

Communication Patterns, Internal Working Models, and the Intergenerational Transmission of Attachment Relationships

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ABSTRACT: Bowlby postulated that transactional patterns between caregiver and infant become internalized by the infant as "internal working models" of self and other in relationship and that these working models then determine how the infant interprets the caregiver's behavior and responds to it. When parent and infant or child are not reciprocally responsive to signals, defensive processes may interfere with the adequate development and functioning of working models in the child. Not only does this affect the observed relationship, it also influences the way in which an individual (adult or child) discusses attachment relationships with a third person. Corroboration for this view comes from work with adults (the Adult Attachment Interview, the Parent Attachment Interview) and children (the Separation Anxiety Test, the Attachment Story Completion Procedure). If, as research suggests, insecure parents' working models of attachment relations are distorted by defensive processes, the resulting insensitive behaviors toward the child may interfere with the child's construction of adequate working models, thus providing a potential explanation for the intergenerational transmission of insecure attachment relations in those cases where the parent has not been able to work through a rejecting or neglecting attachment relationship experienced in childhood.

RÉSUMÉ: Bowlby postulait que les modes transactionnels entre le mode de soin et le nourrisson sont intériorisés par le nourrisson comme "modèles de travail interne" du self et autre dans la relation, et que ces modèles de travail déterminent ensuite la manière dont le nourrisson interprète le comportement du mode de soin et y répond. Lorsque le parent et le nourrisson ou l'enfant ne réagissent pas réciproquement aux signaux, des processus défensifs peuvent s'interposer avec le développement et le fonctionnement adéquat des modèles de travail chez l'enfant. Non seulement cela affecte-t-il la relation observée, mais cela influence également la manière dont laquelle un individu (adulte ou enfant) discute des relations d'attachement avec une tierce personne. Cette opinion est confirmée par le travail avec des adultes (l'Entretien d'Attachement Adulte et l'Entretien d'Attachement Parental) et des enfants (le Test d'Appréhension de la Séparation, la Procédure d'Achèvement d'une Histoire d'Attachement). Si, comme les recherches le suggèrent, les modèles de travail des relations d'attachement des parents peu sûrs d'eux-mêmes sont déformés par des processus défensifs, les comportements insensibles qui en résultent à l'égard de l'enfant peuvent entraver la construction de modèles de travail adéquats chez l'enfant. Ce processus offre une explication possible à

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la transmission intergénérationnelle de relations d'attachement peu solides dans les cas précis où le parent n'a pas pu résoudre une relation d'attachement de rejet ou de négligence expérimentée dans son enfance.

RESUMEN: Bowlby postula que los modelos transaccionales entre la persona que da cuidado y el infante son internalizados por el infante como "modelos de trabajo internos" de sí mismo y del otro en la relación afectiva, y que esos modelos de trabajo determinan entonces la forma como el infante interpreta la conducta de quien le cuida y responde a ella. Cuando el padre o la madre y el infante o niño no responden recíprocamente a las señales, un proceso defensivo pudiera interferir con el adecuado desarrollo y funcionamiento de los modelos de trabajo en el niño. Esto no sólo afecta la relación afectiva observada, sino que también influye en la manera como un individuo (adulto o niño) discute con una tercera persona sus relaciones de unión afectiva. La corroboración para este punto de vista viene de trabajo con adultos (la Entrevista de unión afectiva para adultos, la Entrevista de unión afectiva paterno-maternal) y con niños (la Prueba de ansiedad por la separación, el Procedimiento para la realización de la historia de la unión afectiva). Si, como sugiere la investigación, los modelos de trabajo paterno-maternales de unión afectiva inseguros son distorsionados por procesos defensivos, la resultante conducta insensitiva hacia el niño pudiera interferir con la construcción de adecuados modelos de trabajo que el niño lleva a cabo. Este proceso provee una explicación potencial para la transmisión intergeneracional de relaciones de unión afectiva inseguras en aquellos casos en los que el padre o la madre no ha estado en condición de sobrepasar una propia experiencia de la niñez en la que la relación afectiva fue rechazada o negada.

抄録: Bowlbyによれば、養育者と乳幼児との間の交流パターンは、その関係における自己および他者の“内的作業モデル”として乳幼児によって内在化され、その作業モデルが、養育者の行動を乳幼児がどう解釈し、それにどう反応するかを規定するという。両親と乳幼児、ないしは児童が、互いに合図に答える形で反応しないと、児童の中の作業モデルの適切な発達と機能は、防衛的なプロセスによって妨害される。これは、観察される関係に影響するばかりでなく、第三者との愛着関係を個人（大人か児童）がどう語るかにも影響する。この展望を書く素材としては、大人に関する研究（the Adult Attachment Interview, the Parent Attachment Interview）と、児童に関する研究（the Separation Anxiety Test, the Attachment Story Completion Test）を使った。安心感に欠ける insecure 親の愛着関係作業モデルが、研究所見通り、防衛的なプロセスによって歪曲されるならば、その結果生じる、児童に対する無神経な行動が、児童による適切な作業モデルの構築を妨害する。このプロセスによって、小児期に体験した拒絶的あるいは放置的 neglecting 愛着関係をワーク・スルーできていない親でみられる、安心感に欠ける愛着関係の世代間伝達を説明できる。

