

## CHAPTER

# 7



# A Developmental Approach to Clinical Research, Classification, and Practice

TUPPETT M. YATES, KEITH B. BURT, AND MICHAEL F. TROY

Psychopathology is an outcome of development (Sroufe, 1997). Yet development received scant attention in clinical psychiatry and remained wanting for empirical documentation well into the 1970s. In this chapter, we take stock of how a developmental perspective *has* informed our understanding of psychopathology over the past three decades and identify key areas in which a developmental framework *should* inform future investigations and applications. Illustrating core developmental principles through the complementary lenses of clinical research, classification, and practice, we generate specific recommendations and highlight caveats for concern as we work to implement a developmental framework in clinical science and practice.

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## A DEVELOPMENTAL VIEW OF DISORDER

A developmental view of disorder carries markedly different implications for research, classification, and practice than classical psychiatric paradigms, which are grounded in a tacit assumption that psychopathology is a circumscribed, static entity that follows from a unitary, endogenous pathogen. Although contemporary incarnations of this disease or medical model include contextual factors as potential influences on disorder, organism and context remain largely distinct with relatively independent contributions to adaptive functioning. The assumptions of the medical model have guided processes of scientific exploration and justification in the study of psychopathology in both explicit and implicit ways (Lazare, 1973). When challenged to operationally define the medical model, the physician Ray E. Helfer, then editor of *Child Abuse and Neglect*, wrote:

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Maybe the medical model refers to something I'm not doing, but should; or even worse, something I do, but shouldn't. Lately, I've come to think this has something to do with process; not something I do or don't do, rather how I do or don't do something. Maybe it's even related to how I think and solve problems (1985, p. 299).

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Having shaped how we think about and engage with the problems of psychopathology for the better part of the last two centuries, classical psychiatric tenets remain active (and problematic) in contemporary clinical science.

In this chapter, we argue that a developmental view of psychopathology can be similarly influential, and it will be intellectually and practically productive as we look ahead to the future of clinical research, classification, and practice. We begin by summarizing the core tenets of a developmental perspective on disorder as illustrated by exemplary investigations from the Minnesota Parent-Child Longitudinal Study (MPCLS). Originating in the mid-1970s, the MPCLS has been a hotbed for developmentally informed thinking and research on the origins and consequences of psychopathology (see Sroufe, Egeland, Carlson, & Collins, 2005 for a comprehensive review of the MPCLS' origins and contributions). This widespread impact is all the more striking given the

MPCLS' initial and explicitly developmental emphasis on the causes and consequences of child maltreatment (Egeland & Brunnequell, 1979). Prescient in its design, the developmentally informed and anchored observations of 267 low-income mothers and their firstborn children from before birth through adulthood fueled a veritable revolution in how we approach the study and practice of clinical science; clinical science, that is, as argued here, fundamentally a science of development. Guided by the empirical insights of the MPCLS, we build on this shared conceptual foundation to consider contemporary applications of developmental principles in clinical research, classification, and practice before concluding with a summary of the promise and pitfalls ahead as we strive to apply these principles in the future.

### The Organization of (Mal)adaptation

A developmental-organismic perspective converges on a picture of disorder as a developmental construction, rather than as an outgrowth of pathological induction (Sroufe, 1989, 1997). In this view, disorder or maladaptation is adaptation. Whether positive or negative, adaptations arise through successive reorganizations within and among the biological, cognitive, social, emotional, and behavioral systems of the individual (Cicchetti & Schneider-Rosen, 1986; see also Werner, 1957; Werner & Kaplan, 1964). Thus, adaptation resides neither in the individual nor in the context, but rather in the dynamic, transactional relation between them (Gottlieb & Halpern, 2002). Organism and context are in constant contact, and both are transformed as a consequence (Sameroff & Chandler, 1975).

Transactions across multiple systems, and the adaptations they engender, are patterned across time such that prior adaptive organizations are incorporated into more recently acquired adaptations (Sroufe, 1979; Werner, 1957). Thus, current adaptation reflects the combined influence of both contemporaneous experience and the individual's prior developmental history to that point. Early experience has special significance because it provides the foundation on which all subsequent adaptations are constructed (Sroufe, Egeland, & Kreutzer, 1990). Like the foundation of a building on which a range of structures may be built, early experience does not determine a specific course of adaptive functioning, but rather constrains its form in a probabilistic fashion.

Adaptation is organization; it is the organization within and among multiple levels of developmental influence, including nature, nurture, and development itself. The quality of this adaptive organization underlies individuals' capacity to use resources within and outside the self to negotiate age-salient developmental issues (Waters & Sroufe, 1983). Although the evaluative referents for adaptation necessarily change over time, *competence* always refers to an organization that enables the individual to effectively negotiate current or future developmental issues, and *maladaptation* refers to an organization that compromises this capacity. The crux of the developmental position is that both competence and maladaptation arise from the same transactional and cumulative processes over time. Thus, studies of positive adaptation and of pathology are mutually informing and defining (Cicchetti, 1990; Sroufe, 1990).

Competence begets competence and maladaptation begets maladaptation because *both* are developmentally grounded in prior experience. Although there is a bias toward developmental continuity because of the probabilistic patterning of adaptations over time and the continuity of many environments, there remains a capacity for change. Indeed, this capacity for change justifies clinical intervention efforts. Moreover, when change does occur, it is assumed to be lawful and comprehensible. Development is complex, yet coherent. By emphasizing the underlying function of adaptive organizations and the probabilistic relations between them, rather than their manifest form, a developmental perspective renders nonisomorphic antecedents of disorder and complex routes to disorder comprehensible (Sroufe & Rutter, 1984; Sroufe & Waters, 1977). In so doing, a developmental view dramatically shifts the kinds of questions researchers pose about human adaptation and the interpretation of their answers.

## A DEVELOPMENTAL VIEW OF CLINICAL RESEARCH

A developmental view of psychopathology shifts the empirical emphasis away from the search for static behavioral isomorphisms of disorder that typifies traditional psychiatric approaches and toward an exploration of

patterns of change and continuity in the function of adaptive organizations over time. A developmental analysis examines networks of developmental influence that are probabilistically associated with the initiation, maintenance, or redirection of pathological pathways. Because disorder reflects dynamic transactions across biological, psychological, environmental, and historical influences, understanding disorder *requires* a developmental view. In the following sections, we draw on select examples to illustrate core tenets of a developmental perspective and their applications in clinical research.

### **Early Experience is Special: A Developmental View of the Dissociative Disorders**

All adaptation, including maladaptation, is grounded in prior experience. Yet the meaning of early experience may change as a function of time, context, and/or subsequent events. Just as experience influences current adaptation, current adaptation (and the experience it engenders) may alter the influence of history. A developmental analysis of disorder extends beyond an appreciation for nature and nurture to incorporate the individual's developmental history as a powerful and heretofore underappreciated developmental force. In so doing, however, this perspective also acknowledges that the influence of history may be transformed as a function of more recent experience. Thus, a developmental analysis yields a dynamic, yet developmentally anchored, view of psychopathology.

The MPCLS has documented the unique importance of early experience in development across a range of both positive and problematic outcomes (Egeland, Carlson, & Sroufe, 1993; Sroufe et al., 1990), including dissociation (Ogawa, Sroufe, Weinfield, Carlson, & Egeland, 1997). The dissociative disorders encompass a class of maladaptive organizations wherein there is a fundamental disconnect among memory, identity, emotion, and cognition that interferes with the negotiation of age-salient issues (Braun, 1988; Carlson, Yates, & Sroufe, 2009; Putnam, 1997). Dissociation was among the first pathological conditions to benefit from a developmental awareness in the writings of Breuer, Freud, Janet, and others who recognized the salience of early (traumatic) experience in

the elaboration of dissociative processes (Breuer & Freud, 1895/1955; Freud, 1926/1959; Janet, 1889). Yet a comprehensive developmental analysis advances beyond these linear predictions to examine the processes by which early experience contributes to pathological dissociation in a probabilistic, rather than deterministic, fashion (Carlson, Yates et al., 2009; Fink, 1988; Putnam, 1997).

