# The Role of Environments in Development: An Introduction

*Michael Lewis and Linda C. Mayes*

In this volume, we explicate the role of environment in children's development. On the surface, the volume's focus may seem accepted if not mundane. All scholars agree that children's environment, defined in multiple ways but basically as all those events, persons, and circumstances outside the physical body and biological endowment of the child, impacts children's developmental trajectories and outcome through a host of mechanisms. However, for the most part environment is thought of as the "other variable or variables" that either confound longitudinal predictions or contribute difficult-to-measure noise and/or variance in models focusing on individual child outcome. Indeed, the features of the environment and their various effects are poorly understood. Although we have focused on the taxonomy of organism behaviors, little attention has been paid to measures of the environment. Given the diverse features of environments and the important roles attributed to them, it is surprising that so little systematic work has gone into their study. For the most part, mothers and families have received the most attention as environmental factors. However, other people as well as other features of environments have not. This handbook is intended to make us more aware of the many ways to consider environments.

Because other people make up one important aspect of our environment, the work on the structure of the *social* environment is particularly relevant. From a developmental perspective, some work exists on this topic, and an attempt has been made to expand the numbers of potentially important people in the child's environment through the study of social networks (Lewis &Takahashi, 2005), as well as to create an analysis of the structure of the social environment itself. Although considerable effort has been focused on the importance of the mother to the child, other persons also play a significant role, even from birth, including fathers, siblings, grandparents, and peers. This social network also may extend to the relationships in schools and communities as well as the broader culture.

The role of environments in the developmental processes has been underplayed because most investigators seek to find

structure and change within the organism itself. Likewise in the study of psychopathology, even though we recognize that environments can cause disturbance and abnormal behavior, we prefer to treat the person – to increase his or her coping skills or alter specific behaviors – rather than change the environment. Our belief that the thrust of development resides in the organism rather than in the environment, in large part, raises many problems. For example, at cultural levels, we assume that violence (and its cure) must be met in the individual – a trait model – rather than in the structure of the environment. The murder rate using handguns in the United States is many times higher than in any other Western society. We seek responsibility in the nature of the individual (e.g., XYY males or the genetics of antisocial behavior), when the alternative of environmental structure is available. In this case, murders may be due more to the culture's nonrestriction of handguns. Thus, we conclude either that Americans are by their nature more violent than Europeans or that other Western societies do not allow handguns and therefore have lower murder rates. Other examples include models for understanding various health conditions such as heart disease, obesity, and addictions. The incidence of all three is on the rise in American culture, but more often than not, we look to genetic risks, weaknesses in self-control, or poor understanding in the individual as singular or primary explanatory variables rather than more complex interactions of individual, society, and culture.

While scholars understand the necessity of grappling with individual differences in children's environment, we intend this volume to explicate the variety of environments, how environments are also dynamic and often change as children develop, and how the science of assessing and understanding developmental environments is increasingly complex and sophisticated and introduces new methods for understanding how complex systems change over time. In this Introduction, we hope to accomplish three tasks that will be echoed in the structure of this volume. First, in order to understand the role of environment in the development of the child we need to articulate the various models used in understanding the child by environment interaction. Such models vary from trait views in which the child may impact the response of his or her caring environment to epigenetic models where environments interact at the genome level, producing differences in replication of the genetic code.

The second section will review the various dimensions of environments that have been articulated and that are considered in the chapters to follow. Bronfenbrenner's analysis of embeddedness speaks to the need for our analysis to consider, besides the child's mother, other members of the family, school/peers, the larger community, and the culture as well. The social domain contains various people, and our analysis should address such concepts as the social networks and the functions of this complex structure. By going past the mother and child relationship, we broaden our perspective of the social environment.

