has nevertheless been a source of great distress to his fourth-grade teacher. He talks out in class. He appears unable to sit still. Though he has generally excellent IQ test scores (on individually administered tests), he makes obvious mistakes in reading and fails to complete assignments. Robert's papers can often be seen, crumpled and messy, stuffed into his backpack, his pockets, or the wastebasket. At home his behavior is similar but even less controlled. Robert does not follow his parents' instructions, frequently flares into tantrums, and hits his younger brother and other children in the neighborhood.

There is no doubt that Robert's behavior presents a problem both in the family and in the school. Whether it can be considered as abnormal, symptomatic of some underlying psychopathology, is, as we have seen, open to debate. But each question about the nature of Robert's psychopathology can be transformed into further questions about how Robert came to display this collection of behaviors, what conditions are maintaining them, and how a change in the direction of more acceptable behavior might be facilitated. At present Robert's behavior may be too stable in some respects (he does not adapt well to changing situations and demands) and too changeable in others (he responds to distractions that other children are able to ignore). Systematic information about what maintains stable behavior in this child and what induces change will be essential to understanding the meaning of his present symptoms and to forming a plan for treatment.

Nine-Cell Matrix

Following Piaget's epistemological analysis (Piaget, 1971), I suggested previously that theorists tend to hold one of three basic assumptions

about the origins of both stability and change (Cowan, 1978). Some look to internal forces (biochemical mechanisms, id forces, moral values) that encourage stability or stimulate change from within the person. Others explain stability and change primarily in terms of external forces that impinge on individuals and influence them to maintain their behavior or to alter it (stimulus organization, parental discipline, societal values). Still others adopt interactive theories in which change or stability is a joint product of specific internal events in specific environmental contexts.

Within internal, external, and interactive alternatives are theories that focus on different levels of analysis. Some are primarily concerned with the biological substrates of behavior (genetic, physiological, neurochemical). Others attempt to understand normality and pathology in terms of the impact of external events on individual psychology and behavior. Finally, some theories focus on the ways in which the quality and structure of interpersonal relationships are implicated in the maintenance of an individual's stability and in the stimulation of change. Thus, we can construct a 3×3 matrix of "cells" (see Figure 1), each containing a set of theories that explain normal development, psychopathology, and approaches to preventive or therapeutic intervention. Each cell will be described as if it represented a sufficient explanation of individual stability and change. As I will argue below, all of the alternatives may be relevant to the explanation of growth or dysfunction in a single child or family.

Physical/Biological Level of Analysis. In the top row of Figure 1

Figure 1. Nine Explanations of Stability and Change

	Internal	External	Interactive
Physical/Biological	Cell 1	Cell 2	Cell 3
Individual/Psychological	Cell 4	Cell 5	Cell 6
Relationship	Cell 7	Cell 8	Cell 9

Note: This nine-cell matrix focuses only on explaining stability and change in individual psychological functioning. A more complicated version could be constructed to examine the impact of biological, individual psychological, and relationship variables on biological, psychological, and relationship adaptation; I will comment on this possibility toward the end of this chapter.

are located explanations of stability and change that rely on biological characteristics of the organism and physical characteristics of the environment that affect biological functioning.

Internal Views: Cell 1. Included in the top left cell of Figure 1 are what I would call the unidirectional, traditional organic/biological explanations of how individuals normally function. Genetic, biochemical, and neurological factors operating inside the person are said to shape the course of development. Genetic factors transmit developmental messages, biochemical factors influence mood, and neurological factors affect information-processing accuracy.

Psychopathology, in this view, results directly from genetic inheritance (for example, phenylketonuria, a specific form of mental retardation), or from biochemical or neurological dysfunction. Robert, the hyperactive child I described in the brief vignette, may be suffering from some form of physiological impairment that affects his focus of attention and his ability to process information. Despite my characterization of the biological internal formulation as traditional, it currently enjoys renewed popularity, especially in psychiatric explanations of serious disturbances such as schizophrenia (Gottesman and Shields, 1972) and depression (Asberg and others, 1976). The assumption is that the distortion of mood and perception in these conditions is directly attributable to underlying biological events.

There are two types of intervention stemming from the biological internal view of stability and change. First, there is the preventive thrust of genetic counseling, which attempts to give parents information to make informed decisions about starting a family or about continuing with a pregnancy, based on genetic, family history, and medical information. Second, of course, is the psychopharmacologic approach, which attempts to influence physiological and biochemical imbalances with various forms of drug treatment (for example, Campbell and Small, 1978).

External Views: Cell 2. It would be absurd to suppose that internal biological events could take place in the absence of an external environment. The weak form of the external view is simply that a good enough environment is necessary as a supportive context in which biological processes unfold. The stronger form of the environmental view traces specific variations in biological processes to specific variations in the external environment. Researchers adopting the biological external view may examine the adequacy of available nutrition or the organization and quality of stimulation in the home in their attempts to account for the child's cognitive developmental progress.

When they attempt to account for psychopathology, these theorists also turn to external factors. Toxic waste or substances in the home can produce symptoms of psychological disturbance. Birth injuries or physical traumas later on can impair the child's neurological functioning.

Ten-year-old Robert, in our example, may be suffering from some neurological damage incurred during the birth process and from severe stimulus disorganization in the home or the classroom.

Theorists who adopt an external view of change and stability and focus on the physical or biological level of analysis tend to maintain this perspective when they consider ways of affecting human distress. Public health researchers emphasizing prevention point out that it is possible to decrease risk or promote health by altering the child's physical environment (including the prenatal state of the mother). Once the toxic effect has occurred, mental health workers, teachers, and parents know that it is often possible to treat the child by altering his or her physical environment to alleviate psychological distress.

Interactive Views: Cell 3. In Cell 3 are what I would describe as new organic and biological theories. Certainly there are important neurological and biochemical effects on emotion and cognition, but emotion and cognition also affect biological states. In normal development, the genetic and biological substrates of behavior push the individual toward certain levels of adaptation, but activity and incoming information also influence the development of neurological pathways and endocrine functioning and shape the unfolding of genetic potential (Plomin, 1987).