MPCLS scholars were among the first to demonstrate prospective associations between early experiences of trauma and dissociative symptomatology across the preschool, elementary, adolescent, and young adult years (Ogawa et al., 1997). Moreover, mother-infant attachment organization explained additional interindividual variation in dissociative outcomes, revealing the unique influence of early experience on dissociative pathways. These findings paved the way for a comprehensive developmental analysis of dissociation that explained why, when, and for whom these relations would hold (Carlson, Yates et al., 2009).

Early experiences of overwhelming arousal capitalize on young children's natural predilection toward fragmented thinking and representation (Fischer & Ayoub, 1994; Fischer & Pipp, 1984). At a time when children naturally parse their experiential world into good/bad and me/not-me, traumatic experience may canalize normative dissociative tendencies into a fundamentally fragmented sense of self (Cicchetti, 1991; Cole & Putnam, 1992; Harter, 1999; Putnam, 1991). Particularly in the context of the early caregiving milieu, trauma may thwart the development of integrated, coherent cognitive-affective representations of self, other, and self-with-other, which typify organized attachment patterns, be they secure or insecure. In the context of repeated experiences of "fright without solution," wherein the child is simultaneously drawn to and repelled from a threatening caregiver, for example, individual systems of perceiving, thinking, and feeling may progress toward greater complexity in the absence of complementary integration, and dissociative pathology will ensue (Carlson, Yates et al., 2009; Hesse & Main, 2000).

As suggested by Liotti (1992; 1999), and empirically validated by the MPCLS (Carlson, 1998; Ogawa et al., 1997), disorganized attachment may confer a specific vulnerability to pathological dissociation in later development by instantiating a protodissociative pattern that

will undergo further differentiation and consolidation in the context of ongoing or subsequent trauma. Thus, contemporaneous traumatic events can change the developmental significance of prior experience by crystallizing early dissociative tendencies into pathology. A history of disorganized attachment influences how the individual experiences and adapts to later trauma and, in turn, subsequent experiences of trauma strengthen the influence of disorganized attachment on later maladaptation: A developmental analysis acknowledges and explains the mobility of developmental influence through which early experience can affect later adjustment, and later adaptation can feedback to alter the subsequent influence (and meaning) of early experience. In this view, opportunities for developmental influence are both omnipresent and coherent, and early experience is special but not unilaterally causal.

The MPCLS studies of dissociation illustrate the patterning of development over time through successive organizations in which "history influences what is experienced, and experience alters history" (Sroufe et al., 2005, p. 229). A developmental approach to clinical research encourages explicit consideration of the cumulative yet dynamic meaning of experience. Furthermore, a developmental lens views the meaning of experience (both past and present) in the context of the entire developmental picture. By attending to the unique significance of early experience, a developmental analysis affords the opportunity to identify meaningful patterns of developmental deviation in advance of clinically significant syndromes, which provides invaluable guidance for targeted intervention and prevention efforts (Sroufe, 1989).

### **Development is Multiply Determined: A Developmental View of ADHD**

A developmental view is a probabilistic, systems view; it is not a causal view in which circumscribed pathogens linearly predict static disorders. Adaptations, including psychopathology, are supported by a network of developmental influences, both past and present (Sroufe, 1997). Thus, a developmental perspective on disorder shifts the focus of empirical attention away from the search for singular pathogens to the elucidation of developmental networks of historical and current influences that

are probabilistically associated with the initiation and maintenance of (mal)adaptive pathways. By attending to transactions within and between levels of analysis, within and between historical and contemporaneous developmental influences, and within and between the person and multiple contexts, the MPCLS has consistently demonstrated that psychopathology "is a dynamic, not static phenomenon in which combinations of constraints on and inputs to adaptation vary over time" (Egeland, Pianta, & Ogawa, 1996, p. 747).

At a time when biological essentialism was the preeminent causal theory of attention deficit hyperactivity disorder (ADHD; e.g., Wender, 1971), MPCLS researchers documented the unique significance of relational factors in the initiation and maintenance of ADHD symptoms. Building on a solid understanding of the normative developmental processes that underlie typical arousal regulation, Jacobvitz and Sroufe (1987) demonstrated the unique contributions of intrusive and overly stimulating parenting behaviors in early childhood to hyperactivity and distractibility in later childhood. Importantly, these investigators pursued this analysis with the explicit aim of exploring both caregiving (i.e., experiential) and child (i.e., organic) contributions to the development of ADHD. Observations of maternal intrusiveness and stimulation were rated during the age-normative tasks of feeding, free play, and guided instruction at 6, 24, and 42 months of age, respectively. In addition, infant measures of temperament, attention, and reactivity were examined as putative predictors of the distractibility and hyperactivity that typify an adaptive organization consistent with ADHD in later childhood. Results indicated that caregiving behaviors were more strongly related to later ADHD symptoms than were biological developmental markers. Moreover, in cases where biological markers, such as motor maturity, did predict ADHD symptoms, the predictive contribution of caregiving variables was not significant, suggesting the presence of multiple and distinct pathways to disorder.

In its attention to, and incorporation of, age-appropriate transitions in salient contexts and developmental issues, this investigation was explicitly developmental in form. Moreover, by acknowledging and evaluating multiple sources of developmental influence, the MPCLS provided a complex and nuanced picture of the etiology of ADHD. This



work demonstrates the unique information afforded by developmental investigations that recognize the potential for complementary, rather than competitive, origins of disorder. This study opened a range of avenues for future exploration, including the possibility that children may exhibit comparable levels of attentional dysfunction following distinct developmental trajectories with differentially firm roots in constitutional and/or caregiving factors (i.e., equifinality; Cicchetti & Rogosch, 1996).

Within a developmental-organismic view, disorder is conceptualized as a dynamic developmental process, not a static condition the child *has*; it describes adaptation, but does not explain it. This developmental premise stands in stark contrast to classical tautologies, which presume that a child has certain problems because s/he has a specific disorder, and, in turn, diagnose a child as having the disorder because s/he exhibits those problems. A thoroughgoing developmental analysis would no sooner conclude that a child is disruptive and distractible *because s/he has ADHD*, than it would justify a diagnosis of ADHD on the basis of these same behaviors. A developmental perspective on disorder explicitly attends to both developmental history and current experience across multiple levels of analysis and influence. In this view, a child disrupts other students in class because her/his prior development hindered the acquisition of normative capacities for arousal modulation *and* her/his current environment challenges these capacities in the absence of adequate supports (Sroufe et al., 2005). As demonstrated by Jacobvitz and Sroufe (1987), a developmental analysis of ADHD begins with the assumption that attentional functioning is itself a multiply determined developmental construction, just as the MPCLS's developmental analysis of dissociation began with the recognition that an integrated and coherent self is a developmental construction. In a developmental framework, diagnosis is the start of the analysis, not the end.

### **Disorder is Adaptive: A Developmental View of Nonsuicidal Self-Injury**

As noted previously, disorder is adaptation; it follows from the same succession of organizational differentiation and hierarchical integration that typifies positive development. A developmental analysis begins with the assumption that disorder is a reflection of the individual's best efforts

to cope with contemporaneous challenges in the context of historical, current, and multilevel influences. As observed by Sameroff (1989), "illnesses are indeed achievements that result from the active strivings of each individual to reach an adaptive relation to his or her environment" (p. 63). Thus, in seeking to understand psychopathology, a developmental analysis does not begin with the question, "what is wrong with this person?," nor does it seek to identify the environmental contingencies that reinforce her/his maladaptive behavior. Rather, a developmental analysis starts with the clinically paradoxical, but developmentally sensible questions, "How is this adaptive organization functional?" and "What are the normative developmental processes that preclude most people from coming up with this particular solution to the challenge of development?" These questions follow from the underlying developmental premise that disorder is adaptive. Yet the quality of this organization and its consequent utility for negotiating developmental challenges vary as a function of both historic and contemporaneous resources to which the person may avail her/himself in the service of adaptation.