Following this we need to consider that events "out there" need to be considered from the perspective of the child. Thus, an event that may be stressful for one child may not be stressful for another. Similarly, events may be more meaningful for one child than for another. Moments of mentoring, caring acts, even moments of harsh, albeit caring advice have their impact in different ways on individuals depending on the child's cognitive and emotional state and needs at the time. Environments can be defined by the experimenter or by the parent or even by an observer; however, ultimately, environments must be seen from the point of view of the child as well. Children's construction and memories of reality, here taken to mean environments, may be quite different from the ways we might characterize them. While few of the chapters take this up in any detail, the need to consider environments from the child's constructionist position highlights how our analyses of important environmental events may be missing important information. This point underscores too the ever-present tension of an epistemology

of individual experience and perspective versus one of interrater agreement, shared themes, and group commonality.

Finally, the last section will consider the structure and frame of the chapters to follow. Our conceptualization and types of integration of the various analyses of environments will also touch on areas missing from the typical ways of considering environmental vectors and forces.

## Models of Development

Models of development represent worldviews about human nature and the environments that create an individual human life course. Models of abnormal development also reflect these views, and the data from normal and abnormal lives inform our theories of development. So, for example, the trait notion of personality and the invulnerable or "resilient" child both share the view that some fixed pattern of behavior once formed may be unaffected by environmental factors.

More than 30 years ago, Riegel (1978) developed a scheme for considering models that involve the child and the environment. All of these elements can be active or passive agents. The passive child–passive environment model is of relatively less interest because it arose from the views of John Locke and David Hume and now receives little attention. Such models as these originally had some use, for example, in our belief about short-term memory, where memories were stored in a small box that was sequentially filled; when a new memory was entered and there was no more room, the first (or oldest) memory dropped out.

The second model of development, passive child with an active environment, is an environmental control view, because here the environment actively controls, by reward and punishment, the child's behavior. The characteristics of this environment may differ, as may the nature of the different reinforcers, but the child's behavior is in response to and is determined by its environment. We are most familiar with this model in operant conditioning (Skinner, 1953). It is a model used in diverse areas, such as behavior modification treatment to alter maladaptive behavior, as well as in theories that explain normal sex role learning by parental or peer reinforcement. It is also implicit in many parent education or parent guidance programs focused on empowering parents with the skills and approaches that will shape their child's behavior into socially accepted norms.

In the third model, we are confronted with the view of an active person and a passive environment. These models have in common an active child extracting and constructing its world from the material of the environment. Piaget's theory fits well within this framework (Piaget, 1952). It is easy to see that although the child needs the environment to construct knowledge, the environment itself play little role. In psychopathology and therapy, we often employ such a model when we attempt to help patients alter their behavior (active person) but discount the role of the environment except for the therapist. Such models are also at play in training programs that teach children mastery skills so that they can "meet all challenges" that come their way. In this perspective, the control and active stance rest within the child.

The last model is most familiar to contemporary developmentalists because of its interactive nature. An active person and an active environment are postulated as creating, modifying, and changing behavior. These interactive models take many forms, varying from the interactional approach to transactional models to newer epigenetic models. They also include Chess and Thomas (1984) and Lerner's (1984) goodness-of-fit models, and from a developmental psychopathology point of view, the notion of vulnerability and risk status (Garmezy, Masten, & Tellegen, 1984).

Even though Riegel's (1978) approach is useful, other systems of classification are available. We offer three additional models of development: a *trait model*, an *environmental model*, and an *interactional model*. Although each of these models has variations, the

interactional model is the most variable. These three models, which are prototypes of the various views of development, make clear how such models diverge in the role of environments and how they can be used to understand development. Unfortunately, by describing sharp distinctions, we may draw too tight an image and, as such, may make them appear as caricatures. Nevertheless, it is important to consider them in this fashion in order to reach our goal of more clearly explicating the complex role of environments in children's development.

### *Trait or Status Model*

The trait or status model is often called the *medical model*, that is, predicting a later outcome based on earlier features. It is characterized by its simplicity and holds to the view that a trait, or the status of the child at one point in time, is likely to predict a trait or status at a later point in time. A trait model is not a traditionally interactive one and does not provide for the effects of the environment or usually for the effects of the trait on the response of the environment. In fact, in the most extreme form, the environment is thought to play no role either in affecting its display or in transforming its characteristic. A particular trait may interact with the environment, but in this model, the trait is not changed by that interaction.