Bowlby first outlined attachment theory in three seminal papers (1958, 1959, 1960), drawing on insights from ethology and psychoanalysis. For a comparatively lengthy period thereafter, the ethological-evolutionary aspects of the theory received most attention, perhaps because they seemed most striking and novel. Bowlby had postulated that human infants, like many other mammals, were endowed with an attachment behavioral system. The function of that hypothesized behavioral and motivational system was to enhance a young and inexperienced offspring's chances of survival by motivating him or her to remain within proximity of an older, more experienced and protective parent.

That attachment theory also had strong psychoanalytic underpinnings was overlooked until the early 1980s. Since then, however, Bowlby's strong conceptual links to the British Object Relations School (specifically Fairbairn and Winnicott) and to Sullivan's theory of interpersonal psychiatry have become increasingly apparent (Bretherton, 1987, in press). Attachment theory differs from other psychoanalytic theories of interpersonal relatedness by placing greater emphasis on mental health (as opposed to pathology), on the relevance of actual (as opposed to imagined) experiences with caregivers, and on findings from academic psychology. Notwithstanding these differences, there are many similarities.

THE CONCEPT OF INTERNAL WORKING MODELS

Like Fairbairn (1952), Winnicott (1965), and Sullivan (1953), Bowlby (1973) advanced the view that early patterns of relating to primary caregivers become internalized and then govern relationship patterns with others. More specifically, Bowlby (1969, 1973, 1980) proposed that interaction patterns with parents are the matrix from which human infants come to construct "internal working models" of self and other in attachment relationships. The function of these models is to interpret and anticipate a partner's behavior as well as to plan or guide one's own behavior in the relationship. The term "internal working model" originated with Craik (1943), a British psychologist who wrote about the advantages that an internal working model of the environment confers on individuals by permitting the simulation of alternative courses of action internally before they are put into action externally. Bowlby was attracted to the term because it suggested dynamic representational structures from which an individual could generate predictions and extrapolate to hypothetical situations.

One may ask why Bowlby (1969) chose to introduce the new term "working models" instead of retaining more traditional labels such as "cognitive map" or "representations." The disadvantage of the older terms, he points out, is that they have static connotations whereas the concept of internal working model suggests dynamic mental structures on which an individual can operate in order to conduct small-scale experiments or simulations in the head. Moreover, what Craik describes as the internal working model is an elaborated and more modern version of what psychoanalysts call the internal world. Freud (cited in Hartmann, 1958) regarded the internal world as a copy of the external world, made up from a store of memories of earlier perceptions. He described thinking as *experimental action* using small quantities of energy. Along the same lines, Hartmann (1958, p. 59) contended that "in higher organisms, *trial activity* is increasingly displaced into the interior of the organism, and no longer appears in the form of motor action directed toward the external world." Concordant with this view of representation, psychoanalytic object relations theorists conceptualize representations of self and other as internalized chunks of experienced relationship patterns. For example, Sullivan (1953) speaks of "personifications of mother and me" and of "me-you patterns," Fairbairn (1952) proposed the notion of internal (love) objects and associated portions of the ego, Sandler and Sandler (1978) mention "interactions between self and object representations" that make unconscious dialogues with love objects possible, and Kernberg (1976) talks of self-object-affect units (positively or negatively toned interaction schemas) that become the basis of self and object representations. Given this long psychoanalytic tradition of conceptualizing representation as active mental simulation, it comes as no surprise that Bowlby, a psychoanalyst himself, was drawn to the idea of representation as the internal working model.

THE DEVELOPMENT AND FUNCTION OF INTERNAL WORKING MODELS

The hypothesis that internal working models of self and caregiver develop out of dyadic transactional patterns (i.e., patterns of communication) naturally suggests that they should be complementary. Put simply, if an individual has experienced a reject-

ing relationship with a primary caregiver, the working model of the rejecting parent is likely to be complemented by a working model of self as unlovable. On the other hand, if an individual has experienced a supportive parent-child relationship, the working model of the loving parent is likely to be complemented by a working model of self as worthy of support and love. Bowlby further suggests that rejecting parents have most probably experienced adverse relations with their own parents in childhood so that patterns of parenting tend to be transmitted across generations (1973).