A developmental view of disturbance as adaptation remains intellectually productive in the face of even the most extreme developmental deviations, such as nonsuicidal self-injury (NSSI; e.g., cutting, burning). Empirical and applied efforts have shifted from the search for static behavioral isomorphisms of NSSI in early development (e.g., infant head banging; Green, 1978) and the marginalizing treatment of persons who self-injure in practice, toward an appreciation of NSSI as a powerful tool for regulating overwhelming affects and relationships when the normative representational and regulatory capacities that render NSSI unnecessary for most people have been undermined (Yates, 2004, 2009). Mounting evidence supports the role of NSSI as a compensatory adaptive strategy in the context of prior and/or concurrent vulnerability. Offering the first longitudinal analysis of the development of NSSI, the MPCLS demonstrated prospective relations between child maltreatment and NSSI in young adulthood (Yates, Carlson, & Egeland, 2008). Moreover, observed pathways between maltreatment and recurrent NSSI were partially explained by trauma-induced deficits in emotion processing and cognitive-affective integration (e.g., somatization, dissociation). When asked about motivations for engaging in NSSI, participants

consistently identified NSSI as a powerful compensatory strategy in posttraumatic adaptation, permitting them to cope with overwhelming affect and arousal in lieu of normative symbolic and integrative regulatory capacities (Nock & Prinstein, 2004; Yates et al., 2008). Thus, even in cases of self-injury, the undergirding developmental force is one of survival and adaptive striving. In this way, a developmental analysis brings the person who injures out of the isolation of the “disturbed” individual and into the company and humanity of the “adapting” individual who is negotiating the challenges of development within the confines of available resources, be they regulatory, relational, or material. In this view, NSSI, and psychopathology in general, is a maladaptive means to reach an adaptive end.

### Summarizing a Developmental View of Clinical Research

As demonstrated in the MPCLS’s studies of dissociation, ADHD, and NSSI, as well as in a host of other domains, including the behavioral and affective disorders (e.g., Aguilar, Sroufe, Egeland, & Carlson, 2000; Bosquet & Egeland, 2006; Duggal, Carlson, Sroufe, & Egeland, 2001), Byron Egeland, Alan Sroufe, and their collaborators have broadened the domain of developmental psychology to include psychopathology. Employing normative developmental patterns and processes to understand developmental exceptions and deviations, the MPCLS is a testament to the intellectual and applied productivity of developmentally informed research on maladaptation. A developmental perspective on clinical research recognizes that disorder is uniquely influenced by early experience, is an outgrowth of multiple developmental influences, and, perhaps most importantly, is a form of adaptation. Therefore, a productive clinical science is fundamentally a science of development—one in which clinical classification and practice take on new meaning.

## A DEVELOPMENTAL VIEW OF CLINICAL CLASSIFICATION

On the heels of the American Psychiatric Association’s (APA) publication of the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III) in 1980, which introduced a new category of

"disorders usually first diagnosed in infancy, childhood, or adolescence," Sroufe and Rutter (1984) observed that "current diagnostic classification schemes pay scant attention to development" (p. 24). Writing at the same time, Garber (1984) argued that the absence of a reliable and valid system for classifying emotional and behavioral disorders of childhood significantly hampers efforts to apply a developmental framework to the study of psychopathology. She further noted that, "despite arguments to the contrary (e.g., Santostefano, 1971), the developmental model is not by definition antagonistic to nosology" (p. 31). In fact, a developmental perspective is necessary to construct a reliable and valid system for classifying emotional and behavioral disorders in childhood, adolescence, and adulthood. Thus, clinical classification and developmental science are inextricably linked. In this section, we evaluate contemporary approaches to developmental classification in the DSM, identify core features of a developmental perspective that can and should inform our approaches to classification, and highlight promising instances of developmentally informed classification in research on pediatric behavior problems and, to a somewhat lesser degree, personality disorders.

### **DSM-5 and (the Myth of) Developmental Classification**

As we review the latest iteration of the APA's DSM-IV-TR (2000) and anticipate the release of the DSM-5, we find developmental principles still fighting for footing in contemporary classification approaches. Even when issues of development have received explicit nosological consideration, it has merely reified rather than rectified the shortcomings of contemporary classification. For example, reviewing the addition of the attachment disorders to the DSM-IV, Sroufe (1997) observed that mainstream psychiatry missed a real chance to introduce a developmental approach to disorder by labeling particular attachment variations as "disorder" and isolating them to a classification of their own, rather than recognizing that attachment is a significant initiating organization for many different kinds of psychopathology. Although both the attachment disorders and the earlier introduction of posttraumatic stress disorder in the DSM-III (1980) represent a modicum of progress because they acknowledge extraorganismic etiologic factors, contemporary approaches to

classification have not yet fully integrated a developmental perspective on disorder.

Looking ahead to the DSM-5, developmental issues pertaining to pathways, age-salient referents, and multilevel analyses have been prominent in discussions of the DSM revision. In their contribution to the planning paper, *A Research Agenda for DSM-V* (Kupfer, First, & Regier, 2002), Pine and colleagues (2002) proposed several research directives related to development and classification, including, among other things, integrating neuroscience and genetics into the classification system, devoting greater attention to issues of culture and context in youth, and fostering additional connections with normative developmental research on processes such as attention, memory, and emotion regulation. In delineating directions for future research, Pine and colleagues focus both on the general multiaxial diagnostic system of the DSM and on issues that are more central to particular diagnoses. For example, they suggest that the current DSM grouping of ADHD symptoms into three distinct categories, leading to a single dichotomous diagnostic decision, may not be fully consistent with modern research on the substrates of attention, which highlights clinically meaningful distinctions among different types of attentional processes (e.g., set shifting versus orienting) and integrative constructs that are largely absent from the DSM (e.g., executive function; Nigg, Hinshaw, & Huang-Pollock, 2006; Pennington & Ozonoff, 1996).

Although the commentary of Pine and colleagues (2002) was a laudable attempt by researchers close to the DSM planning process to inject a truly developmental perspective into the classification system, their calls for action have been muted by the pragmatic constraints of implementation. Developmental issues seem to have receded from the picture as the field moves toward specific classification and criterion operationalization processes that signal the impending completion of the DSM-5. In a more recent planning document, *Age and Gender Considerations in Psychiatric Diagnosis* (Narrow, First, Sirovatka, & Regier, 2007), a developmental perspective is strikingly absent, despite the obvious relevance of developmental concepts to the material at hand. With very few exceptions (see the discussion of Wakschlag et al., 2007,

as follows), the chapters in this planning document focus on the feasibility of applying existing (or slightly modified) DSM criteria to younger and/or older populations than are typically included in clinical research studies. While this may be a legitimate goal, it sidesteps the important issues of multilevel dynamics and normative developmental research raised by Pine and colleagues (2002) in their earlier commentary. In the next section, we identify core implications of a developmental perspective for classification and highlight pediatric behavior problems and personality disorders as promising domains where these ideas may gain prominence in future classification schemes.

### **Classifying Disorder as Classifying Development**

Dynamic models of disorder necessitate dynamic models of classification. Indeed, efforts to classify disorder may be better conceptualized as efforts to classify development itself. As discussed previously, development is embodied in patterns of adaptive organizations over time, the quality of which is evaluated with respect to the individual's ability to negotiate age-salient issues, and the cause of which stems from a network of developmental influences across multiple levels of analysis, including prior experience.

### ***Developmental Pathways***

Theorists in developmental psychopathology have elaborated the usefulness of developmental pathways—distinct routes by which an individual or group of individuals arrive at a particular (often maladaptive) outcome (Loeber, 1991)—as a metaphor to guide research and practice (Rutter, 1989; Sroufe, 1989). In light of these probabilistic pathways, static classification paradigms run the risk of aggregating meaningfully distinct subgroups of individuals who arrive at a particular adaptive organization via distinct trajectories (i.e., equifinality) and/or who progress from a singular organization to diverse outcomes (i.e., multifinality; Cicchetti & Rogosch, 1996). Recall, for example, the case of ADHD wherein the behavioral picture at age 6 was virtually indistinguishable between youth who seemed to have a more experientially influenced course to disorder and youth with a more organismically rooted pathway

to disorder (Jacobvitz & Sroufe, 1987). As yet another example, both insomnia and a lesion in the prefrontal cortex will contribute to deficits in organizing and planning, decreased short-term memory capacity, and problems with impulse control and emotion regulation. Only by attending to the developmental history of the symptomatic organism can we discern the initiating conditions and probabilistic mechanisms underlying psychopathology.