While we all give lip service to the importance of an interaction between external or internal forces in accounting for behavior, some theorists adopt a very precise definition of the term: it is impossible to understand any behavior unless we specify properties of both the person and the stimulus. It is impossible to determine the effect of the stimulus without knowing about the properties of the person, and it is impossible to understand the functioning of the person without knowing about the properties of his or her situation. It is this precise view of interaction with which I am concerned in presenting the nine-cell matrix describing the origins of stability and change in individual adaptation.

The interactive view of psychopathology at the biological level of analysis has been called the diathesis-stress model (Rosenthal, 1970). Biological factors, especially genetic inheritance, may create a predisposition (diathesis) for the development of a particular form of dysfunction, such as schizophrenia or depression, but whether the end result is pathological depends a great deal on whether external circumstances in the child's life augment or buffer the child's experience of stress. It may be that schizophrenic symptoms are amplified by a dopamine imbalance present from birth (Wyatt and others, 1978), but it is also the case that prolonged psychological distress can alter the levels of dopamine in the system (Buchsbaum, Coursey, and Murphy, 1976). Ten-year-old Robert may have been born with a mildly dysfunctional central nervous system, but his disability may be noticeable only when the physical conditions of his environment are in relative disarray.

Recent research within the diathesis-stress model has focused on the potential for identifying children or adolescents at risk for dysfunction (for example, Baldwin, Cole, and Baldwin, 1982; Goldstein, 1981; Sameroff, Seifer, and Zax, 1982), in the hope of developing programs emphasizing prevention or early intervention. Also consistent with the diathesis-stress model are therapies that combine drug and psychological treatments in an attempt to reduce stress and to interrupt the internal patterns that shape the disordered behavior (Weissman, 1978).

Individual Psychological Level of Analysis. Now we turn to explanations of stability and change that focus on the psychological functioning of the individual.

Internal Views: Cell 4. Theorists who adopt an internal psychological view of individual change and stability tend to use the metaphor of the flowering seed. Of course, there must be favorable external conditions of soil, water, and sun, but just as the seed eventually becomes a flower, the child will continue to grow as long as adequate environmental conditions persist. External events sometimes affect the rate at which the child develops, but by and large, change and stability tend to be regulated internally.

In this cell we have two very different types of theories—humanistic (Maslow, 1962; Rogers, 1966), and psychoanalytic (Freud, 1933; Jung, 1917). The humanists optimistically assume that there are innate inner forces pushing individuals toward self-actualization. Freud's equilibrium, tension-reduction model proposes that stage changes in the locus of pleasure (oral, anal, and so on) occur in a process of psychological unfolding driven by underlying biological transformations. Although parents' behavior may affect the rate of development, the shift from one stage to another is internally regulated. Given a good parent (Bettelheim, 1987; Winnicott, 1953), development toward increased levels of adaptation will inevitably occur.

The problem, of course, is that external forces do interfere with the child's development. In both humanistic and psychoanalytic theories, mothers are often criticized when children fail to progress toward adulthood, and fathers and societal institutions are awarded at least a partial share of the blame. As I interpret these theories, external events are given the status of distal causes of psychopathology, setting in motion a chain of events resulting in an internal proximal cause of stability and change. For example, external disruptions create internal anxieties, mobilize defenses, and unbalance the relative influences of id, ego, and superego on behavior. In humanistic theories, these events are described as creating barriers to the natural growth process. Even when the child is reacting to extremely noxious family circumstances (distal), psychopathology is a product of internal psychological imbalances and barriers (proximal). Not only the proximal cause, but the locus of psychopathology rests

inside the person. According to the psychological internal view, Robert's difficulty in the classroom and at home may be a consequence of his anxiety. His defense mechanisms are not helping him to master or repress his tension, with the result that his anxiety interferes with his current level of functioning.

Preventive interventions planned by clinicians holding a psychological internal view of stability and change tend to focus on parent and teacher education designed to encourage a benign environment for children's growth. The primary emphasis in the psychoanalytic literature, however, is not on prevention but rather on individual treatment of the child. Parents are seen less frequently and appear to play an ancillary role. The distinction between distal and proximal causation may help to explain why psychoanalysts direct a great deal of their attention to parental inadequacies but focus their treatment on the child in the playroom (Haworth, 1965), with the goal of creating a psychologically safe place in which the child can experience and express previously repressed thoughts and feelings. Once the barriers to growth are removed, it is assumed, the child's natural disposition toward active mastery will result in developmental progress.

External Views: Cell 5. The metaphors best capturing the approaches in Cell 5 consider the child to be a clean slate to be written upon or an empty vessel waiting to be filled. Stability, consistency, and change are regulated by shifts in the external environment. Theories of classical and operant conditioning and social learning belong in this cell (Pavlov, 1927; Skinner, 1953; Bandura and Walters, 1963). So do traditional views of socialization that focus on the behavior of mothers or fathers as it affects the development of their children. In this case, parent behavior is considered a proximal force, rather than a distal link in the chain as it is in psychoanalytic or humanistic theories. Conditioned emotions, rewards for conformity, and adult or peer models all contribute to the child's propensity to behave in a normal, socially desirable fashion. What changes or remains stable in the child's behavior depends on what happens in his or her environment.

Learning and socialization theories need no new principles to explain psychopathology. Everything is learned. Fears are conditioned responses. Aggression grows more frequent when it is reinforced or modeled by adults or peers in the child's environment. Specific parenting behaviors result in specific child outcomes. Robert, in our example, may have been ignored when he was working quietly and rewarded with attention when he began to move around the room. This reinforcement pattern might have increased his off-task behavior and decreased his tendency to focus on his assignments.

Behavior modification and parent training are the treatments of choice by those who adopt an external psychological view of stability

and change (for example, Blechman, 1985; Patterson, 1976). Classes or therapy sessions guided by this model focus on teaching specific skills to help parents gain more appropriate control of their children's behavior.

In giving examples of internal and external psychological events that affect individual adaptation, I have shown how parents and others help to maintain stability or facilitate change. In my view, the simple presence of other people, or an account of their specific behaviors toward the child, do not signify that we are using the relationship level of analysis. It is not too far fetched to imagine that at least some of the parent or teacher reinforcement effects could be administered effectively by machine. When we discuss the bottom three cells of Figure 1, I will show how factors internal and external to the quality of relationships between people can affect children's development. Here, the focus remains on individual psychological factors affecting stability and change.