Bowlby proposed that the translation of interpersonal transaction patterns into working models begins during the last quarter of the first year of life, as infants grasp the idea of the permanence of objects (Piaget, 1954). Somewhat later, the onset of verbal communication both further facilitates and further complicates the development of working models because language can come to interfere with their adequate construction or elaboration. For example, rejection and other traumatic interactions and events experienced during the sensorimotor period or later may be untruthfully reinterpreted for the child by parents, or they may even be banned from discussion altogether (Cain & Fast, 1972). In order to cope with the anguish of the resulting mental contradictions, the child may defensively exclude his or her own interpretation of the experience from awareness, thus giving rise to two incompatible working models of self and caregiver in relationship. One of these models (the one verbally transmitted by parents) is easily accessible to consciousness, whereas the other (based on the original experience) is repressed but nevertheless continues to influence behavior. Because the function of internal working models is to guide the interpretation and planning of interactive behaviors, such a split in working models is not a very desirable state of affairs.

Let me now turn to what I see as Mary Ainsworth's contribution to the concept of working models. Her theoretical and empirical work (for a review see Ainsworth, 1982) focused on the impact of maternal sensitivity or insensitivity on the quality of the developing infant-mother relationship. Ainsworth, Bell, and Stayton (1974) characterized mothers as sensitive if they noticed their infants' signals, interpreted them accurately (by taking the infants' perspective), and then responded reasonably promptly and appropriately. The criteria by which to judge the accuracy of parental interpretations and the appropriateness of parental responding were not precisely specified, but can be derived from some of the basic assumptions underlying attachment theory (Bowlby, 1969). According to attachment theory, infants are preadapted to expect a caregiver who understands their attachment behaviors as bids for comfort, soothing, and protection, but who also permits and supports autonomous action and exploration.

Specifically, Ainsworth discovered that mothers who responded sensitively to their infants' signals during the early months had infants who, during the last quarter of the first year, cried less but had a larger communication repertoire, were more obedient, and enjoyed close bodily contact more, although they demanded it less often. Moreover, 1-year-olds with sensitive mothering behaved differently from insensitively mothered infants in a laboratory situation known as the Strange Situation. It is because infants' behavior during this procedure was correlated with mother-infant communication patterns at home that it later became a short-cut method for assessing the quality of infant-mother attachment. Sensitively mothered infants (as assessed during feeding,

crying, holding, and face-to-face play) tended in the reunion episodes of the Strange Situation to approach their mother readily, to seek interaction or contact with her, to derive comfort from this interaction or contact, and then to return to exploration of the toys. These infants were labeled as secure (Group B). Insensitively mothered infants either avoided the mother upon her return (snubbed her by turning or walking away, or by refusing to interact) or responded ambivalently (expressed a desire for proximity and contact, combined with angry, resistant behavior). Mothers whose babies avoided them on reunion in the Strange Situation (Group A) tended to provide less affectionate holding during the first 3 months of life and frequently rejected bids for close bodily contact during the last quarter of the first year. These mothers also mentioned their dislike of close contact with their babies in conversations with the observer. Mothers of ambivalent babies (Group C), by contrast, were inconsistently sensitive at home and frequently ignored their babies' signals. They did not, however, reject close bodily contact (Ainsworth & Bell, 1969; Ainsworth et al., 1974; Ainsworth, Bell, Blehar, & Main, 1971; Bell & Ainsworth, 1971; Blehar, Lieberman, & Ainsworth, 1977). More recently, Main and Hesse (in press) have identified a fourth group of infants termed insecure-disorganized (Group D) who are difficult to classify into one of the three Strange Situation categories defined by Ainsworth, Blehar, Waters, and Wall (1978).

Note that insensitivity as defined here is not necessarily indexed by unpleasant, mean, or nasty maternal behavior. Rather, insensitivity implies that the caregiver is not reading and/or supportively responding to the infant's states or goals. It is thus insensitive to deny a distressed or fearful infant the solace of bodily contact (rejection), but it is equally insensitive to insist on affectionate physical contact when the infant is deeply engrossed in exploration (interference).

COMMUNICATION AND INTERNAL WORKING MODELS

Subsequent research by other investigators has enabled us to refine further both Bowlby's ideas regarding working models and the relationship of these ideas to Ainsworth's notions about maternal sensitivity. First, more detailed studies of parent-infant communication have demonstrated specific deficits in the interchanges of insecure dyads. Second, a body of recent studies revealed that children and adults who experience communication difficulties *within* attachment relationships experience similar difficulties in communicating with third parties *about* attachment relationships (i.e., while talking about attachment issues with others).