The recognition that heterogeneity is meaningful and that continuity may rest at the level of functional pathways rather than static form has important implications for diagnosis, treatment, and prognosis. For example, this kind of model may justify a classification system based on developmental pathways rather than isolated adaptations (Loeber, 1991; Loeber et al., 1993). To date, pathway approaches to classification have tended to focus on differences in the timing of behavioral symptoms, with perhaps the best-known example being the distinction between early- and late-onset conduct problems (Moffitt, 1993; Patterson, DeBaryshe, & Ramsey, 1989). Moffitt's (1993, 2006) attention to variation in timing complements the long-standing appreciation of variation in form that characterized prior descriptive classifications in the anti-social/conduct domain (e.g., overt versus covert behaviors; Loeber & Schmalting, 1985). Pathway approaches encourage the incorporation of multiple levels of analysis, rather than making distinctions solely on the basis of the form or timing of behavioral symptoms (see Pickles & Hill, 2006, for additional examples of this approach).

MPCLS findings suggest important environmental and contextual differences between children who do and do not manifest early conduct problems. In a study by Aguilar and colleagues (2000), youth who manifested both persistent oppositional behavior in childhood and conduct problems in adolescence experienced higher levels of early psychosocial risk (e.g., low socioeconomic status, single-parent household, high parental life stress) as compared with youth who initiated conduct problems in adolescence. However, only childhood temperamental and neuropsychological variables, not infant temperament, discriminated the two groups. A pathways approach to classification has the potential to reveal meaningful heterogeneity in development and process, which may

be occluded by traditional, static classification systems. The pathways metaphor has encouraged empirical efforts, such as those of Aguilar and colleagues (2000), to tease apart different constellations of etiological factors that underlie disorder, particularly given evidence that these patterns may have diagnostic and prognostic significance (e.g., Fowles & Dindo, 2006; Stieben et al., 2007). In addition, increased attention to developmental pathways in future classification efforts may clarify processes underlying apparent comorbidity, given that prior developmental history can influence the interpretation of complex sets of symptoms, including those that transcend different DSM disorders.

Although not explicitly tied to developmental pathways, it is important to acknowledge a modicum of progress toward the goal of integrating pathways concepts into contemporary classification schemes in the hopes that we can continue to build on this effort. For example, one widely accepted set of criteria for diagnostic validation, Cantwell's (1996) updating of the classic Robins and Guze (1970) criteria, emphasizes *natural history* as a potential tool for separating discrete disorders, in addition to psychosocial, demographic, biological, genetic, and family environment factors, as well as clinical descriptors and response to treatment. In practice, however, this appreciation for the informativeness of developmental history is often constrained to the "history of the specific presenting symptoms." Likewise, research on early- and late-onset conduct problems has resulted in a specific age cutoff for conduct disorder symptoms in DSM subtyping that may not best represent the research evidence. Nevertheless, we continue to encourage the evaluation and expansion of this criterion to incorporate a developmental pathways approach in classification.

### ***Age-Salient Referents***

With far too few exceptions, contemporary classification approaches apply uniform criteria sets to the evaluation of functioning across the developmental continuum. However, because the meaning of behavior changes over time, we must evaluate its adaptive significance with respect to age (Sroufe & Rutter, 1984). As discussed earlier, the coherence of development, including that which is disordered, rests at the level of meaning and



function, not manifest form (Sameroff & Chandler, 1975; Waddington, 1940). Children possess different cognitive, linguistic, physiological, and emotional resources over time, which may alter the expression of disorder and/or the developmental significance of those expressions (see Loeber & Hay, 1997; Patterson, 1993, for discussions of changes in the expression of conduct problems over time). Returning to the case of ADHD, extant research has been hampered by a faulty assumption that ADHD is expressed in similar behaviors across the developmental course. In this case, the adoption of developmentally inappropriate, static criteria conflated changes in disorder expression with developmental change, leading to erroneous assertions that ADHD symptoms decline with advancing age (Faraone, 2000; Willoughby, 2003). Although age-salient referents may be especially important in the early years when children develop at a relatively rapid pace, they remain relevant throughout development.

On a related theme, growing evidence points to the significance of age of onset in the etiology, phenomenology, and prognosis of specific disorders. In the case of conduct problems, for example, childhood-onset is associated with different correlates and long-term prognosis than adolescent-onset (Aguilar et al., 2000; Moffitt, 1993, 2006). Additional evidence suggests that early-onset conduct problems are associated with higher levels of conduct disorder in family members, suggesting a disproportionate genetic contribution to conduct problems that begin in childhood (Taylor, Iacono, & McGue, 2000). However, as noted in a recent review by Rutter (2005), an alternative explanation for this pattern may be that higher levels of conduct problems in the immediate family contribute to greater levels of environmental adversity, which foster the early initiation of conduct-disordered pathways. Contemporary classification efforts must attend to the multiple implications of age, both with respect to describing disorder in terms of age-salient manifestations and to clarifying the causes and consequences of disorder as a function of differential ages of onset. Together, these efforts will ensure that our classification system accurately accommodates potential shifts in the form or significance of specific maladaptive organizations over time.

### ***Multilevel Analyses***

The application of multilevel analyses to psychiatric classification has garnered much attention in recent years but few concrete proposals. Progress has come through planning documents that emphasize the importance of both broader cultural/societal differences in criteria as well as neurobiological indices relevant to diagnosis (e.g., Pine et al., 2002). Of course, multilevel analyses call for the meaningful combination of data across levels, such as the interaction of genetic and biological markers with behavioral and contextual criteria. However, the use of such markers in formal diagnosis requires adequate sensitivity and specificity, which presupposes a gold standard of validation that may or may not be forthcoming. It is possible that the effective incorporation of neurobiological markers in classification will only proceed alongside a more radical reconceptualization of the nature of disorder.

Moreover, neurophysiological or biochemical correlates of disturbance should be viewed as markers of a developmental process rather than causes per se (Sroufe et al., 2005). As noted previously, a developmental perspective recognizes that there is rarely a cause and an effect, a beginning and an end, because development is always both—the individual is always creating and becoming. Thus, biological markers may be cause or effect and, in a developmental model, are not limited to one or the other such that a particular marker may be a cause for one person and an effect for another. Moreover, a marker may contribute to one pathway for one individual but to a very different trajectory for a different person. For example, Calkins (1994) notes that autonomic and central nervous system reactivity can lead to either aggression or positive social engagement in later childhood, depending on intervening experiences with caregivers. What appears as vulnerability in one context may emerge as strength in another; thus, there is no disturbance, only difference, the adaptive significance of which is multiply determined and necessarily anchored in development.

### ***Summary***

Developmental pathways, age-salient referents, and multilevel analyses are not the only relevant considerations for developmental approaches

to clinical classification; however, they are some of the key themes that emerge from broader discussions of developmental psychopathology (Garber, 1984; Rutter & Sroufe, 2000; Sroufe, 1997). Classification researchers must also negotiate historical and professional trends of the DSM system, a detailed review of which is beyond the scope of this chapter. In fact, one might argue that true incorporation of developmental principles into the DSM system is quite difficult, or perhaps impossible. However, there are select cases where we can see the potential for progress and its grounding in developmental science.

### **A Developmental Approach to Assessment: Pediatric Behavior Problems**

As reviewed previously, disorder is adaptation, and the quality of this adaptation is dependent on environmental, biological, temporal, cultural, and other factors. Behaviors that undermine competence in one setting may engender it in other contexts. The dynamic yet coherent patterning of development over time, age, and context necessarily complicates processes of assessment, diagnosis, and classification. Yet, efforts that incorporate developmental pathways, age-salient referents, and multi-level analyses show promise in the field of pediatric behavior disorders.

The Disruptive Behavior Diagnostic Observation Schedule (DB-DOS; Wakschlag et al., 2005, 2007, 2008) is a structured observation protocol for distinguishing age-normative disruptive behavior from that which indicates a psychopathological process. The DB-DOS represents an advance toward incorporating developmental theory into the formal DSM process. This approach adopts an *explicitly* developmental framework, which was reviewed and elaborated by Wakschlag, Tolan, and Leventhal (2010), to distinguish the usual “terrible twos and threes” from serious oppositional and disruptive behavior problems in early childhood by integrating structured tasks that “press” for problem behaviors, given evidence from the MPCLS that the meaning and interpretation of behavior can vary dramatically across relational contexts (Egeland et al., 1996; Sroufe et al., 2005).