Traits can be processes, coping skills, attributes, or tendencies to respond in certain ways and are not usually seen as readily open to transformation. Traits can be "innate" features, such as temperament or particular genetic codes, and can also be habitual patterns of behavior acquired though learning or through more interactive processes. However, once a trait, however defined, is acquired, it may be relatively impervious to subsequent interactions with a host of environmental factors. The trait model is most useful in many instances; for example, when considering potential genetic or biological causes of subsequent psychopathology. A child who is born with a certain gene or set of genes is likely to display illness or psychopathology at some later time. This model characterizes some of the research in the genetics of mental illness. Here the environment, or its interaction with genes, plays little role in the potential outcome. Although a trait model is appealing in its simplicity, there are any number of problems with it; for example, not all people who possess a trait or have a particular status at one point in time are likely to show subsequent psychopathology. The examples of this point are myriad and include the relationship between early abuse and later depression (Cicchetti, Rogosch, Gunnar, & Toth, 2010), the long-term relationship of various "risk" polymorphisms such as the serotonin transporter gene to later outcome (Kaufman et al., 2006), the relationship between impulsivity as a trait in childhood and later addictive disorders (Chambers, Taylor, & Potenza, 2003), and the relationship of the *ApoE* gene and the onset of Alzheimer's disease later in life (Borroni, Costanzi, & Padovani, 2010).

In some trait models, attachment, for example, there is initially an interaction with the environment that produces the trait. However, once that trait is established through the interaction with the environment, the environment is unlikely to play a further role. This trait model has much in common with what we have seen in most of the attachment literature, where the early environment, the mother and child interaction, leads to a certain type of attachment, and it is this type of attachment that predicts subsequent behavior. However, we have now learned that traits can be affected by later environmental interaction (Lewis, 1997). The same trait model is apparent in the concept of invulnerability; that is, there are attributes of children that appear to protect them from environment stressors. This invulnerability trait serves to make the child stress-resistant. Such a mechanism is used to explain why not all at-risk children develop psychopathology (Garmezy et al., 1984).

Trait models in personality theory are not new (Allport & Allport, 1921) and the problems identified in personality research apply here as well. The major problem related to trait models is the recognition that individual traits are likely to be situation specific

(Mischel, 1965). As such they can only partially characterize the organism. Problematic with the trait notion is the fact that such models do not consider the impact of environment on subsequent developmental growth or dysfunction.

### *The Environmental Model*

The prototypic environmental model holds that it is the exogenous factors that influence development. In the simplest model, behavior, normal or maladaptive, is primarily a function of the environmental forces acting on the organism at any point in time. In such a model, for example, a child does behavior X but not behavior Y, because behavior X is positively rewarded by his parents and Y is punished. Notice that, in this model, the environmental forces act continuously on the organism, and the behavior emitted is a direct function of this action. Although this model may apply for some behavior, it is more likely the case that environmental forces act on the child, directly at that point in time and indirectly at later points in time. Our hypothetical child may do behavior X, not because it has immediate reward value, but because the child remembers that X is a rewarded behavior. Clearly, much of our behavior is controlled by this indirect effect of environmental pressure. Many other forms of indirect reward and punishment have been observed. For example, consider the situation in which a child is present when the mother scolds the older sibling for writing on the walls of the house. The younger child, although not directly punished, does learn that writing on the walls is not an action to be performed.