With respect to communication between infant and parent, Escher-Graeb and Grossmann (1983) have been able to elaborate on Ainsworth's findings by performing more detailed analyses of parent-infant interchanges. They were able to show that parents of 1-year-old infants who were classified as insecure-avoidant in the Strange Situation tended to make themselves least available when the infant needed them most. In a separate play session these parents joined in (uninvited and at times intrusively) when the infant was playing comfortably by him- or herself but withdrew when the infant showed signs of stress or distress. During the Strange Situation itself (Grossmann, Grossmann, & Schwan, 1986) these avoidant infants often appeared somewhat stressed but, unlike secure infants, did not seek out their parents under

these circumstances. In short, patterns of communicating in which the partners did not acknowledge or properly direct signals (especially in situations of stress or distress) seemed to have become reciprocally ingrained as early as 1 year of age. Corroborating findings regarding the lack of satisfactory emotional communication in insecure attachment relationships come from a study of depressed mothers by Radke-Yarrow, Cummings, Kuczynski, and Chapman (1985).

Turning now to comparisons of children's communications *about* attachment and *with* attachment partners, I note studies by Main, Kaplan, and Cassidy (1985), Slough and Greenberg (in press), Cassidy (1988), and Bretherton, Ridgeway, and Cassidy (in press). Main et al. (1985) found that 6-year-olds' responses to pictures of mild and severe parent-child separations (adapted from Klagsbrun & Bowlby, 1976) were related to quality of attachment assessed in the Strange Situation in infancy. Children earlier classified as secure with mother gave coherent, elaborated, and open responses to the pictures and frequently volunteered information regarding their own separation experiences. By contrast, children earlier classified as insecure-avoidant labeled the pictured children as sad but could not say what the pictured child could have done in response to separation. Subjects classified as disorganized/disoriented were usually completely silent or gave irrational or bizarre responses. Using a slightly different version of the same test, Slough and Greenberg (in press) found that 5-year-olds classified as secure in a concurrent separation-reunion procedure with mother were able to discuss the separation pictures with emotional openness whereas insecure children gave avoidant or confused answers.

Concordant results were obtained by Cassidy (1988) with 5-year-olds who were given a puppet interview and story completion task about their view of self in the attachment relationship. The children were also observed in a separation-reunion procedure which yielded four classifications: secure, insecure-avoidant, insecure-ambivalent, and insecure-controlling. In the puppet interview, subjects judged to be secure on the basis of reunion behavior with mother tended to present a positive picture of the self, but many were also able to acknowledge less than perfect aspects of the self. Insecure-avoidant children tended to depict the self as perfect without mentioning interpersonal relationships, whereas insecure-ambivalent subjects showed no clear pattern of responses. A fourth group (insecure-controlling children) tended to make excessively negative statements about themselves. Note that in the Berkeley study (Main & Cassidy, 1989) the insecure-controlling classification at 6 years of age was associated with the disorganized classification in infancy.

In Cassidy's story completion task, children classified as secure during reunion with their mothers depicted the child doll as someone worthy, with a warm, supportive relationship to mother. Insecure-avoidant subjects, on the other hand, portrayed the doll protagonist as isolated or rejected; insecure-ambivalent subjects showed a variety of different responses that did not cohere in a recognizable pattern. Finally, insecure-controlling subjects tended to involve the doll protagonist in violent, hostile, negative, or bizarre behavior portraying a disorganized relationship to mother.

Building on the above findings obtained with 5- and 6-year-olds, Bretherton et al. (in press) attempted to assess 3-year-olds' ability to discuss attachment issues through an attachment story completion task. They used family figures to enact story stems that were designed to elicit resolutions to attachment situations (parents as authority

versus comforting figures, parents as protectors from danger and pain, and a separation/reunion). The enactment of the story stems was followed by an invitation to the child to "Tell me and show me what happens next." Children's story completions were classified as secure if they addressed the story issues with little hesitation and invented adequate, positive resolutions. Both verbal and enactive components of the resolutions were evaluated. Story completions were classified as insecure-avoidant if many prompts were required to elicit resolutions, or if children responded with "don't know" or avoidant or irrelevant completions. They were classified as insecure-disorganized if they enacted somewhat bizarre story endings (e.g., when reunited after a separation, the family had a car crash). The security ratings of the story completion procedure were positively correlated with security scores derived from an actual separation-reunion procedure at the same age (classified by Cassidy), sensitivity/insight of the mother scored on the basis of a Parent Attachment Interview (discussed below), and with security scores obtained in the Waters and Deane (1985) attachment Q-sort administered to the mother a year earlier.