Several of the specific DB-DOS tasks are drawn from normative developmental research designed to assess constructs, such as emotion

regulation and impulse control, including tasks closely related to those developed in the early stages of the MPCLS, such as the "tool problems" task in which frustration is elicited through increasingly difficult problem-solving challenges to evaluate children's coping resources in both low- and high-demand settings (Matas, Arend, & Sroufe, 1978). In addition, the DB-DOS extends beyond quantitative assessments, to evaluate *qualitative* distinctions in behavior, such as the difference between negative affect elicited in the context of positive social stimuli versus negative affect elicited in the context of frustration. Finally, this multifaceted assessment tackles one of the most vexing aspects of child assessment—the context-specificity of behavior problems—by observing child behavior in multiple contexts that vary the stressors presented to the child, including parent with child, child with engaged observer, and child with unengaged observer. This type of assessment advance is not without challenges in terms of heightened training and administration resource demands. However, early results suggest that the DB-DOS adds crucial information to the clinical assessment process, with incremental validity over parent and teacher reports of disruptive behavior demonstrated concurrently and at one-year follow-up (Wakschlag et al., 2007, 2008).

The DB-DOS is consistent with the broad developmental classification themes noted earlier. A developmental systems approach underlies the major rationale for the instrument's creation in that only some preschoolers demonstrating high levels of anger, frustration, and aggression are considered disordered. Furthermore, one must observe behavior across contexts to determine this diagnosis, rather than rely solely on aggregated broad informant ratings. Age-salient tasks such as frustration tolerance, set-shifting, and delay of gratification are incorporated explicitly into the DB-DOS modules. Finally, although not designed to cross into the neurobiological level, data from multiple levels of analysis are available from the DB-DOS via coding schemes for parental behavior in the parent-child context, as well as for child behavior across all three contexts. Multifaceted, developmentally informed assessment tools will pave the way for similarly developmental classification approaches in the future. We anticipate that the DB-DOS will be a key contributor to

a thoroughgoing integration of a developmental perspective into future classification systems for pediatric behavior problems.

### **A Developmental Approach to Classification: Personality Disorders**

Building on a strong legacy of research documenting the coherent developmental progression of personality (Block & Block, 1973; Caspi & Roberts, 1999; Sroufe et al., 2005), formal discussions of the developmental nature of personality disturbance have appeared in the recent literature (Cohen, Crawford, Johnson, & Kasen, 2005; Freeman & Reinecke, 2007; Johnson et al., 2005). These discussions have taken various forms, as reflected in the recent special issues of *Development and Psychopathology* (Cicchetti & Crick, 2009a, 2009b), which include articles demonstrating important precursors to DSM-defined personality disorders, describing processes in childhood and adolescence that are dynamically related to personality disturbance more broadly, and/or discussing developmental issues related to the classification of personality disorders. The latter papers include arguments for incorporating mental representations, coping strategies, and narrative identities into adolescent research connecting personality traits and personality disorders (Shiner, 2009), as well as an extensive review of childhood precursors to personality disorder that supports prior calls for a dimensional classification approach (Tackett, Balsis, Oltmanns, & Krueger, 2009). As a whole, this set of papers is extensively informed by MPCLS research and includes a direct report from the MPCLS that documents the mediating role of self-representation in middle childhood in prospective associations between attachment disorganization in infancy and symptoms of borderline personality disorder in adolescence (Carlson, Egeland, & Sroufe, 2009).

Spurred on by burgeoning evidence that personality functioning is best understood with reference to normative developmental patterns, the development and potential adoption of a continuous/dimensional system for the classification of personality disorders on Axis II of the DSM has been a major topic of discussion throughout the ongoing DSM revision process and is a common theme in several of the papers cited earlier.

Commentators have remarked for some time on the difficulties inherent in the existing categorical classification system for Axis II (e.g., Widiger & Kelso, 1982), with particular concerns raised about the arbitrary nature of the broad cluster categories and the challenge of researching conditions with numerous polythetic criteria sets such that individuals formally meeting diagnostic criteria for the same personality disorder may share few or no common symptoms. The transition to a dimensional system for classifying personality disorder has been slowed by a relative lack of consensus in the personality literature on which dimensions would most appropriately characterize the descriptive variation currently captured in Axis II of the DSM. However, that situation may be changing, as adult personality and clinical researchers appear to be converging on candidate dimensional traits that can serve as an alternative classification framework for personality psychopathology (e.g., Widiger, Livesley, & Clark, 2009). Under these systems, individuals would be assessed on a small number of bipolar dimensions that roughly correspond to four of the Big Five (Costa & McCrae, 1992) factors of mainstream personality research (i.e., neuroticism, agreeableness, conscientiousness, and extraversion). Further assessment would emphasize more fine-grained subscales as indicated by the pattern of obtained scores across the broad domains (e.g., Reynolds & Clark, 2001).

Although not explicitly developmental, this type of classification proposal is worthy of discussion for several reasons. To begin with, it is of note that adult personality researchers have succeeded in bringing a dimensional model to near-fruition within the framework of the DSM planning process. This is no small achievement and has only been accomplished with a tremendous amount of persistence. Second, although limited by a focus on trait-like descriptors of behavior, the proposed system describes phenotypic variability with arguably more nuance and detail than the subscales most commonly used in child assessment. Third, the pathological variants of the Big Five studied in adult research evidence a similar hierarchical factor structure in youth. Although care should be taken not to rely on a sole source of measurement (self- or parent-report questionnaire items), this research suggests that it is possible to link models of personality pathology across the lifespan and opens doors

for further developmental work (De Clerq, De Fruyt, Van Leeuwen, & Mervielde, 2006). Fourth, and most important, to a large degree, the concepts and measures employed in these recent discussions are the same as those employed in research on normative personality. Thus, these approaches more fully realize the mutually informing nature and desirable integration of normative and clinical functioning.

At the same time, it is important to note that potentially informative personality disorder classification proposals have emerged that more explicitly take into account developmental issues and/or deliberately operate outside of the formal DSM system. One example of the latter is work by Depue (2009) and colleagues (Depue & Lenzenweger, 2005, 2006) on a neurobehavioral dimensional model of personality pathology. By linking personality pathology to the neurobiological bases of anxiety, fear, affiliative reward, and other processes, the authors effectively remap the core divisions among personality constructs in a biologically plausible manner. More specifically, Depue (2009) has proposed that observed personality disturbance is a function of epigenetic influences on core neurobiological personality traits, and emphasizes, consistent with MPCLS findings and philosophy, that early experience may play a particularly important role in the "tuning" of traits such as neuroticism, which may promote risk for later personality disorder. It is important to recognize that progress on this type of neurobiologically plausible model requires one to essentially abandon the DSM Axis II categories, although particular behavioral symptoms grouped in those categories may remain quite relevant. Thus, this supports our prior assertion that the incorporation of neurobiological markers into contemporary classification systems will likely entail a radical reconceptualization of the nature of disorder.

### **Summarizing a Developmental View of Clinical Classification**

As we look ahead to the future of clinical classification, we do so with cautious optimism. Hopeful steps toward developmental approaches that incorporate adaptive pathways, age-graded criteria, and multilevel approaches to classification are balanced by seemingly intractable constraints of diagnostic tradition and feasibility. Even at its best, classification

will remain an imperfect tool that necessarily compromises between the utility of discrete conceptions of adaptation and the complex, dynamic nature of real-world adaptation (Carey, 1990; Rutter & Sroufe, 2000). To the extent that we fail to recognize the limits of diagnostic classification as a descriptive, rather than explanatory tool, we run the risk of unnecessarily removing development from the scope of future clinical research. As much as possible, given practical constraints of funding priorities and macro trends in the field, classification research should proceed along several fronts simultaneously. Ideally, multiple concurrent approaches will yield theoretically informed, competing predictions that will validate, refine, or inform the integration of complementary classification approaches. In so doing, clinical and classification researchers will move toward a utilitarian (rather than deterministic) view of classification that is more akin to the approach used by front-line practitioners.

## **A DEVELOPMENTAL VIEW OF CLINICAL PRACTICE**

A developmental perspective has dramatically shifted our understanding of psychopathology, both empirically and practically. Yet the integration of knowledge between the empirical and applied worlds is an iterative process, one that can be frustratingly slow for researchers, clinicians, and clients alike. In this section, we present examples of specific assessment and intervention approaches that incorporate core features of a developmental perspective to illustrate how developmental theory can and should inform clinical practice. Coming full circle, we conclude by highlighting the reciprocally informative translation from clinical classification and practice to developmental theory and research.