A general environmental model suggests that children's behavior is a function of the environment in which the behavior occurs. As long as the environment appears consistent, the child's behavior will be consistent; if the environment changes, so too will the child's behavior. If a more active organism model is used, it is still the case that maladaptive environments produce abnormal behavior; however, the abnormal behavior is produced by the child's perception and construction of its reality. From a developmental psychopathology point of view, maladaptive behavior is caused by maladaptive environments; if we change those environments, we alter the behavior. Consistency and change in the child's behavior are supported by exogenous rather than endogenous factors. Such a model of change as a function of the environment can be readily tested but rarely is. This failure reflects the bias of the trait model. Consider the case of attachment. Although it is recognized that the environment at Time 1 affects the child at Time 1, it is the attachment type that is hypothesized to determine the child's later development. Rarely is the environment, and the consistency of the environment, factored into the model as a possible cause of subsequent child behavior: Consider that it is poor parenting that produces an insecure child at Time 1, and this parenting remains poor at Time 2. Moreover, a nonresponsive mother at Time 1 also may not be responsive at Time 2 so that her child's behavior at Time 2 may also be a function of the consistency of her behavior at Time 2 as much as of the child's attachment type at Time 1. That most research in this area fails in this regard constitutes evidence for the relative lack of interest in the environmental mode. (See Lewis, 1997, for a full description of this problem.)

Although the environmental model can be more complex, this model suggests in all cases that the child's concurrent status is determined by the environment. If the environment changes, then the child's status will change. The degree to which the environment remains consistent is the degree to which the psychopathology or adaptive development will be consistently found within the subject. Therefore, the environmental model is characterized by the view that holds that the constraints, changes, and consistencies in children's development and/or risk for psychopathology rest not so much within intrinsic structures located in the child as in the nature, structure, and environment of the child.

The environmental model also raises the issue of the nature and degree of prior

experience: that is, the notion of the critical period. Certain environmental influences may have a greater effect at some points in time than at others. For example, a responsive environment in the first year and a less responsive environment in the second year should lead to better consequences than a nonresponsive environment in the first year. Although critical period suggests some organism characteristic, the effects of the environment as a function of past experience remain relevant here. In its simplest form, it is important to know whether a series of positive environmental events that are followed by a negative event affect the negative event, so the number or the timing of the positive events is important to consider. In similar fashion, the same question applies for a series of negative events. This suggests that the embeddedness of environmental events is important as is the event itself.

### *The Interactional Model*

Interactional models vary; some researchers prefer to call them "interactional" and others "transactional" (Lewis, 1972; Sameroff & Chandler, 1975). As we shall see, all these models have in common the role of both child and environment in determining the course of development. In these models, the nature of the environment and the characteristics or traits of the child are needed to explain concurrent as well as subsequent behavior and adjustment. The stability and change in the child need to be viewed as a function of both factors, and, as such, the task of any interactive model is to study both features. In our earlier attachment example, the infant who is securely attached, as a function of the responsive environment in the first year, will show competence at a later age as a function of the earlier events as well as the nature of the environment at that later age.

One of the central issues of the developmental theories that are interactive in nature is the question of transformation. Two models of concurrent behavior as a function of traits and environments can be drawn. In the first, both trait and environment interact and produce a new set of behaviors. However, neither the trait nor the environment is altered by the interaction. From a developmental perspective, this is an additive model because new behaviors are derived from old behaviors/traits and their interaction with the environment, but these new behaviors are added to the repertoire of the set of old behaviors (Lewis, 1997). For example, an impulsive, anxious adolescent encountering substance using peers may experience relief from anxiety with drug use. A new repertoire of behaviors, an addicted process, develops, though the traits of impulsivity and anxiety remain and the adolescent's peers remain substance using. Or consider the case of the temperamentally active child. If such a child is raised in a household where activity and noise are valued – where there is a match between the active child and the environment – no maladaptive behavior results. However, if this same child is raised in a household where quiet behavior and inhibition are valued, we would expect to see more adjustment problems. Similarly, for the quiet lethargic child, again depending on the match between the behavior and environment, different degrees of maladjustment can occur.

In terms of transformation, such a model is relatively silent. Even so, it would seem reasonable to imagine that new behaviors arise as a result of either match or mismatch, but these new behaviors do not require the old behaviors to be transformed. The active child may learn to move more slowly, but the trait of activity is not lost or transformed. The environment, too, may change, because less is required of the child, but the values or goals underlying the requirement remain and are not changed.