Interactive Views: Cell 6. Piagetian and other cognitive developmental theories are located in the right column of the middle row in Figure 1. I have used the metaphor of a generator-transformer to characterize their view of the child (Cowan, 1978). This admittedly inelegant phrase attempts to summarize the assumption that the child's "output" is shaped by incoming stimulation, but that the child transforms the meaning of the stimulus to fit his or her current level of cognitive structure. For example, in a study of children's understanding of where babies come from, Anne Bernstein and I (Bernstein and Cowan, 1975; 1981) found that children transform what parents tell them into concepts consistent with their cognitive developmental level. One five-year-old girl, performing at Piaget's intuitive stage in other cognitive tasks concerned with identity and causality concepts, believed that "if you want to get a baby, buy a duck." It turned out that this innovative solution came from hearing her parents read a book about babies that began with a discussion of ducks and ended with an account of human conception. She assumed that the sequence of topics in the book had causal implications, probably because sequence is the major cue to causality in children at the intuitive stage.

In a similar vein, Nannis in Chapter Two shows how children's understanding of emotions in the self and others follows the same structural patterns as their understanding of other cognitive and social concepts. Cognitive developmentalists assume that meaning in each specific content area is shaped by the individual's underlying cognitive stage (transformational system). Examples of how cognitive schemes guide adult understanding and behavior can be seen in studies of parenting beliefs by Sigel and his colleagues (McGillicuddy-DeLisi, 1982; Laosa and Sigel, 1982).

The concept of cognitive stage, by focusing on the common structure underlying different concepts and behavior, helps to explain why

children's responses are relatively stable over time and consistent across situations. How, then, does change occur? Interactions with the environment produce unexpected and disequilibrating information. Children can either assimilate this new information, transforming it to their existing way of thinking, and thus remain the same as before, or accommodate to changes in stimulation by altering their ideas and behavior. The outcome is a joint product of the nature of the stimulus challenge and the nature of the child's cognitive organization. When the structure of the stimulus is above but close to the cognitive stage of the child, developmental progress is facilitated (Turiel, 1966). If the challenge is too little or too great, change is not likely to occur. Without an explicit stage theory, Vygotsky (1978) also portrays the child's development as proceeding best when parents provide a sensitive scaffolding—reducing the complexity of tasks and matching their intervention to the level where the child can use help but not being so intrusive and helpful that the child is stifled or bored.

Cognitive developmentalists tend to define normal development in terms of both structure and process: From the structural point of view, children are developing normally when their stage level roughly approximates that of their peers and when there is relative synchrony in their levels of performance across different tasks or domains. From the functional point of view, normality is defined by the degree of balance and coordination between the processes of assimilation and accommodation (Block, 1982; Breslow and Cowan, 1984; Cowan, 1978). When assimilation predominates, the child may be more engaged in symbolic play, transforming real objects into fantasies. When accommodation predominates, the child may be engaged in imitation or other forms of self-change in response to environmental demands. Piaget assumes that in the normal course of events there is a self-regulating equilibration process that brings these two processes into adaptive balance. Individuals can transform new events on the basis of already established schemes to fit them into existing categories and belief systems, and modify schemes to solve new problems and meet new challenges. In this process there is a flexible balance established between stability and change.

Structural and functional perspectives are also central to the description of psychopathology. From a structural point of view, individuals diagnosed as severely disturbed are far behind their age-mates in Piagetian developmental stage or show marked discrepancies between their levels of performance in different domains (Cicchetti, Toth, Bush, and Gillespie in Chapter Six; Cowan, 1978; Gordon in Chapter Three; Noam in Chapter Five; Slotnick in Chapter Four). There are very few empirical studies focusing on functional imbalances in psychopathology. It is possible that disturbed children show a chronic overemphasis on accommodation or assimilation (Block, 1982; Gordon in Chapter Three;

Slotnick in Chapter Four) or that they flip-flop rapidly from one mode to the other (Schmid-Kitsikis, 1976). Breslow and Cowan (1984) showed that above and beyond the fact that psychotic children are delayed in their progress through the developmental stages, they seem to demonstrate a tendency to focus on concrete details of their immediate environment (they overemphasize accommodation) and to have difficulty using their normal assimilative mechanisms to regulate the degree of flexibility and stability in their environment.

The psychological interactive perspective on stability and change has one important implication for the definition of psychopathology. In the internal view, psychopathology is located in the child. In the interactional view, psychopathology is located in a nonoptimal mismatch between environmental demands and child characteristics. In the brief vignette about Robert, cognitive developmentalists would focus on the mismatch between the level of reasoning he is able to use and the level required to solve a problem or to meet the demands of his teacher or parents. It may be that while he is able to be socially charming, Robert has not yet developed a cognitive level appropriate to the demands of a fourth-grade curriculum. Similarly, Robert's problem would not be defined by his tendency to overaccommodate, responding to every change in stimulation, but by the mismatch between his cognitive style and the demands for impulse control in the family or classroom. In this view intervention is not directed primarily to changing the child but rather to changing the relationship between the child and his major environments.

Clinicians are beginning to use cognitive-developmental principles to assess children or adults and to plan a course of treatment (Noam, 1987; Santostefano, 1975). For example, in addition to knowing that an individual has a diagnosis of schizophrenia, it is possible to determine his or her predominant structural level of understanding (Cowan, 1978). Some schizophrenic children and adults appear to be using sensorimotor reasoning without having achieved object permanence. Some have achieved object permanence and the formation of a representative symbol system but do not conserve quantities or use two-dimensional classification systems. Still others at the older age ranges may have mastered concrete operations but are unable to use formal abstract reasoning. This information can be used as a guideline for clinicians to provide appropriate scaffolding—to match the level of their demands more closely to the level of the patient's system of meanings. For example, peekaboo or hiding object games might be more appropriate for a psychotic child who does not appear to have object permanence than would word games or verbal instructions, even if the child seemed to have the use of language.

