Journal of Family Psychology
1996, Vol. 10, No. 3, 284–291

Copyright 1996 by the American Psychological Association, Inc.
0893-3200/96/$3.00

Meta-Emotion Philosophy and Family Functioning: Reply to Cowan (1996) and Eisenberg (1996)

Lynn Fainsilber Katz, John M. Gottman, and Carole Hooven
University of Washington

P. A. Cowan's (1996) and N. Eisenberg's (1996) comments (a) raise important questions about the conceptualization and measurement of parental meta-emotion philosophy and child affect regulation, (b) highlight individual characteristics of the child that may affect parental meta-emotion philosophy, and (c) suggest directions for future research. This reply uses qualitative descriptions from meta-emotion transcripts and additional quantitative analyses to address major issues raised by these comments.

The awareness and healthy expression of emotion has long been a cornerstone of clinical practice. For example, a good deal of psychotherapy includes the client learning how to talk about emotions by first making the emotions available to consciousness, understanding the origin of these emotions, and learning to talk about alternatives in a problem-solving mode. In the most commonly used exercise in marital therapy, often called the *listener–speaker exercise*, couples are taught to listen to one another in a nonjudgmental and nondefensive manner, to accept the emotions of the partner (even if it involves criticism), and then to reverse roles of listener and speaker. Increased understanding of the role of emotion in the development and maintenance of psychopathology (e.g., Goldstein, 1988) has prompted questions about the normative processes by which parents teach their children about the expression and regulation of emotion (Cassidy, Parke, Butkovsky, & Braungart, 1992; Dunn, Brown, & Beardsall, 1991; Eisenberg & Fabes, 1994; Parke, Burks, Carson, Neville, & Boyum, 1993). With greater understanding of these normative processes, psychologists can begin to develop empirically guided prevention and intervention approaches to help children learn how to effectively express their feelings (e.g., Greenberg, Kusche, Cook, & Quamma, 1995).

The concept of parental meta-emotion philosophy and the theoretical model we presented in our article (Gottman, Katz, & Hooven, 1996) provide a conceptual framework for understanding how parents' feelings and thoughts about emotion may affect their emotion socialization practices. We are just beginning to explore the world of meta-emotion and are pleased with Cowan's (1996) and Eisenberg's (1996) support of our continued efforts. As with any new discovery, much remains to be understood. In their comments, both Cowan and Eisenberg (a) raise important questions about the conceptualization and measurement of parental meta-emotion philosophy and child affect regulation, (b) highlight individual characteristics of the child that may affect parental meta-emotion philosophy (e.g., gender, temperament), and (c) suggest directions for future research. In the spirit of advancement of scientific knowledge, we comment on each of these issues in this reply.

Conceptualization and Measurement of Meta-Emotion

Both Cowan (1996) and Eisenberg (1996) raise conceptual questions about what is being measured with the concept of meta-emotion. They ask whether parental meta-emotion is simply a marker of effective parenting and what the value-added contribution is of knowing a parent's meta-emotion philosophy. Behind these questions is the more fundamental issue of what

Lynn Fainsilber Katz, John M. Gottman, and Carole Hooven, Department of Psychology, University of Washington.

Correspondence concerning this article should be addressed to Lynn Fainsilber Katz, Department of Psychology, Box 351525, University of Washington, Seattle, Washington 98195.

is "meta" about meta-emotion. Does the notion of meta-emotion represent feelings and thoughts about emotion, or is it a self-report index of parenting? Eisenberg (1996) suggests that this definitional issue is more acute for the coaching index—in which parents describe their thoughts, feelings, and behavior when their child is upset—than the awareness index.

Both our qualitative and quantitative analyses of the meta-emotion interviews suggest that emotion coaching includes a description of parenting behavior but goes beyond that to reflect an attitudinal approach to the world of children's emotion. That is, the behaviors of emotion-coaching parents grow out of a belief system that values the world of emotion. Those parents who coach their children during hot emotional moments see children's emotional reactions as vitally important to the child's well-being. They notice low-intensity affects. They approach their children's emotions with respect, view emotional interactions as an opportunity for intimacy, and feel empathic when their child is experiencing negative feelings. This attitude can be seen most clearly in excerpts from interviews conducted with parents who are high in emotion coaching. In the following excerpt, a father (F) is asked by an interviewer (I) about his thoughts and reactions to his child's sadness. He conveys how he values time he spends with his child in sadness, even though it's uncomfortable at the same time to see his child sad. Instead of viewing his child's sadness as something to be changed, he sees it as an opportunity for feeling close to his child.