### **A Developmental Approach to Diagnostic Formulation**

A developmental approach to diagnostic formulation begins with a presumption of complexity that far surpasses the bounds of a classifying package. In this view, diagnosis is part of the formulation, rather than the whole of it. Dynamic transactions within and across systems underlie both positive and problematic adaptation, simultaneously reflecting and



contributing to the complexity of lived experience. A developmental lens brings the complexities of parenting, growing up, relating with others, as well as the problems associated with each, into clear relief. Similarly, a developmental formulation recognizes the challenge of understanding complex problems and of trying to address and talk about those complexities in real time.

Complexity is intrinsic to both development and lived experience. As naive developmental scientists, people generally understand that their difficulties are influenced by prior experience, follow from multiple factors, and largely reflect their best efforts given available resources. Although clients may appreciate many of the principles outlined earlier in this chapter, the developmentally informed clinician can help them organize and talk about their problems, strengths, and relationships, and encourage them to reflect on both their past and their future. Moreover, a developmental framework guides clinicians toward a diagnostic formulation that is reassuring for clients and their families as they feel the complexity they experience reflected and rendered comprehensible.

Clinical classification is a valuable tool for describing problems in development, but the developmental framework facilitates a greater understanding of a particular individual or family. The developmentally informed clinician integrates clients' lived experiences with larger, fundamental principles of development to create a shared formulation that clarifies how strengths and vulnerabilities came to be, and guides the collaborative identification of short-term, focused goals, while retaining a larger vision of the often harder and longer work of improving relationships and behavioral patterns—of changing developmental trajectories.

A developmental diagnostic formulation informs a multidimensional, tailored treatment plan as the clinician can call upon psychotherapy, environmental changes, or trials of medication, as well as their combination and ordering, in a way that logically follows a formulation of the client as embedded within a network of developmental influences across multiple levels of analysis. Developmental concepts such as probabilistic pathways and consequent capacities for multifinality and equifinality, for example, allow us to talk with a concerned parent about how a father who was diagnosed with ADHD may have encountered school difficulties

that led him to associate with delinquent peers and precipitated a series of legal difficulties, while a son's developmental trajectory (though starting in a similar place) can be considerably different with appropriate and early intervention. A developmental formulation provides vocabulary and metaphors that encourage clients to appreciate their capacity for change, to believe in the mobility of meaning and function over time and contexts, and to understand the coherence underlying patterns of continuity and change in development. Thus, a developmental formulation paints a hopeful picture in which there is an enduring capacity for change and, even in the midst of extreme maladaptation, a shared humanity in which we are all more alike than we are different.

Recent efforts to codify developmental principles in standardized approaches to diagnostic formulation have yielded mixed results. The Therapeutic Assessment Model (TAM; Finn, 2007; Finn & Tosanger, 1997) advances beyond static labeling to put diagnostic formulation in the service of changing and improving clients' developmental trajectories. This approach emphasizes, in part, the importance of working collaboratively with clients to identify relevant clinical questions and, through a variety of assessment techniques, to incorporate information regarding current and past experience into working hypotheses concerning the origin of clients' difficulties and probable pathways toward positive change. Interestingly, adult clients were the primary focus of initial studies looking at the effectiveness of the TAM (Finn & Tosanger, 1992; Finn, 1996; Finn, 2007). Initial evaluations of the TAM distinguished between the use of assessment data to describe client functioning and the use of such data as tools for creating clinician–client collaboration in practice. For example, Finn and Tosanger (1992) demonstrated that clients who received feedback about personality testing in accordance with the TAM evidenced greater declines in distress and increases in self-esteem than those who were in the feedback-as-usual group.

Recent research and practice using the TAM with child and adolescent populations points to similarly promising results. This research has documented the unique benefits of including family sessions in pediatric assessments to facilitate greater understanding of the family context within which the child's problems persist, ensure a shared understanding

of the clinical issues, and enlist the family as an agent of support and change (Tharinger et al., 2008; Tharinger et al., 2009). The TAM has also informed developmentally appropriate assessment feedback techniques for young children through the use of stories and fables (Tharinger et al., 2008). As we observed earlier in the case of (primarily) adult-oriented personality researchers contributing important insights about developmental classification approaches (Reynolds & Clark, 2001; Widiger et al., 2009), so, too, the TAM illustrates the potential contributions of adult practitioners and researchers to our ongoing progress toward developmentally sensitive approaches to diagnostic formulation and intervention. Ongoing reciprocities across levels of analysis (and practice), between child- and adult-focused scholars, and between basic and applied science, are essential to the integration of a comprehensive developmental approach in clinical research, classification, and practice (see the following discussion of transactional research and practice efforts).

Two additional trends in developmentally based assessment are worth mentioning. First, as noted previously in our discussion of the DB-DOS, assessment approaches that focus on direct observation of developmentally relevant symptoms and behaviors in young children are being emphasized. For example, in the Autism Diagnostic Observation Schedule (ADOS; Lord et al., 2000), the clinician engages the child in a series of semistructured interactions designed to elicit behaviors that are associated with autism spectrum disorders, such as eye contact, joint attention, and verbal communication. Second, the application of standardized mental health screening has increased in early development to identify protopathological patterns in settings where screening (and resultant prevention efforts) is likely to be most effective, such as pediatric clinics and schools. The Modified Checklist for Autism in Toddlers (M-CHAT; Robins, Fein, Barton, & Green, 2001) and the Autism Observation Scale for Infants (AOS; Bryson, Zwaigenbaum, McDermott, Rombough, & Brian, 2008) are two early screening tools that have gained widespread use in primary care settings to screen for autism spectrum disorders. Guided by empirical research documenting the disproportionate salience of early adaptational failures in pathological pathways (Egeland et al., 1993; Sroufe et al., 1990), early identification

and intervention responsibilities have entered the domains of primary care providers and early educators (see Hagan, Shaw, & Duncan, 2008; Lawrence, Gootman, & Sim, 2009, for reviews of formal recommendations by the Institute of Medicine, the U.S. Preventive Services, and the American Academy of Pediatrics). Both broad-spectrum screening with instruments, such as the Pediatric Symptom Checklist (Hacker, Williams, Myagmarjav, Cabral, & Murphy, 2009; Jellinek et al., 1999), and disorder-specific assessments, such as suicide and depression screening for adolescents (Williams, O'Connor, Eder, & Whitlock, 2009), are increasingly common components of pediatric care, and these tools accurately identify the presence of disorder much earlier than would be the case without systematic screening.

### **A Developmental Approach to Clinical Intervention**

Previously, we demonstrated that disorder is an outgrowth of adaptive striving (Sameroff, 1989). A corollary to this idea is that, even within periods of broad maladaptation, there remains, at a minimum, some kind of intact system or adaptive developmental strength (Zigler & Glick, 1986). In the case of NSSI, for example, the injurer nevertheless retains the capacity to feel distress and the motivation to manage it. This shift in perspective informs and justifies a strength-based approach to intervention that engages clients' intrinsic motivation to adapt and harnesses their curiosity to explore how they arrived at a particular (mal)adaptive solution. By its nature, this kind of clinical engagement promotes a dynamic way of thinking about the child or family and creates a belief in the possibility for positive change. These ideas inform the practice of developmentally sensitive therapists and are well represented in several therapeutic approaches.

Psychodynamically-Oriented Brief Therapy, which is alternately termed Time-Limited Dynamic Psychotherapy or Brief Therapy, was developed, in part, as the response of some psychodynamic therapists to the constraints of managed care (Binder, 2004; Budman & Gurman, 1988; Davanloo, 2001; Gustafson, 1987; Mann, 1980; Sifneos, 1987; Strupp & Binder, 1984). Forced to distill psychodynamic therapy's most critical elements into a time-efficient and portable package, the

developmental nature and focus of this therapeutic approach came into focus in an especially clear way. Core developmental constructs, such as the unique importance of early experience, adaptive pathways across time (and within the therapeutic arc), age-salient challenges, and temporal factors related to change and stability, were brought into clear relief as a function of this distillation. In addition, the therapeutic relationship, which was always central to psychodynamic and object relations therapies, took on renewed import as a key therapeutic variable and an agent of change in its own right (Safran & Muran, 1988).