Similarly, and this is even more speculative, it may be possible to match interventions more appropriately to the individual's tendency to overassimilate or overaccommodate. Children who are withdrawn into a

fantasy world may benefit from some of the externally based attempts to bring their behavior under the control of events and people. Gradual applications of behavioral reinforcement techniques may help the child to pay more attention to the outside world than to his or her own inner distress. Children who are overreactive and impulsive may benefit from a play therapy approach that ultimately encourages assimilation by helping the child to impose structure and stability on an ever-changing world. These suggestions may seem paradoxical. At present, behavioral therapies tend to be used with children and adults who are aggressive, impulsive, and overreactive to incoming stimulation. Play therapies tend to be used with internalizing children who withdraw from social situations and become preoccupied with inner conflicts. I am suggesting that although these approaches may match the child's initial tendencies, it might be important to shift gradually to the opposite functional mode in order to facilitate equilibration and adaptation. Note that the spirit of the interaction perspective does not require us to abandon interventions conceptualized from internal and external points of view. Rather, it forces us to consider the match between the nature of the intervention and the nature of the specific child.

Relationship Level of Analysis. The bottom three cells of Figure 1 focus on the child's relationship life. I will be looking at how relationships symbolically represented by the child (internal) and relationships occurring in transactions between people (external, interactive) affect developmental stability and change.

Internal Views: Cell 7. We usually think of relationships in the context of interactions between people, but from some time during the first year of life, symbolic representations of these relationships are located inside the child. These symbolic representations have variously been called object relations (Buckley, 1986), working models (Bowlby, 1980), and relationship schemes (Raush, Barry, Hertel, and Swain, 1974). In his theory of the Oedipus complex, Freud (1933) discussed the impact of fathers and mothers on superego development in the child. In fact, Freud's emphasis was on the child's internalization of idealized parent characteristics. What is internalized is not an accurate "photograph" of the parent-child relationship but rather a "scheme" representing the parents' rules about which aspects of the pleasure principle the child should and should not attempt to satisfy. The importance of the real relationship is downgraded and the operation of the child's "screened memories" and fantasies is emphasized.

British object relations theorists Klein, Fairbairn, Guntrip, and Winnicott (Buckley, 1986) and Bowlby's (1980) theory of attachment and loss tend to take actual parent-child relationships more seriously. Still focusing on the child's internal representations, these theorists point to the quality of the earliest bond or attachment between caretaker and

child as laying the essential foundation for later child development and adaptation. That is, it contributes both to stability across time and situations, and to the child's willingness to try something new when old strategies no longer work.

Drawing on Bowlby's writings, American attachment theorists have begun to examine how working models of early parent-child attachment may be implicated in consistency of adaptation across three generations. Main, Kaplan, and Cassidy (1985) and Ricks (1986) showed that adults' memories of early security in the parent-grandparent relationship (assessed in interviews) predict security in the parent-child relationship (assessed in laboratory observations when the child is six). Furthermore, infants judged to show secure early attachments tend to show higher levels of cognitive and social competence at two years, three and one-half, and five years of age (Arend, Gove, and Sroufe, 1979). Though these data do not prove that early attachment in the parent, or early attachment in the child, causes later adaptation, they certainly support the hypothesis that the quality of early and continuing parent-child relationships may be important in the child's later progress through normal developmental stages or tasks.

Conversely, attachment theorists believe that early disruption in the parent-child bond leads to both internalizing disorders (anxiety and depression) and externalizing disorders (aggression) in later years. Empirical tests of this hypothesis have not yet led to clear-cut results (Bates, Maslin, and Frankel, 1986; Erickson, Sroufe, and Egeland, 1986). Applications of a Cell 7 approach to understanding Robert's troublesome behavior would focus on his construction of his early relationships with his parents and on how anxiety and distrust formed in the family crucible may have generalized to Robert's relationships with both adults and peers at school.

Is it possible to affect the quality of object relationships through psychological intervention? Preventive programs derived in part from object relations theory focus on strengthening the mother-child bond in children at risk for later distress (Fraiberg, Adelson, and Shapiro, 1975). Fathers, so far, have been ignored though Parke and his colleagues (Parke, Hymel, Power, and Tinsley, 1980) showed that a very simple early intervention can have a marked effect on father involvement and the quality of father-newborn interaction. Treatment approaches adopting the internal relationship perspective seem to maintain the general format of individual psychoanalytic or psychodynamic therapy, focusing even more strongly on material derived from memories of early parent-child relationships. There is some attempt to work with the child's actual parent (usually the mother), but she is seen separately from the child, often with the focus on her own dynamics rather than on a direct examination of the transactions in the parent-child relationship.

External View: Cell 8. In the psychological external Cell 5 above, I described traditional socialization theories that center on parents' behavior toward their children. Cell 8 is the home of traditional theories that focus on family relationships and the effects of other social institutions on child development. There has been a long sociological tradition investigating the impact of family structures on child development (Skolnick, 1973) and a newer set of psychological studies of the impact of changing family structures (for example, divorce) on the child's adaptation (Hetherington and Camara, 1984; Wallerstein and Kelly, 1980). In psychology and psychiatry, a number of family theorists focus on communication patterns between parents, and between parents and children, all of which may affect normal adaptation (for example, Schultz, 1984). Community psychologists (Sarason and others, 1966) and other ecological theorists (Bronfenbrenner, 1979) look at school systems and the structure of the relationships within them in order to explain individual differences in student competence. The approach in this cell is always from adult to child, examining how social relationships preserve stability and consistency of behavior while at the same time directing the child along certain developmental pathways.

Relationship theorists who emphasize the external view imply that pathology and the blame for psychological distress in the child is located either in dysfunctional relationships between the child and others or in dysfunctional relationship systems in which the child is embedded (for example, cultures, families, schools). Not surprisingly, intervention as conceptualized within this cell tends to have a political cast. In order to provide more optimal environments for children, many claim we must change national policies in support of the family, revise the welfare system, alter parental leave policies at work, and reorganize and revitalize the schools. On a more microscopic level of distress, it would be necessary to change the relationship between Robert and his teacher or the other students, and possibly to modify the structure of his classroom.

Interactive Views: Cell 9. The prototypic interactive view of relationship factors in adaptation can be seen in family system theories. At first these theories focused on families in treatment (Bateson, Jackson, Haley, and Weakland, 1956; Minuchin and Fishman, 1981; Satir, 1964; Wynne and Singer, 1963), but they are now beginning to be applied to the systematic study of normal families (for example, Reiss, 1981; Walsh, 1982). Their basic assumption is that each individual affects and is affected by all the individuals and all the relationships (dyadic, triadic, and so on) in the family system. Many, but not all, family theorists also assume that internal symbolic representations of relationships affect the quality of interpersonal exchanges, at the same time that interpersonal exchanges shape the quality of each individual's working models (for example, Ackerman, 1968; Bowen, 1978; Framo, 1981). Some community

psychologists also have adopted an interactional perspective by showing, for example, that the impact of a given classroom structure depends on specific characteristics of individual students, including their perceptions of classroom events (Weinstein, Marshall, Sharpe, and Botkin, 1987).