Correlations between the quality of communication *within* attachment relationships and *about* attachment relationships have also been obtained with adults during the Adult Attachment Interview (Main & Goldwyn, in press). In this interview parents were asked to (a) describe their memories of childhood attachment relations with their own mother and father, (b) consider the influence of these childhood attachments on them in the present, and (c) describe their attitude to attachment relationships in general. In other words, the interview was not limited to tapping the inner working models of attachment to mother and father in childhood, but drew on a more general working model of attachment relations. Three interview classifications were derived from careful examination of the interview text as a whole. Interviews in which a parent described childhood attachments with emotional openness and internal consistency were classified as *autonomous/secure* regardless of the quality of the remembered relationship (in most of these cases the remembered relationship was secure, but there were exceptions). These parents also tended to value attachment relationships in general and acknowledge the influence of early attachments on their own personality development. By contrast, interviews were classified as *preoccupied* if they contained lengthy and detailed accounts of conflicted relationships, without a concomitant ability to step back and evaluate relationships from the perspective of an external observer. An interview was classified as *dismissing* if the person had difficulty in recalling specific events from childhood, provided idealized general descriptions of parents (i.e., "My mother could not have been better"), but then recalled contradictory details when autobiographical memories did emerge. It turned out that children of secure-autonomous mothers were classified as secure with them in the Strange Situation at 1 year of age, whereas the children of dismissing mothers were classified as insecure-avoidant, and children of preoccupied mothers were classified as insecure-ambivalent.

Inspired by the Main and Goldwyn findings, Bretherton and Ridgeway devised an interview (see Bretherton, Biringen, Ridgeway, Maslin, & Sherman, 1989) in which parents were asked about the attachment relationship with their own children rather than attachment relations in their family of origin. The interview began with a discussion of the mother's feelings and thoughts before, during, and after the child's birth.

The mother was then invited to choose five adjectives to characterize her child and to elaborate on her choice by recalling specific incidents. Descriptions of child and maternal behavior in emotional situations (happy, angry, fearful, painful) were also requested. In the next section of the interview, mothers were asked to describe situations in which attachment-autonomy and separation issues had to be negotiated. An intergenerational question was also included ("In what way is the relationship you have with your child similar to or different from the relationship you had with your own mother?"). The interview ended with the mother's thoughts about her child as a teenager or adult. The interview transcripts were rated as a whole, based on a 9-point sensitivity/insight scale devised by Biringen and Bretherton (1988).

High scores on the sensitivity/insight scale were awarded if the interview vividly conveyed to the reader that the mother responded sensitively and appropriately (in the framework of attachment theory) to her child's communications and had insight into her own and her child's behavior and personality. In applying the scale, the authors assessed whether the mother's general statements about child-rearing and the child's relationship with her and other family members were consistent with her specific descriptions of what actually happened.

Low scores were given if a mother talked about the "right" things to do, but then described her own behavior in terms that were at variance with her general statements about child-rearing (that is, the interview documented low sensitivity as well as low insight). A mother's failure to make obvious connections between her own and her child's behavior, giving answers that were not to the point, or repeated expressions of helplessness about the child's or her own overcontrolling or undercontrolling behavior were also regarded as indices of low sensitivity/insight. Low scores on sensitivity/insight were also given if the mother consistently spoke of the child as a possession. If the mother described insensitive behavior in relationship to the child, but could reflect on what was wrong, she received a less extreme low score than if she did not demonstrate insight.

Because it is difficult to convey what an interview rated as insensitive/low insight looks like, I would like to provide highlights from a specific case:

At 25 months, Billy (a pseudonym) was described by his mother as secure (because he had a security blanket); fast (because he runs away in stores when mother is not looking). At nap time, if he cried for 20 minutes, mother inferred that he was probably not tired. When the older brother and Billy fought with each other, mother hid behind the door to watch. At night, when he had bad dreams, he usually dropped off to sleep again. When asked how she imagined Billy in the future, his mother anticipated that he would tell her: "Mom, I'm going off to California and I'm not coming back." It's my imagination that I'm quoting." In sum, there was a consistent theme of distance and emotional aloofness on the part of the mother. However, in the intergenerational questions, the mother described herself as responsive just like her own mother who was always there when she had a bad dream (unlike other mothers that she'd heard about).

When Billy was 4½ years old, the mother was interviewed again, using a slightly revised version of the interview. When asked about the relationship, she describes Billy as sociable, that is, "he likes to be with someone." But when pressed for details, she mentions anxious-clingy rather than sociable behavior. When asked about times when she feels close to him, she answered: "When he's crabby, he seems to want to be more affectionate." When asked what she enjoys most about him, it's playing baseball with him. In response to a question about what is more difficult about the relationship: "He wants to be with me all the time—housework could be done faster if he could be more independent." At this point Billy's mother reminds herself: "But sometimes I need to give him quality time too—sometimes I hit and miss." She says that he wants her to play baseball with him, but she doesn't

have time: "It's got to the point where I have to hire a sitter, just to gain control of myself once again" (contradiction of her earlier professed enjoyment of baseball with Billy).