In recent years, Dialectical Behavior Therapy (DBT; Linehan, 1993) has been adapted for clinical intervention with adolescents who exhibit early symptoms of borderline personality disorder and/or who are at elevated risk for suicidal and self-destructive behavior (Miller, Rathus, & Linehan, 2007). This approach capitalizes on the intensity of personality (re)organization during adolescence and young adulthood as a paradoxical period of both heightened risk for personality pathology and sensitivity to interventions that promote more adaptive developmental trajectories. In its most recent iterations, DBT is increasingly developmental in its explicit recognition that behavior, including self-destructive behaviors, follow from multifaceted pathways that reflect dynamic transactions between biological vulnerabilities and psychosocial risks over time, rather than discrete (and uniformly) pathological disorders (Crowell, Beauchaine, & Linehan, 2009). Through a variety of therapeutic techniques, and against the backdrop of a consistent and supportive therapeutic relationship, DBT attempts to improve individuals' core capacities for self-regulation and engender benign, flexible, and accurate expectations of self, other, and interpersonal relationships.

In early childhood, Parent-Child Interaction Therapy (PCIT; Eyberg, 1988, 2005) constitutes an empirically supported, developmentally informed intervention for children with disruptive behavior problems and their parents. PCIT recognizes that the parent-child relationship provides a powerful context for both understanding and changing behavioral patterns in young children (Egeland, Weinfield, Bosquet, & Cheng, 2000; Stern, 1985). Utilizing a variety of techniques, parent and therapist collaborate to understand the nature and effects of the parent's behavior

on the child, to discover and practice new ways of interacting with the child, and to acknowledge both the problematic aspects of the parent's behavior and her/his capacity to modify those behaviors to change the child's behavior and experience of the world. Again, the message of this developmentally informed intervention is both honest and hopeful. Together, the parent and therapist work to create specific improvements in the child's behavior, as well as a broader foundation of security and satisfaction in the parent-child relationship on which the child can organize a more adaptive and competent developmental trajectory. In recent years, PCIT has extended beyond the global domain of pediatric behavior problems to address more circumscribed issues, including separation anxiety disorder (Pincus, Eyberg, & Choate, 2005), positive development in previously maltreated foster children (Timmer, Urquiza, & Zebell, 2005), and children with both behavioral problems and chronic illness (Bagner, Fernandez, & Eyberg, 2004; Bagner et al., 2009). Use of PCIT has also expanded across cultures (McCabe & Yeh, 2009) and continents (Leung, Tsang, Heung, & Yiu, 2009) with promising results.

Throughout this discussion of developmental approaches to clinical intervention, relationships—as the key developmental construct accessed indirectly through the therapeutic relationship or directly through interactions between child and parent—have been the central focus. Consistent with this emphasis, researchers and clinicians have sought to focus intervention efforts on correcting or strengthening the developing attachment relationship itself (Berlin, Ziv, Amaya-Jackson, & Greenberg, 2005; Egeland & Bosquet, 2002). The Child-Parent Psychotherapy (CPP) model developed by Alicia Lieberman (1992) is based on a developmental model that focuses on the organizing and regulating functions of the attachment relationship to reestablish trust and safety at the level of basic physiological and interpersonal functioning (Sroufe & Waters, 1977; Sroufe, Carlson, Levy, & Egeland, 1999). CPP is a well-researched, broadly applied intervention that has been shown to be especially effective in the treatment of traumatized young children (Lieberman, 2005; Lieberman, van Horn, & Ghosh-Ippen, 2005), as well as among toddlers of mothers with major depressive disorder (Toth, Rogosch, Manly, & Cicchetti, 2006), and among maltreated infants (Cicchetti, Rogosch, & Toth, 2006).

Attachment theory has also been used effectively as the basis of a preventive intervention approach for at-risk mother-child dyads in the Steps Toward Effective, Enjoyable Parenting Program model (STEEP; Egeland & Erickson, 2004; Erickson, Korfmacher, & Egeland, 1992). Guided by early findings from the MPCLS, Byron Egeland and colleagues designed the STEEP program to include home visits and group sessions that help parents understand their child's developmental needs and teach effective, sensitive, predictable, and responsive parenting practices that promote a secure attachment relationship. Using a group therapy format, the Circle of Security (COS; Hoffman, Marvin, Cooper, & Powell, 2006; Powell, Cooper, Hoffman, & Marvin, 2009) intervention model emphasizes the explanation of attachment concepts in everyday language to render them accessible to caregivers so as to support dyadic transitions from insecure attachment relationships to secure attachment organizations. Together, results from these developmentally informed intervention programs underscore the key influence of supportive parent-child relationships on adaptive and maladaptive youth outcomes, and emphasize the role of the clinician in guiding families' efforts to build such relationships.

### **From Bench to Bedside and Back: Practice and Research in Translation and Reverse-Translation**

Thus far, we have focused our discussion on the implications of a developmental frame for practice, but there is much to be learned from efforts to translate applied experience to developmental theory and research. Some have suggested that *transactional* would be a more fitting term than *translational* for capturing the reciprocity between practice and research, and the reality that both are changed as a function of their interaction (Aber, November 2009). As illustrated by the prescient studies of the MPCLS, developmental science can and should inform clinical classification, diagnostic formulation, and intervention across multiple levels by clarifying goals, identifying theoretical variables that can precipitate (or maintain) developmental change, guiding the measurement of key variables, and providing a conceptual framework within which to interpret findings (Yates & Masten, 2004). Perhaps most importantly, a developmental perspective recognizes the descriptive, rather than proscriptive,

significance of disorder, thereby encouraging (and informing) efforts to modify patterns of change and continuity (Sroufe, 2007). In turn, interventions that aim to change the course of development provide a powerful arena in which to evaluate hypotheses about risk, protection, and development (Clingempeel & Henggeler, 2002; Howe, Reiss, & Yuh, 2002). Vygotsky (1978) observed that we must study the *process* of change for "it is only in movement that a body shows what it is" (p. 65). Practical applications of developmental principles offer the unique opportunity to observe experience-dependent plasticity in real time and across multiple levels (Cicchetti & Toth, 2009).

Coie and colleagues (1993) suggested that interventions "should be guided initially by developmental theory and yield results that reflexively inform and revise the original theory" (p. 1017). To this end, researchers have become increasingly sensitive to the importance of empirical work for practical innovations and applications (Cicchetti & Toth, 1992, 1999; Cicchetti & Hinshaw, 2002; Gunnar & Cicchetti, 2009; Toth, Manly, & Nilsen, 2008). However, the reverse-translation from practice to research remains variably misguided or altogether absent. All too often, researchers arrive at erroneous conclusions when they assume that the method of treatment (e.g., medication) provides causal information about the etiology of disorder without directly assessing the putative mechanism involved (e.g., biology; see Hinshaw, 2002, for a discussion of the treatment-etiology fallacy; see also Sroufe, 1997). At other times, researchers fail to capitalize on the potential for developmentally informed interventions to support or refine developmental theory in a recursive fashion.

Studies that demonstrate that changes in a hypothesized causal process (e.g., neuroendocrine function) occur as a result of intervention, and are associated with corresponding changes in the outcome of interest (e.g., improved child behavior), offer strong evidence in support of developmental theory (e.g., Dozier, Lindheim, & Ackerman, 2005; Fisher, Gunnar, Chamberlain, & Reid, 2000). To be sure, randomized controlled intervention trials, such as those of Fisher and colleagues (2000), constitute the gold standard for applied work to inform research (and subsequent practice). Yet, there is much to be said for basic application



and basic research as important building blocks in the path toward truly transactional studies of development and psychopathology. The explicit goal of translational research is to refine and extend our understanding of human development in ways that further our progress toward real, positive, enduring, and developmentally sensitive change in the lives of children, families, and communities, and efforts to this end may take many forms (see Gunnar & Cicchetti, 2009, for discussion).