In the second model, both trait and environment interact, producing both a new set of and a transformation of both old traits and environment. From a developmental perspective, this is a transformational model because the interaction of old behaviors and environment gives rise to new behaviors, and the old behaviors and environment are themselves altered by the interaction.

The goodness-of-fit model was proposed by Thomas and Chess (1977) with regard to individual differences in children's temperament. The major feature of this model is that discord arises when the child's characteristics do not match the environmental demand, or, stated in another way, the environmental demand does not match the child's characteristic. Notice that maladjustment is the consequence of the *mismatch*. It is not located in the nature of the child's characteristic nor in the environmental demand. The goodness-of-fit model suggests that psychopathology is the consequence of the mismatch between trait and environment, and, as such, it is an interactive model. In this instance, the poor fit results in both a new repertoire of behaviors in response to the mismatch and an intensification in those aspects of both the child's temperament and the environment that are poorly matched.

These types of models, which require that all features that make up interaction are transformed by their interaction, are called *transactional* (Sameroff, 1975). For example, if we believe that the child's characteristics at Time 1 interact with the environment at Time 1 to produce a transformed child characteristic and environment at Time 2, then it is likely that both the child and environment at Time 1 also were transformed from some earlier Time, Time n – 1, and that therefore each feature is never independent of the other. Such models reject the idea that child or environment characteristics are ever independent or exist as "pure" forms; there is an ultimate regression of effects. Moreover, from a future perspective of development, these features interact and transform themselves at each point in development. The linear functions that characterize the other models are inadequate for the transformation view. The parent's behavior affects the child's behavior; however, the parent's behavior was affected by the child's earlier behavior and will be subsequently changed by changes in the child's behavior.

Consider the irritable child who interacts with a positive environment and produces a negative environment that subsequently produces a negative irritable child. The causal chain does not simply pass in a continuous fashion either through the environment or though the irritable child as the trait or environmental model would have it. In fact, it is a circular pattern of child causes affecting the environment and environmental causes affecting the child. Such models have intrinsic appeal but by their nature are difficult to test. Nonlinearity requires a mathematics that is still being developed. Moreover, it is difficult not to treat a child or environmental characteristic as a "pure" quantity even though we might know better. As such, we tend to test interactive models that require less transformation. Clearly the new work in epigenetics also renders the trait and environment model relatively obsolete. The interaction of environments can have a direct effect on gene expression, which can subsequently affect behavior and the child's interaction with its environment. These new models need to articulate which aspects of environments can affect gene expression and how this happens.

## Types of Environments

As we have discussed, when environment has been assessed and considered as a variable or condition that not only changes with the child but also impacts the child's developmental trajectory, it is most often defined as the most proximal environment, that of maternal (and less often, paternal) care, especially in the first months and years of life. In this volume, we expand the definition of environment along the dimension of proximal versus distal experience (that is, day-to-day caregiving compared to the standards of caregiving in a community or culture or the less regular caregiving of an occasional caregiver such as a grandparent or aunt) and along the idea of a broader social network of experiences offered to children across development. With more and more children entering child care programs at earlier ages (Halle et al., 2009), children's early social-caregiving experiences are far more diverse in terms of practices and in terms of persons. Indeed, while multiple caregiving is difficult

to manage empirically, most children seen in studies of early social development are not cared for just by their mothers or their parents – and to assume that an interaction session between a parent and child captures the child's average day-to-day experience is likely erroneous. Their interactions with their parents are only a portion of their day-to-day social caregiving experiences.

Similarly, all too often overlooked is that many children are looked after for significant periods by their older siblings. It is not just that sibling relationships are an important component of a child's social environment but that those siblings often care for their younger brothers and sisters while the adults in the family are working a second job or a late shift. Indeed, among poorer families, children are more often cared for by other children (e.g., siblings) as well as neighbors and other family members (e.g., aunts, uncles, stepparents, grandparents, and great-grandparents). In this way, socioeconomic status or economic status impacts a child's caring environment as well as the amount of stimulation and resources available to the child. Poverty is also likely a surrogate variable for the amount of chronic stress experienced by parents and hence by their children. Thus, poverty is both an index of the social-caring environment as well as an indirect measure of family stress and family emotional health. Similarly, there is the difference between rural and urban environments that offer differences in community cohesion and networks, community resources, and cultural mores. For example, rural poverty may be experienced by children quite differently from urban poverty even at the same ratio of income to need in part because in smaller communities there may be less apparent disparity between the economically advantaged and disadvantaged.