At night, when Billy wakes up with bad dreams, his mother goes and lies next to him. She isn't proud of this because she feels she ought to comfort him by talking to him but she's too tired (she works at night). That is, she lies with the child because it's effective in getting Billy to be quiet, not because it reassures him. It is obvious from her statements that both children frequently wake up with bad dreams. The mother is trying to break the older one of the habit by a system of rewards. When asked whether there are ever times when she feels it's best not to share negative feelings, she says: "I sometimes want to ask him why he is so difficult. 'Why are you in such a bad mood, throwing things?'. But it's not fair to ask them these adult questions." In response to a question about her thoughts and feelings when Billy was ill or had a serious accident: "You want to pamper him, give them everything they want, meet their whims and whines." (It was unusual for a mother to talk about comforting in this slightly derogatory way.) However, in describing an actual situation, Billy's mother tells of an accident that required stitches and then comments: "Fortunately, I wasn't around at that experience." When asked about times when she didn't know where Billy was, the mother responds: "Panic, pure panic." Billy often hides in the family van causing a child-hunt all over the neighborhood: "But I've been fortunate. The kids are just playing games with us." Billy's mother comments that it's too hard to let your child grow up. In response to a question about differences between herself and Billy's father she says that she threatens Billy with hell if he's not good (father disagrees with her strategy). They try not to disagree in front of the children, however.

When asked to compare her relationship with Billy to the relationship she had with her own mother, Billy's mother commented: "I don't think my mother spent nearly as much quality time with me. There were lots of times when I wanted my mother and she just wasn't there. She was too busy and would push me aside. She said 'later' and that 'later' never came. The hurt! But she was affectionate, always there in the night. I want to teach my kids the same things, affectionate." When asked whether the relationship to her own parents has changed, now that she is a parent herself, she talked about her marriage instead: "It's taken a great deal of personal time. Neither of us have personal time. . . . It's like we have forgotten our own relationship. It's like we are putting our relationship on hold." But she also talks about personal growth: having children makes her think more about life, appreciate it more, even look at the outdoors more. It's given her husband more patience. Asked about her relationship to her parents now, she briefly mentions that it's better, but again talks about her marriage rather than her parents: "Right now we feel separated. . . . It's difficult because we wonder why we even had children. We ask ourselves, if we knew it was going to be like this, would we choose to have children? The answer would be 'no.' You know, it's very difficult right now, but we do believe in the rewards afterwards." Talking about the future, Billy's mother says he will be well-adjusted: "He will be quite independent and won't need me." She comments how he will be into sports and that he now wants to play baseball with mother but "Mom just won't." At the end, she is asked whether she wants to add anything of her own on her relationship with Billy. She says: "I'm enjoying it. . . . I want to do the best I can, even if it means going to classes, joining support groups, or reading books on child-rearing."

INTERGENERATIONAL TRANSMISSION OF RELATIONSHIP PATTERNS/WORKING MODELS

Let us now turn to the issue of the intergenerational transmission of attachment patterns, with specific focus on the link between communication patterns and internal working models. To do so, we need to consider the notion of working models in more detail. The metaphor of an inner mother and father in interaction with the self has been useful in psychotherapy and psychoanalysis, but work by Main et al. (1985) has shown that patterns of attachment are not always transmitted across generations. Sometimes ghosts from the nursery (Fraiberg, Adelson, & Shapiro, 1975) can apparently be laid to rest. To understand the Main et al. findings (replicated by Eichberg, 1987, and by Grossmann, Fremmer-Bombik, Rudolph, & Grossmann, in

press) more fully, it is useful to examine the metaphor of working models in the context of current theories of representation.

Note that the concept of internal working model implicitly assumes a representational system that operates with dynamic event- or agent-action-object structures. When Bowlby first wrote about working models, the extant literature on the subject was not very helpful, but progress in cognitive science has since provided some useful ideas. In a recent reworking of Craik's (1943) concept, Johnson-Laird (1983) hypothesized that mental models are constructed, tested out, and revised in working memory from elements (representations of people or objects) and relations (spatial, temporal, causal) stored in an individual's long-term knowledge base. I would add to this list affective evaluations and goal-states. Johnson-Laird does not explicitly mention, however, that his hypotheses imply the operation of mental models at two levels: models composed of dissociable elements that are stored in *long-term memory* and models of never-before-encountered situations that are constructed afresh in *working memory* as the need arises. The operation and construction of working models in long-term and working memory would seem to require at least the following: (1) a flexibly and hierarchically organized representational system, with event sequences and components or part-schemas stored in long-term memory; (2) procedures whereby these components and schemas can be located; (3) procedures whereby they are copied into a temporary "scratch space" in working memory; (4) procedures that operate on the schemas in the "scratch space" to generate new schemas (Hendrix, 1979); and (5) procedures whereby some of the new schemas constructed in working memory are fed back into the long-term knowledge base.