Like the psychological interactive perspective, the relationship interactive cell requires a reconceptualization of psychopathology. The locus of dysfunction is no longer in individuals or in dyadic relationships but in the structure and function of all relationships in the system. From this perspective, Robert and his hyperactivity are not the central problem. Rather, Robert's personality characteristics and style may be getting him into trouble because he is unfortunately involved in a mismatch with the way things are done in both family and school.

Since they see psychological problems of individuals as located in social systems, most relationship interactive theorists propose some form of conjoint group intervention to prevent or alleviate both individual and system distress. For example, Carolyn Pape Cowan and I have been testing the hypothesis that in the early years of family formation, the arrival of a child has a marked impact on the couple relationship, and the couple relationship in turn affects the quality of parent-child relationships and the course of the child's development (Cowan and Cowan, 1987). Based on that premise, we created and assessed the effect of a couples group that met weekly for three months before and after the birth of a first child (Cowan and others, 1985; Cowan and Cowan, 1987). Trained leaders helped couples focus on marital and parenting issues to strengthen both marital and parent-child relationships during the transition to parenthood and the early period of family formation. The eighteen-month postpartum follow-up revealed that when couples in the intervention sample were compared with a control sample, their marital satisfaction declined less and they had all remained in intact relationships; by contrast, 12.5 percent of the control couples had separated or divorced. Two years later, we found intervention effects on parents' relationships with their three-and-one-half-year-olds and on their children's level of ego-resiliency (Block and Block, 1980). Intervention focused on the couple as the central dyadic relationship, then, may affect all the individuals and relationships in the family.

Multiple Cell Perspective

In each of the nine cells I described complementary conceptions of stability and change within theories of normal development, psychopathology, and intervention. I presented each cell as if it alone can serve as an explanation of an individual's current behavior or as a blueprint for planning intervention. This format has been dictated largely by the fact that each developmental and clinical theory is usually presented as if

it describes the whole truth about stability and change. But it should be obvious by now that the nine alternatives I put forth are not mutually exclusive. However, in my experience, it is an extremely rare exception for a researcher or clinician to adopt a multicell perspective in attempting to understand normal development or to affect the course of psychopathology.

Let us take a final look at ten-year-old Robert. From a physical/biological perspective, it is possible that his behavior is indeed affected by neurological malfunctions (Cell 1), but that both his home and school environments are so full of sights and sounds (Cell 2) that he has great difficulty finding a central focus of attention (Cell 3). From an individual psychological perspective, it is also possible that he is anxious (Cell 4), that his parents covertly reinforce him for disobedience (Cell 5), and that there is a mismatch between his developmental stage and cognitive style and what the school and family demand (Cell 6). A relationship perspective is not easy to reconstruct from the details in the vignette, but it may be that Robert's working models of relationships stem from his early difficulties in establishing relationships with his mother and father (Cell 7), that his anxiety is exacerbated at home by his parents' frequent fights and at school by the level of disorganization in the classroom (Cell 8). It may also be that the characteristics and histories of Robert's parents and teachers make it difficult for them to deal sympathetically with Robert's combination of charming and annoying behavior (Cell 9).

I draw four conclusions from these speculations:

1. *It is necessary to consider all nine cells in understanding the normality and pathology of an individual child.* The issue is not a simple matter of eclecticism in which all ideas have equal value regardless of merit. Rather, each type of theorist has set out to solve a particular set of problems in understanding stability and change. In my view, different theories and approaches must be considered before making a final diagnosis and treatment plan. Why not simply pay attention to the three interactive cells in Figure 1 since they include both external and internal explanations of change? Until all the evidence is in, I prefer to suppose that there are both main effects and interactions. Sometimes it may be useful to focus primarily on external events because they actually create a large part of the problem. Sometimes it may be useful to focus on internal events, because there are severe difficulties located within the child. However, we should always keep in mind the possibility that external and internal variables act in combination to maintain stability and to produce disequilibrium and change.

2. *It is possible that developmental outcomes are a product of interactions, not only among external and internal forces but also among biological, psychological, and relationship domains.* I am arguing here that levels of analysis and explanations of stability and change do not operate

independently. Biological internal events may amplify or reduce the impact of psychological and social stressors or buffer the individual from their harmful effects (for example, Gottman and Levenson, in press). Internal defense mechanisms or the qualities of intimate relationships may exacerbate or buffer the effects of genetic, hormonal, or physiological patterns.

3. *The influence or weighting of the importance of each cell may vary considerably from individual to individual.* For some children, internal biological events may have the most influence on level of adaptation. For other children, external psychological or interactional family system factors may be most relevant to the understanding and treatment of a specific problem. At this point in our knowledge, there is no way of determining the exact weights to be allocated in understanding a specific individual or family. In the analysis of a single case we will always need to rely on careful clinical assessment and a consideration of all the alternatives. As research in developmental psychopathology proceeds, we may be able to refine our ideas about the relative contribution of each cell to the emergence and course of developmental disorder.

4. *Stability and change may have their etiology in one cell but may be maintained by events more characteristic of another.* Hyperactive behavior may be triggered initially by neurological damage, but it may be maintained by how the child is treated at home and in school. Depression may have a strong biologically determined onset in a child, but the course of the difficulty may be affected by family dysfunction. Thus, principles governing the antecedents or causes of a given behavior in the past may be quite different from principles maintaining current stability and change.

Connection Between Etiology and Treatment

The fact that behavior can be caused by events located in one cell and maintained by events in another calls into question the assumption that the theory of etiology should determine our approach to treatment. For example, if we adopt a psychological internal theory of how problems come into being, we should not necessarily be committed to a psychodynamic or humanistic approach to therapy. A few examples are sufficient to demonstrate that the connection between cause and cure is not as inevitable as it seems:

- We are not limited to biological and physical treatments for children with neurological difficulties. These children also respond to more structured parenting and teaching strategies. Conversely, the impact of environmental traumas can be alleviated with drug therapies, especially in combination with psychological therapies.
- Children with internally caused anxieties may benefit from play

therapy, but they also may be successfully treated with (external) behavior modification. On the other hand, the distress resulting from external stressors may be relieved with psychodynamic therapy.