Extending beyond the family or the caregiving network especially for younger children is the environment of education and schools. At younger and younger ages, children are spending significant amounts of time outside the home whether in child care, school, or after-school programs. Schools – and their teachers, coaches, administrators – are significant members of a child's social and caring environment, and often mentoring relationships formed through schools have significant and memorable impacts long into adulthood. Characterizing those relationships at the individual, classroom, and programmatic levels is critical to better understanding these significant environmental contexts in children's lives. And schools are embedded in communities and neighborhoods – sometimes they are the hub of their community; sometimes they are only one of a number of threads that hold a neighborhood, town, or community together. But children are a part of their neighborhoods and their communities, and those environments become a part of their identity. When adults say, "I grew up in South Boston" or "I'm from a farm in Iowa," they are implicitly saying these are the communities that will tell any listener more about them and about their experiences. These communities have their cultures, their beliefs, their pride and shame that are passed along to children and influence again the broader social-environmental network and the caring environment.

But in the twenty-first century, these neighborhoods and communities are also virtual, and increasingly the media in the form of television, film, the Internet, social networking sites, gaming communities, and so on, form another influential environment for children. Simultaneously opening up the broader world to children and at the same time often diminishing direct peer to peer time, the influence of these different forms of media is just beginning to be studied (and harnessed). Even at the basic level of understanding how much familiarity children do or do not have with computers, assessments of children's developing cognitive and social skills are influenced by experience with the media environment. It may also be that the media environment defines another disparity line much like economic advantage or disadvantage and hence becomes a significant environmental variable even in its relative absence in some children's lives.

Finally, though not exhaustively, we need to consider explicitly those examples

of environments that are problematic and disruptive, from the effects of community violence and natural disasters to the impact of parental psychopathology on children's proximal caring environments. While the literature on parental depression is extensive, there is far less literature on parental psychopathology in general and on how children understand their parents' mental illness at different developmental ages. Parental psychopathology, like every other "environment" we discuss, is not a fixed construct – it ebbs and flows, improves and worsens, and often those fluctuations are tied to children's differing developmental needs. Similar is the impact of neglect and trauma in childhood. While neglect and trauma are topics for which there is an extensive literature in terms of long-term sequelae, what is less well incorporated into developmental models is an understanding of neglect and trauma in terms of an environmental failure that is experienced over and over in terms of memories, repeated foster care placements, continued or resumed contact with biological parents. And especially for examples of environmental failure, it is as much the child's experience and construction of these circumstances as the veridical events that carry the impact, an observation leading us to the next section.

## "Material" or Constructed Environments

Here we call attention to an issue that is not explicitly considered in every chapter in this volume but is nonetheless a significant consideration as we investigate the dynamic, changing qualities of different environments. As outlined in the previous section, in this volume, we present various perspectives on environments. The idea that we respond to literal environmental events, persons, or circumstances is at the core of the interaction model and is the core justification for this handbook. Yet there is also the idea that our constructive perceptions, thoughts, and memories of events are what really constitute our psychic reality, and it is that constructed environmental reality, not the veridical environment, to which we are responding. Often hard to reconcile with general theories of development is the possibility that our constructed memories of our past may be little related to what "really happened" or to veridical accounts and moreover that our constructed past may have a more powerful effect on us in the present than what really happened in the past. Thus while, for example, Bowlby (1969) suggested that the young child constructs a model of its relationship to its mother, that model is based as much, if not more, on the child's constructed experience of interactions with the mother or on the child's expectations of those interactions as it is on what really happened.