Johnson-Laird paid comparatively little attention to the distinction between mental models in long-term and working memory because he was primarily interested in the process of constructing new mental models in working memory. Other theorists did the opposite. Building on Bartlett's (1933) work on remembering, Mandler (1979), Neisser (1987), Nelson and Gruendel (1981), and Schank and Abelson (1977) focused most of their efforts on defining the schematic structure of *long-term memory*, without attending to the problem of how an individual might go about constructing new mental models in working memory. They proposed hypothetical entities, termed *event schemas* or *scripts*, that were defined as sequentially organized structures with "slots" for specific agent-roles, for action sequences motivated by specific goals and emotions, for recipients of actions, and for locales. Note Schank's assumptions about the retrieval of information from long-term into working memory. (He proposes that an individual "instantiates" a stored script whenever a script-relevant event recurs.) Schank does not, however, thereby solve the problem of how an individual can extrapolate to new, never before encountered events.

This issue is tackled in a revised formulation of script theory wherein Schank (1982) further refined his ideas about the organization of long-term memory. In this later work he argued that information derived from episodic or autobiographical memories is reprocessed, partitioned, cross-indexed, and summarized into a variety of different schema categories each of which simulate some aspect of the spatio-temporal-causal-affective/motivational structure of experience. Only some of these schemas organize mini-event representations into coordinated, longer event sequences (such as the "script" of going to a restaurant or putting a baby to bed), others summarize infor-

mation derived from similar mini-events (e.g., all feeding situations regardless of context), and yet others generalize across different event sequences (e.g., all caregiving routines). Schank's new conceptualization blurs the distinction between episodic (autobiographical) and semantic memory (the generic knowledge base) as originally proposed by Tulving (1972, 1983) and substitutes instead a set or web of multiply interconnected hierarchies composed of schemas that range from being very experience-near to being very general and abstract. These hierarchies are constructed and continually revised and refined on the basis of new input (for related ideas see Nelson, 1986) and thus provide the building blocks for the recombination of elements of old information into new mental models. Related ideas were proposed by Neisser (1987) who emphasized the obvious fact that humans can remember the same event at many levels of analysis (e.g., the global structure of an event such as a conference, specific talks given during the conference, and sometimes particular pronouncements made during a specific talk), with lower-order events nested in those of higher order.

Although these theories of mental representation were primarily generated in response to a need to explain children's and adults' understanding of everyday routines, they are entirely consonant with the idea that individuals may develop mental models of relationships with specific partners (Bretherton, 1990). Not only can they therefore offer us a new, more differentiated way of thinking about internal working models, they also accord with Epstein's (1973, 1980) notion of the self-concept as a hierarchy of postulates (or schemas, as I prefer to call them). At the lowest level would be interactional schemas that are very experience-near ("When I hurt myself, my mommy always comes to comfort and help me"). Above this level would be more general schemas ("My mommy is usually there for me when I need her") that subsume a variety of lower level schemas of need-fulfilling events with mother. Somewhere near the top of the hierarchy would be such schemas as "My mother is a loving person" and "I am loved," each subsuming a variety of lower level schemas. Note also that these postulates or schemas need not all be directly accessible to conscious reflection.

Three issues thus emerge from current theories of representation. First, the available evidence suggests that internal working models are best conceptualized as systems of hierarchically organized schemas with an unknown but finite number of levels, not as dual-level models composed of episodic and semantic memories (as suggested by Bowlby, 1980). Second, current theorizing is also most consistent with the notion that internal working models of self and other consist of several interlinked hierarchies, not one hierarchy. In fact, an individual's schema hierarchies of self, other, and world are probably not neatly segregated from each other, because all schemas (i.e., of the physical environment, of "human nature," of attachment relationships in general, and of specific relationships) are likely to feed back into each other. Third, what seems to differentiate the internal working models of secure and insecure individuals is in part their content, but also their internal organization and relative consistency within and across hierarchical levels. The type of malorganization in the working models of those individuals described as insecure-ambivalent as infants and preoccupied as adults, and in individuals described as avoidant in infancy and dismissing in adulthood, is likely to differ. (In the first case, individuals seem to be unable to generalize from autobiographical episodes or lower level schemas to create abstract summary schemas; in the second case, individuals seem to keep schemas

within and across hierarchical levels compartmentalized so that activation of one schema leaves the other unaffected.)

THE INTERGENERATIONAL TRANSMISSION OF ATTACHMENT PATTERNS

If we conceptualize internal working models as more or less well organized webs of hierarchically structured information (embedded in and connected to other schema hierarchies stored in long-term memory), recent findings on intergenerational transmission of unsatisfying attachment patterns become more comprehensible.