- Family system problems can be affected through individual therapy, just as individual problems may be alleviated in conjoint family treatment.

I am not arguing here that we should disregard etiology when planning interventions. Understanding the factors leading to the emergence of dysfunction is still an important concern of developmental psychopathology researchers. Understanding the source of pathology may be important to clinicians and their clients. It may help therapists and patients to identify potentially successful and unsuccessful interventions. But the level at which clinicians intervene or their choice of focusing on internal or external factors may be quite different than that suggested by the cell in which the problems began. I should note that questions of etiology are essential to answer when we think about preventive intervention. Here it is necessary to identify the antecedents, if not the causes, of dysfunctions and disorders, before we can intelligently plan interventions to reduce the incidence or severity of individual distress.

What I am suggesting in the planning of an intervention for an individual child or family already in difficulty is that we must go beyond the limited question of how the distress occurred. We must turn our attention to more general issues of understanding how to maintain stability in some aspects of life and to facilitate change in others. The individual child does not live in a single cell of the nine-cell matrix. Rather, he or she is a biological, psychological, and social system, in which internal and external forces operate independently and in interaction. Regardless of where the proximal cause of the problem may lie, it is possible that an intervention directed toward internal or external change at any level of the system may have a desirable effect. This is not simply a rose-colored view that any intervention will be successful with disorders of any origin. Instead, I am attempting to question the automatic assumption that an environmentally caused condition will only respond to environmental manipulation, a biologically caused condition will only respond to physical or chemical treatment, an internal locus of distress must be addressed with internally focused therapy, and externally conditioned symptoms must be treated with behavior modification techniques.

If all forms of intervention are possible in a given case, how do we choose which ones to try? The nine-cell matrix I presented reminds us of all the alternatives. However, it would be overwhelming to both patient and therapist to institute them all at one time. There is as yet very little systematic evidence in the case of most disorders that suggests which cell or cells might provide the most effective guidelines for change. In part, the decision may be a practical one. Even if the major dysfunction is

located in the family system, if some or all of the family refuses to become involved in treatment, it is still necessary to provide some support for the child in distress. A school psychologist who receives an inordinate number of referrals from one classroom might begin to wonder whether his or her energy may be more effectively spent consulting with the teacher and focusing on classroom interactions. A therapist with a severely depressed adolescent considering suicide may want to consider drugs as an adjunct to psychological treatment, just as a biologically oriented psychiatrist may want to consider family sessions to help parents deal with the painful daily interactions with a severely disturbed child.

By focusing on nine different approaches to understanding what leads to consistency across time and situations, and what leads to adaptive change, I have shown, I hope, that a comprehensive theory of normality, psychopathology, and intervention cannot be located conveniently in any single cell of the nine-cell matrix in Figure 1. Once we take the challenge offered by developmental psychopathology to examine stability and change in both normal and abnormal behavior across the life span, it becomes clear that no single-cell theory of psychopathology and intervention will suffice. We need a more unified and integrated theory of developmental psychopathology, even though it introduces additional alternatives into an already difficult research and clinical task. All of the individuals that we study, diagnose, and treat are biological beings, with individual minds, engaged in challenging and demanding relationships. They transform their worlds and, in turn, are transformed by them. As theorists and clinicians, we must do justice to the puzzling and challenging complexity of their unfolding lives.

References

- Achenbach, T. M. *Developmental Psychopathology*. (2nd ed.) New York: Wiley, 1982.
- Ackerman, N. W. "The Role of the Family in the Emergence of Child Disorders." In E. Miller (ed.), *Foundations of Child Psychiatry*. Oxford, England: Pergamon Press, 1968.
- American Psychiatric Association Committee on Nomenclature. *Diagnostic and Statistical Manual of Mental Disorders*. Vol. 3. (rev. ed.) Washington, D.C.: American Psychiatric Association, 1987.
- Arend, R., Gove, F., and Sroufe, L. A. "Continuity of Individual Adaptation from Infancy to Kindergarten: A Predictive Study of Ego-Resilience and Curiosity in Preschoolers." *Child Development*, 1979, 50, 950-959.
- Asberg, M., Thoren, P., Traskman, L., Bertilsson, L., and Ringberger, V. "Serotonin Depression—A Biochemical Subgroup Within the Affective Disorders?" *Science*, 1976, 191, 478-480.
- Baldwin, A. L., Cole, R. E., and Baldwin, C. P. (eds.). *Parental Pathology, Family Interaction, and the Competence of the Child in School*. Monographs of the Society for Research in Child Development, no. 197. Chicago: University of Chicago Press, 1982.