### **Summarizing a Developmental View of Clinical Practice**

This is an exciting and dynamic time in the fields of developmental psychology, child and adolescent clinical psychology, and psychiatry. As we consider how a developmental perspective has enriched our understanding of psychopathology, we must not lose sight of the ultimate goal of these efforts—a truer, more meaningful understanding of disorder, risk, and resilience as it occurs in the lives of real people. A developmental perspective on diagnostic formulation and clinical intervention is not a part of the story; it is not a piece of the diagnosis, or a stage of the treatment, it is the clinical practice. For the clinician with firm roots in developmental theory, day-to-day clinical practice is steeped with these constructs in clear and instructive ways that yield probabilistic diagnostic statements and intervention plans that are informed by research and tailored to the individual. Of equal importance, however, a developmental perspective gives us a natural, meaningful vocabulary to talk about continuity and transformation, as well as risk and resilience, with clients and families in ways that are both honest and hopeful.

### **THROUGH THE LOOKING GLASS: A DEVELOPMENTAL VIEW INTO THE FUTURE**

Upon finding herself lost in Wonderland, Alice queried the Cheshire Cat, “Do you know which way I ought to go from here?” and the cat observed, “That depends a good deal on where you want to get to.” Yet, Rutter (1993) has aptly noted that “knowing what end you want to bring about and knowing *how* to achieve that objective are two very different things” (p. 630, emphasis in original). In this chapter, we assert that

researchers, practitioners, and clients alike want (and will benefit from) a comprehensive integration of development in research, classification, and practice. To that end, we have endeavored to identify tangible signposts to guide our journey.

Decades have passed since a developmental view of disorder first came into focus, yet it remains vibrant and full of promise today. The future of developmental psychopathology is bright with robust bridges across prior dualisms between typical and atypical development, pathology and competence, and research and practice. Yet there are concerns ahead as well. In this final section, we look to the future to highlight areas for growth and refinement, as well as to anticipate potential areas for caution and concern.

First, we recognize the inherent potential of a lifespan perspective on development (Baltes, Lindenberger, & Staudinger, 2006), while remaining cognizant that the field has not yet realized a lifespan perspective in research and practice. Ten years ago, Rutter and Sroufe (2000) addressed this issue when they lamented the dearth of literature on the transition to adulthood. Since then, we have witnessed significant progress in this domain through the work of the MPCLS, Arnett, and others on the significance of emerging adulthood (e.g., Arnett, 2004; Masten et al., 2004; Roisman, Masten, Coatsworth, & Tellegen, 2004; Schulenberg, Sameroff, & Cicchetti, 2004; Sroufe, 2005). Now, ten years later, we extend Rutter and Sroufe's (2000) concern to encourage greater empirical and applied attention beyond this transition, across the spectrum of adulthood and into old age. As we have seen in the classification and treatment approaches discussed earlier, there is much to be learned from the study of adults and adulthood. In the future, developmental theory must explore what growing up can tell us about growing old, and, of equal importance, what growing old can teach us about growing up. To say that the study of psychopathology should be developmentally informed is not tantamount to saying that all disorder is rooted in childhood (Rutter, 1980). The roots of disorder are in development, development is lifelong, and a developmental approach to psychopathology should be too.

Second, we agree that "there is no aspect, activity, function, or structure of the psyche that is not subject to development" (Spitz, Emde, &

Metcalf, 1970, p. 417). Although we have limited our discussion here to the domain of psychopathology, we encourage future efforts to expand our appreciation for, and application of, developmental principles beyond the domain of psychopathology. As we look to the future, we see the value of increased attention to when and how developmental principles may further our understanding of disorders that are not traditionally conceptualized as psychiatric in nature. Applying basic principles of motor development to the case of sudden infant death syndrome (SIDS), for example, Lipsitt (2005) suggests that SIDS may follow from a deviation in what would otherwise be a normative progression toward increasing complexity, toward "a learned, adaptive response that can prevent death from suffocation" (p. 217). He suggests that the paradoxical vulnerability of older infants to SIDS may be explained by a problematic transition from the obligatory reflexes of the newborn period, which includes a respiratory occlusion reflex to prevent suffocation, to the more deliberate, cortically mediated behavior of the older infant. Applying a developmental perspective to SIDS, Lipsitt argues that efforts to identify factors that enable most babies to make a seamless transition from the reflexes of infancy to the learned defensive behaviors of later development will be most profitable for efforts to understand, and ultimately prevent, SIDS. Advancing beyond the confines of psychopathology in a different way, the MPCLS has demonstrated the utility of a developmental perspective in studies of positive development in both typical (e.g., Obradović, van Dulmen, Yates, Carlson, & Egeland, 2006; Sroufe et al., 1990; Sroufe, Egeland, & Carlson, 1999; Waters & Sroufe, 1983) and atypical contexts (Egeland et al., 1993; Yates, Egeland, & Sroufe, 2003).

Third, the multicausal nature of development necessitates the incorporation of multilevel, interdisciplinary research and training. Beyond an appreciation for biological and social and emotional and cognitive facets of development as relevant—but independent—factors, a developmental framework encourages the study of biological with social with emotional with cognitive levels of development. A "relational view of causality" (Gottlieb & Halpern, 2002) acknowledges the explanatory synergy of multilevel analyses. "The minimum unit for developmental analysis must be the developmental system, comprised of both the

organism and the set of physical, biological, and social factors [and we would add historical factors] with which it interacts over the course of development" (Gottlieb, Wahlsten, & Lickliter, 1998, p. 260). Thus, students, clinicians, and researchers must possess (at least) a basic level of knowledge about development at each level of analysis, and research must continue to move toward interdisciplinary collaborations (Cacioppo, Bernston, Sheridan, & McLintock, 2000; Cicchetti & Dawson, 2002; Masten, 2007).

On a related note, efforts to capture the complexity of development bring with them unique opportunities and challenges. To be sure, explaining phenomena in terms of endogenous or even circumscribed factors is antithetical to a developmental analysis in which factors take their meaning only in relation to other variables given the absence of causal primacy. However, we must be careful to ensure that, in our recognition of multicausality and developmental complexity, we do not arrive at the antithesis of the medical tautology—a science with no beginning and no end. There is an inevitable tension between the desire (and need) for parsimonious models of development and the complex reality of the dynamic systems we seek to understand. Yet, in our effort to render developmental complexity comprehensible and, by extension, modifiable, we must take care not to render it meaningless. Following the logic of Occam's razor, we agree that the shortest distance between two points is a line, unless those points are moving, and unless those points are in dynamic transaction with one another. We echo Einstein in his assertion that "everything should be made as simple as possible, but not simpler" (as cited by Calaprice, 2000, p. 314).

Fourth, we must be cognizant that many developmental principles, including those reviewed here, are deceptively simplistic. However, there is a tendency to interpret longitudinal research designs as *de facto* studies of development. There remains a pressing need for methodological (and statistical) advances that account for dynamic transactions within and across domains, within and over time. The past 30 years have witnessed tremendous advances in our abilities to capture dynamic and transactional developmental processes over time (Granic & Hollenstein, 2003; Sameroff & Mackenzie, 2003), as can be seen in studies of cascading developmental influences across domains (Burt, Obradović, Long, &

Masten, 2008; Masten et al., 2005; Yates, Ohradović, & Egeland, 2010), of individual and clustered trajectories of intraindividual change (Nagin, 1999), and of dimensional representations of dyadic relationships (Hollenstein, 2007). These are impressive, albeit imperfect, approximations of developmental dynamics and complexity. Yet, as observed by Turkheimer and Waldron (2000), "the limitations of our existing social scientific methodologies ought not provoke us to wish that human behavior were simpler than we know it to be; instead they should provoke us to search for methodologies that are adequate to the task of understanding the exquisite complexity of human development" (p. 93).

Finally, we must continue to document and disseminate developmental applications in clinical science. Intellectual and conceptual silos still pepper the academic and applied landscapes. Cross-fertilization and interdisciplinary collaborations remain critical to our success in the future. Beyond speaking and writing about development and psychopathology, we must act to bring these principles to light in research, practice, and policy. To that end, we encourage ongoing appreciation for and reflection on the MPCLS as a model for action within and across these contexts.

The future of developmental science is bound to be both generative and challenging. As we reflect on the past 30 years in the field broadly, and specifically on the groundbreaking investigations of the MPCLS, we see tangible progress in clinical research, classification, and practice. Looking ahead to the future, we anticipate ongoing progress in each of these areas and hope that our efforts here contribute to further integration among them.

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