This issue has been around in various theories of psychological development for a long time but is perhaps best captured in the psychoanalytic perspective on experience: That is, what matters in that perspective is the individual's construction of past and present experiences, not what really happened, for it is those constructions that influence current and future behavior and ways of seeing and experiencing the world. Freud's treatment of this issue, is what he called deferred action, in German *nachtraglichkeit*. Although Freud was a determinist who believed in a temporal direction where what happened in the past determines the future, he also had the view that reinvestment with meaning could occur later after the original event. In a word, Freud (1896) wrote to Fliess, "I am working on the assumption that our psychical mechanism has come into being by a process of stratification; the material present in the form of memory – traces being subjected from time to time to a re-arrangement in accordance with fresh circumstances." It was also an idea of Jung when he talked about retrospective phantasies, *Zuruckphantasieren*. Thus, we need to consider that humans even from early childhood can perceive the same event differentially and can reconstruct memories not in keeping to what "really happened." The examples of this are well considered in psychology, from projective tests like the thematic apperception test (TAT) or Rorschach

test, to the memory research of Rovee-Collier with infants. Recall that, in her research she has amply shown that associations can be made through connecting events that give rise to action patterns learned with one event becoming associated to another event (Giles & Rovee-Collier, 2011).

Since the mother is an important environment factor in the development of the child we can ask whether the model or memory of the mother is a real event or construction. Perhaps most relevant to our focus on development is a study done by Marian Radke Yarrow, John D. Campbell, and Roger V. Burton (1970) of both mothers' and their children's recollections of their relationship in the past. In this study they gathered what they called the "baseline data," which were derived when the children were young. Through observations, tests, ratings, and reports gathered years before, information on their earlier mother-child relationships was evaluated and the participants in that research recontacted and reinterviewed. Yarrow and her colleagues found that there was little overall relation between children's recollection of their relationships with their mothers and their actual relationships with them. Mothers' recall of the earlier relationships was no better. As Yarrow and her colleagues (1970) stated, "Mothers who have had pleasant and rewarding experiences in rearing their children, mothers who feel hostile to their children, and mothers who have had especially stressful life situations may not be equally able to report on their own rearing behavior or on the behavior of their children." Even more important to this discussion, however, was that Yarrow and her colleagues found that mothers' and children's recall of their earlier relationships depended on their current relationships. The degree of warmth or coolness in the *current* relationship shifted the *recollection* of the past in the direction of the current status. "For groups in which the [current] relationships were rated as 'cold', shifts in recall tended to be in an unfavorable direction, and for groups in which the relationships were rated as 'warm', shifts in recall tended to increase the felicity of earlier times."

Mothers' recollections of the preschool personalities of their children were structured so as to conform to their perceptions of their children's present personalities. For example, if the children were not seen as shy, mothers tended to recall them as having been less shy in early childhood relative to the actual data collected. If, on the other hand, the children were described as outgoing in the present, they were rated as having been more outgoing when they were younger than the data suggested. This occurred not only for the dimensions of children's response to authority and of their independence. The shift in ratings was also true for the children themselves. If they rated themselves shy now, they also rated themselves as having been shy when they were younger.

Another example is from the work of one of our laboratories. Lewis et al. (2000), in a study of attachment over time, examined data from a longitudinal study of one hundred children followed from infancy to eighteen years of age. We wished to determine whether the young adults' perception of their own degree of attachment at 18 bore any resemblance to observations made of their early childhood attachment and whether the current environment affected their current perception of their past. We had collected attachment data taken during infancy, data about their current lives, and, because we were interested in the models of attachment, the standard adult attachment interview assessing their current model of attachment to their parents. In other words, we wanted to determine whether the teenagers' models of their own attachment bore a resemblance to what their attachment had been when they were infants or whether their current environment affected their current working model of attachment relationships. In addition, we wanted to determine whether what occurred in their early childhood affected their current environment. To get some picture of the nature of the participants' current lives, we asked them and their teachers to fill out a commonly used scale that measures teenagers' emotional adjustment.

The findings were quite clear. First, young adults' current attachment bore no relation