- Bandura, A., and Walters, R. *Social Learning and Personality Development*. New York: Holt, Rinehart & Winston, 1963.
- Bates, J. E., Maslin, C. A., and Frankel, K. A. "Attachment Security, Mother-Child Interaction, and Temperament as Predictors of Behavior-Problem Ratings at Age Three Years." In I. Bretherton and E. Waters (eds.), *Growing Points of Attachment Theory and Research*. Monographs of the Society for Research in Child Development, no. 209. Chicago: University of Chicago Press, 1986.
- Bateson, G., Jackson, D. D., Haley, J., and Weakland, J. H. "Toward a Theory of Schizophrenia." *Behavioral Science*, 1956, 1, 251-264.
- Bernstein, A. C., and Cowan, P. A. "Children's Concepts of How People Get Babies." *Child Development*, 1975, 46, 77-91.
- Bernstein, A. C., and Cowan, P. A. "Children's Conceptions of Birth and Sexuality." In R. Bibace and M. E. Walsh (eds.), *Children's Conceptions of Health, Illness, and Bodily Functions*. New Directions for Child Development, no. 14. San Francisco: Jossey-Bass, 1981.
- Bettelheim, B. *The Goodenough Parent*. New York: Random House, 1987.
- Blechman, E. R. *Solving Child Behavior Problems—at Home and at School*. Champaign, Ill.: Research Press, 1985.
- Block, J. "Assimilation, Accommodation, and the Dynamics of Personality Development." *Child Development*, 1982, 53 (2), 281-295.
- Block, J. H., and Block, J. "The Role of Ego-Control and Ego-Resiliency in the Organization of Behavior." In W. A. Collins (ed.), *Minnesota Symposia on Child Psychology*. Vol. 13. Hillsdale, N.J.: Erlbaum, 1980.
- Bowen, M. *Family Therapy in Clinical Practice*. New York: Aronson, 1978.
- Bowlby, J. *Attachment and Loss*. Vol. 3: *Loss, Sadness, and Depression*. New York: Basic Books, 1980.
- Breslow, L., and Cowan, P. A. "Structural and Functional Perspectives on Classification and Seriation in Psychotic and Normal Children." *Child Development*, 1984, 55, 226-235.
- Bronfenbrenner, U. *The Ecology of Human Development*. Cambridge, Mass.: Harvard University Press, 1979.
- Buchsbaum, M. S., Coursey, R. S., and Murphy, D. L. "The Biochemical High-Risk Paradigm: Behavioral and Familial Correlates of Low Platelet Monoamine Oxidase Activity." *Science*, 1976, 194, 339-341.
- Buckley, P. (ed.). *Essential Papers on Object Relations*. New York: New York University Press, 1986.
- Campbell, M., and Small, A. M. "Chemotherapy." In A. O. Ross and J. Egan (eds.), *Handbook of Treatment of Mental Disorders in Childhood and Adolescence*. Englewood Cliffs, N.J.: Prentice-Hall, 1978.
- Cicchetti, D. "The Emergence of Developmental Psychopathology." *Child Development*, 1984, 55, 1-7.
- Cowan, C. P., and Cowan, P. A. "A Preventive Intervention for Couples Becoming Parents." In C.F.Z. Boukydis (ed.), *Research on Support for Parents and Infants in the Postnatal Period*. Norwood, N.J.: Ablex, 1987.
- Cowan, C. P., Cowan, P. A., Heming, G., Garrett, E. T., Coysh, W. S., Curtis-Boles, H., and Boles, A. J. "Transitions to Parenthood: His, Hers, and Theirs." *Journal of Family Issues*, 1985, 6, 451-481.
- Cowan, P. A. *Piaget with Feeling: Cognitive, Social, and Emotional Dimensions*. New York: Holt, Rinehart & Winston, 1978.
- Cowan, P. A., and Cowan, C. P. "Couple Relationships, Parenting Styles, and the Child's Development at Three." Presented at a Society for Research in Child Development Symposium on Transition to Parenthood, Baltimore, Md., Apr. 1987.

- Erickson, M. F., Sroufe, L. A., and Egeland, B. "The Relationship Between Quality of Attachment and Behavior Problems in Preschool in a High-Risk Sample." In I. Bretherton and E. Waters (eds.), *Growing Points of Attachment Theory and Research*. Monographs of the Society for Research in Child Development, no. 209. Chicago: University of Chicago Press, 1986.
- Erikson, E. H. *Childhood and Society*. New York: Norton, 1950.
- Fraiberg, S., Adelson, E., and Shapiro, V. "Ghosts in the Nursery: A Psychoanalytic Approach to the Problems of Impaired Mother-Infant Relationships." *Journal of the American Academy of Child Psychiatry*, 1975, 14, 387-421.
- Framo, J. L. "The Integration of Marital Therapy with Sessions with Family of Origin." In A. S. Gurman and D. P. Kniskern, *Handbook of Family Therapy*. New York: Brunner/Mazel, 1981.
- Freud, S. *New Introductory Lectures on Psychoanalysis*. New York: Norton, 1933.
- Garmezy, N. "Children Under Stress: Perspectives on Antecedents and Correlates of Vulnerability and Resistance to Psychopathology." In I. A. Rabin, J. Aro-noff, A. M. Barclay, and R. A. Zucker (eds.), *Further Explorations in Personality*. New York: Wiley, 1981.
- Goldstein, M. J. (ed.). *New Developments in Interventions with Families of Schizophrenics*. New Directions for Mental Health Services, no. 12. San Francisco: Jossey-Bass, 1981.
- Gottesman, I. I., and Shields, J. *Schizophrenia and Genetics: A Twin Study Vantage Point*. New York: Academic Press, 1972.
- Gottman, J. M., and Levenson, R. W. "The Social Psychophysiology of Marriage." In P. Noller and M. A. Fitzpatrick (eds.), *Perspectives on Marital Interaction*. San Diego, Calif.: College Hill Press, in press.
- Haworth, M. *Play Therapy*. (2nd ed.) Orlando, Fla.: Grune & Stratton, 1965.
- Hetherington, E. M., and Camara, K. A. "Families in Transition: The Processes of Dissolution and Reconstitution." In R. D. Parke (ed.), *Review of Child Development Research*. Vol. 7: *The Family*. Chicago: University of Chicago Press, 1984.
- Jung, C. G. *Collected Papers on Analytical Psychology*. New York: Moffat Yard, 1917.
- Kegan, R. S. *The Evolving Self: Problem and Process in Human Development*. Cambridge, Mass.: Harvard University Press, 1982.
- Kellam, S. G., Brown, C. H., Rubin, B. R., and Ensminger, M. E. "Paths Leading to Teenage Psychiatric Symptoms and Substance Abuse: Developmental Epidemiological Studies in Woodlawn." In S. B. Guze, F. J. Earls, and J. E. Barrett (eds.), *Child Psychopathology and Development*. New York: Raven, 1983.
- Laosa, L. M., and Sigel, I. E. (eds.). *Families as Learning Environment for Children*. New York: Plenum Press, 1982.
- Lazarus, R. S. "On the Primacy of Cognition." *American Psychologist*, 1984, 39, 124-129.
- McGillicuddy-DeLisi, A. V. "The Relationship Between Parents' Beliefs About Development and Family Constellation, Socioeconomic Status, and Parents' Teaching Strategies." In L. M. Laosa and I. E. Sigel (eds.), *Families as Learning Environment for Children*. New York: Plenum, 1982.
- Main, M., Kaplan, N., and Cassidy, J. "Security in Infancy, Childhood, and Adulthood: A Move to the Level of Representation." In I. Bretherton and E. Waters (eds.), *Growing Points of Attachment Theory and Research*. Monographs of the Society for Research in Child Development, no. 209. Chicago: University of Chicago Press, 1985.
- Maslow, A. H. *Toward a Psychology of Being*. Princeton, N.J.: Van Nostrand, 1962.