Although Schank (1983) was not specifically concerned with biased or incomplete processing, his revised theory of event representation can shed new light on the effects of defensive phenomena in the construction of working models. If portions of an individual's autobiographical memories enter into cross-referenced schemas at many levels in a variety of schema hierarchies, it is possible to see how material that has been defensively excluded from recall as an autobiographical memory might still influence schema formation at other levels (i.e., general schemas about parenting), thus making the model internally inconsistent and contradictory. More important, once the lines of communication within an individual's representational system are partially or completely severed (by processes not yet fully understood), biased or incomplete processing is bound to follow because existing distorted or dissociated schemas now guide the processing of new experience (Erdelyi, 1985). As noted before, I suggest that we get away from the idea that an insecure individual may have two separate (split) working models of the same relationship, one based on semantic memory and accessible to conscious reflection and verbal discussion, and a second based on episodic or autobiographical memory but defensively excluded from awareness as suggested by Bowlby (1973), and reiterated by Crittenden. (See this issue.) Bowlby does not explicitly state (but seems to imply) that in insecure individuals the conscious and the repressed models of self and other are to be regarded as internally consistent, but inconsistent with each other. I favor the view that insecure individuals have one ill-organized working model of self and attachment figure in which some relevant schemas or schema networks are dissociated from one another across and within hierarchical levels, hence giving rise to contradictory behavior and communication. In such an ill-organized model, updating of information may occur at one level of the hierarchy, but may then not propagate to others; or schemas of what should or might be ("ideal" schemas of what the individual wishes for) may not be clearly tagged as such and hence treated as schemas of actual circumstances. The possible confusions, contradictions, and distortions in the interpretation and conduct of attachment relations that such malfunctioning and hence overly rigid internal working models could generate are endless.

Consider then an insecure parent with an ill-organized working model of attachment. Not only is such a parent likely to misinterpret attachment signals from an infant, such a parent is also likely to provide misleading feedback, thereby making it difficult for the infant to "get it right" (Emde, personal communication). In other words, a parent with a distorted, ill-organized working model of attachment will, in turn, interfere with his or her infant's ability to begin the task of constructing ade-

quate, well-organized internal working models of interpersonal relations. This is likely to have two serious consequences: (1) both partners will experience continuing difficulties in communicating effectively with each other, and (2) both partners' inadequate working models will be difficult to update adequately as the relationship develops and/or the environment demands. (For more details regarding developmental implications see Bretherton, 1987, 1990.)

Under this view, the converse happens for secure parents whose internal working model of attachment figures and of attachment relationships in general is well-organized and reasonably consistent within and across hierarchical levels. Such a parent is likely to give the infant helpful and informative feedback about their specific relationship (especially in contexts of emotional need), but will also facilitate adaptive learning about other relationships. Furthermore, both partners' well-organized internal working models are likely to be easier to update, because the relevant schemas are connected to one another in systematic ways, within and across hierarchical levels of the representational system.

If this approach to working models is correct, several things follow:

(1) Because reorganization or reconstruction of an ill-organized working model acquired in an unsatisfying attachment relationship will require integration of dissociated or segregated information at many different levels, insight at one level is not automatically followed by insight at another level. This suggests that clinicians should try to work at several levels and/or approach the reorganization of working models from several directions. (See also Crittenden, 1990.)

(2) The developing infant encounters in the parent's behavior the output of the parent's current working model of self in attachment relationships. If a parent with unhappy childhood attachments has been able to rework an initially ill-organized working model into a coherent, well-organized representation of early attachment relationships, whether satisfying or not, and if that parent has also been able to construct a new working model of self in a supportive attachment relationship, the infant will not experience a reenactment of the parent's unhappy childhood relations. On the basis of open and adequate reciprocal communication, such an infant will develop a secure attachment despite the fact that the parent has not experienced secure relations in childhood him- or herself. Main and Goldwyn (in press) as well as other investigators using the Adult Attachment Interview have found corroborating evidence for such a position.

CONCLUDING REMARKS

Although we have made significant progress in our theoretical conceptions of the development and transmission of internal working models, a major remaining question concerns the processes whereby a parent might rework ill-organized internal working models acquired through unsatisfying attachment relations. Main et al. (1985) and Ricks (1985) hypothesized that the mastery of formal thought in adolescence may provide an opportunity for the reconstruction of inadequate working models, but formal thought alone may not be enough to accomplish the job. A secure attachment relationship and a period of heightened emotional experience may be necessary. For example, Ricks (1985) cited evidence suggesting that a security-providing spouse

may facilitate reconstruction, especially during psychosocial transitions such as marriage or transition to parenthood.

Clinical data would support the facilitating effect of supportive relationships. Two ideas have been put forward: (1) that reorganization of working models is facilitated when the therapist provides a secure base or "holding environment" from which an individual can *explore* his or her inner world (Bowlby, 1985; Osofsky, 1982; Peterfreund, 1983; Winnicott, 1965), and (2) that an accepting therapeutic context can provide the experience of new interpersonal *patterns of relating* (and hence the construction of new interaction schemas) that will contribute to a coherent working model of secure attachment relations, disengaged from memories of earlier adverse attachment experiences. It remains a challenging task for the future to discover what combination of circumstances favors the successful operation of these processes (representational development, psychosocial transitions, later attachment relationships) and hence the replacement of an ill-organized, malfunctioning working model of self and attachment figure (and attachment relations in general) with a well-organized, well-functioning flexible working model.

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