- Minuchin, S., and Fishman, H. C. *Family Therapy Techniques*. Cambridge, Mass.: Harvard University Press, 1981.
- Noam, G. "Marking Time in the Hardest Movement: Borderline Psychopathology in Lifespan Perspective." In K. Field, G. Wool, and B. Cohler (eds.), *Psychoanalytic Perspectives on Learning and Education*. New York: International Universities Press, 1987.
- Parke, R. D., Hymel, S., Power, T. G., and Tinsley, B. R. "Fathers and Risk: A Hospital-Based Model of Intervention." In D. B. Sawin, R. C. Hawkins, L. O. Walker, and J. H. Penticuff (eds.), *Psychosocial Risks in Infant-Environment Transactions*. New York: Brunner/Mazel, 1980.
- Patterson, G. R. *Living with Children: New Methods for Parents and Teachers*. (rev. ed.) Champaign, Ill.: Research Press, 1976.
- Pavlov, I. P. (G. V. Anrep, trans.) *Conditioned Reflexes*. London: Oxford University Press, 1927.
- Piaget, J. *Genetic Epistemology*. New York: Norton, 1971.
- Plomin, R. *Genetics, Development, and Psychology*. Hillsdale, N.J.: Erlbaum, 1987.
- Raush, H. L., Barry, W. A., Hertel, R. K., and Swain, M. A. *Communication, Conflict, and Marriage*. San Francisco: Jossey-Bass, 1974.
- Reiss, D. *The Family's Construction of Reality*. Cambridge, Mass.: Harvard University Press, 1981.
- Ricks, M. "The Social Transmission of Parental Behavior: Attachment Across Generations." In I. Bretherton and E. Waters (eds.), *Growing Points of Attachment Theory and Research*. Monographs of the Society for Research in Child Development, no. 209. Chicago: University of Chicago Press, 1986.
- Rogers, C. R. "Client-Centered Therapy." In S. Arieti (ed.), *American Handbook of Psychiatry*. Vol. 3. New York: Basic Books, 1966.
- Rosenthal, D. *Genetic Theory and Abnormal Behavior*. New York: McGraw-Hill, 1970.
- Rutter, M., and Garmazy, N. "Developmental Psychopathology." In P. Mussen (ed.), *Handbook of Child Psychology*, Vol. 4: *Socialization*. New York: Wiley, 1983.
- Sameroff, A. J., Seifer, R., and Zax, M. *Early Development of Children at Risk for Emotional Disorder*. Vol. 47. Monographs of the Society for Research in Child Development, no. 199. Chicago: University of Chicago Press, 1982.
- Santostefano, S. *A Biodevelopmental Approach to Clinical Child Psychology*. New York: Wiley, 1975.
- Sarason, S. B., Levine, M., Goldenberg, I. I., Cherlin, D. L., and Bennett, E. M. *Psychology in Community Settings: Clinical, Educational, Vocational, and Social Aspects*. New York: Wiley, 1966.
- Satir, V. *Conjoint Family Therapy*. Palo Alto, Calif.: Science and Behavior Books, 1964.
- Schmid-Kitsikis, E. "The Cognitive Mechanisms Underlying Problem-Solving in Psychotic and Mentally Retarded Children." In B. Inhelder and H. H. Chapman (eds.), *Piaget and His School: A Reader in Developmental Psychology*. New York: Springer-Verlag, 1976.
- Schultz, S. J. *Family Systems Therapy: An Integration*. New York: Jason Aronson, 1984.
- Selman, R. *The Growth of Interpersonal Understanding: Developmental and Clinical Analyses*. San Diego, Calif.: Academic Press, 1980.
- Skinner, B. F. *Science and Human Behavior*. New York: Macmillan, 1953.
- Skolnick, A. *The Intimate Environment: Exploring Marriage and the Family*. Boston: Little, Brown, 1973.

- Sroufe, L. A., and Rutter, M. "The Domain of Developmental Psychopathology." *Child Development*, 1984, 55, 17-29.
- Turiel, E. "An Experimental Test of the Sequentiality of Developmental Stages in the Child's Moral Judgment." *Journal of Personality and Social Psychology*, 1966, 3, 611-618.
- Vygotsky, L. S. *Mind in Society: The Development of the Higher Psychological Processes*. Cambridge, Mass.: Harvard University Press, 1978.
- Wallerstein, J. S., and Kelly, J. B. *Surviving the Breakup: How Children and Parents Cope with Divorce*. New York: Basic Books, 1980.
- Walsh, F. *Normal Family Processes*. New York: Guilford Press, 1982.
- Weinstein, R., Marshall, H. H., Sharpe, L., and Botkin, M. "Pygmalion and the Student: Age and Classroom Differences in Children's Awareness of Teachers' Expectations." *Child Development*, 1987, 58, 1079-1093.
- Weissman, M. M. "Psychotherapy and Its Relevance to the Pharmacotherapy of Affective Disorders: From Ideology to Evidence." In M. A. Lipton, A. DiMascio, and K. F. Killam (eds.), *Psychopharmacology: A Generation of Progress*. New York: Raven, 1978.
- Winnicott, D. W. "Transitional Objects and Transitional Phenomena." *International Journal of Psycho-Analysis*, 1953, 34, 89-97.
- Wyatt, R. J., Potkin, S. G., Walls, P. D., Nichols, A., Carpenter, W., and Murphy, D. "Clinical Correlates of Low Platelet Monoamin Oxidase in Schizophrenic Patients." In H. S. Akiskal and W. L. Webb (eds.), *Psychiatric Diagnosis: Explorations of Biological Predictors*. New York: Spectrum, 1978.
- Wynne, L. C., and Singer, M. T. "Thought Disorder and Family Relations of Schizophrenics: A Classification of Forms of Thinking." *Archives of General Psychiatry*, 1963, 9, 199-206.

Philip A. Cowan is professor of psychology at the University of California, Berkeley. A former head of the clinical program there, he now codirects, with Carolyn Pape Cowan, a longitudinal research intervention study of marital quality, parenting styles, and child development.