> I: How do you respond to D. when he is sad?
>
> F: I guess pretty, um, I mean I feel very close to him when he's sad. When I see him sad about something, I want to sit down and talk to him.
>
> I: Um-hmm.
>
> F: You know, it gives me the opportunity to do something. Even if he'll feel sad after getting a punishment, we'll talk to him about getting in touch with the feeling.
>
> I: OK
>
> F: I find myself being drawn towards him.
>
> I: Umm-hmm
>
> F: I have a hard time seeing them unhappy or frustrated.
>
> I: It makes you feel?
>
> F: I think there's this tendency for parents to want things to be good.
>
> I: Yeah. I wondered if you might label yourself as feeling sad if you see him sad.
>
> F: I guess I don't know. I guess I'd feel bad, the word I was thinking earlier was empathetic.
>
> I: Umm-hmm
>
> F: I guess I share the feeling.

For this father, his son's sadness creates an opportunity for intimacy and generates feelings of empathy. Although he describes some aspects of his behavior with the child (i.e., sitting down to talk to him), this father's focus is on using his son's sadness as a chance to share his child's feelings.

In the following excerpt, we see that coaching families also show respect for their child's emotionality. The anger is not unimportant because it is a child's anger.

> I: How do you respond to G. when she is angry?
>
> F: I just let her, you know, anger usually doesn't last for a while. Usually when she's angry she has a reason to be. And we talk about why, you know. She has this friend she plays with, a boy, I mean, I don't watch them but she comes in crying and stuff and she's really mad. And I usually say that she, you know, has every right to feel that way. You know, you just talk about it. I mean I don't try to say you shouldn't be mad.
>
> I: Umm-hmm. Just find out what is making her mad.
>
> F: Right. And why and stuff like that.
>
> I: Does it make you feel any particular way when you see her angry?
>
> F: Not, like when she's sad I really want to cheer her up. When she's angry I get like I say, it's usually a pretty quick thing. I mean, I don't, I can't protect her from being angry, you know, why she's angry and how to deal with it. How to go back out and deal with this little boy or whatever it is that's making her angry, you know.
>
> I: So . . .
>
> F: So I don't have that protective feeling towards anger as I do towards sadness.
>
> I: I have the same question that I asked earlier. What is it you think you're trying to teach her about anger and expressing anger?

> F: Again it's just a natural fact of life. It's natural to feel that way. You know, whatever's making you angry, ah, if you want to keep on being angry about it, you've got to deal with it one way or the other. You know, you can walk away from it, you can confront it, whatever. That's what I want to teach her. There's some things that when you're angry it's best to walk away and forget it and there's other situations that it's best to confront.

As these examples convey, coaching parents may describe the specific behaviors they engage in with their child, but their emphasis is on the attitude they have toward their child's emotion. They approach their child's emotion with respect and see it as an opportunity for intimacy and sharing. By validating their child's feelings, they teach the child that emotions are acceptable and useful guides for living.

Quantitative analyses of the data also suggest that the meta-emotion construct is more than simply a marker of effective parenting. To address the question of construct validity, we reasoned that, if parental meta-emotion philosophy were simply indexing good parenting, we would expect it to be directly related to markers of good parenting during parent–child interaction. Yet a much more complicated picture emerged from the data (Gottman, Katz, & Hooven, in press). Parental awareness and coaching of emotion were only weakly linked to the indexes of effective parenting (i.e., warmth, scaffolding–praising) but were strongly related to the absence of parental derogation. Even considering measurement differences between parental self-report and observer indexes, this pattern of results argues against a simple interpretation of parental meta-emotion philosophy as a marker of effective parenting.

A related issue is one of predictive validity. If parental meta-emotion philosophy were simply indexing good parenting, we would expect both parental meta-emotion philosophy and indexes of good parenting to be related to the same measures of child adjustment. This turns out not to be the case. Although parental meta-emotion philosophy is directly related to children's physical illness, derogation and scaffolding–praising are related to children's academic achievement and interaction with peers (Gottman et al., in press).

To examine the value-added contribution of knowing parents' meta-emotion philosophy, we followed Cowan's (1996) suggestion and recomputed each structural equations model by removing the parental meta-emotion and child regulatory physiology measures. None of the models fit the data. Thus, knowing the degree to which children are able to down-regulate when they are upset and the extent to which parents are derogating or scaffolding–praising was insufficient to explain children's level of academic success, quality of peer relations, and physical health in our models. Knowledge about parental meta-emotion philosophy and child's regulatory physiology were essential in developing models that predicted child outcomes.

Taken together, analyses of construct and predictive validity suggest that parental meta-emotion is tapping a unique dimension of parenting. Furthermore, analyses of its value-added contribution suggest that the meta-emotion concept adds predictability to child outcomes. Yet this discussion raises questions about the importance of accounting for variance in outcome versus building theory. The primary goal of scientific discovery is to build theory to explain observed phenomena (Kuhn, 1970; Morris, 1984). Building theory often involves a dialectic between accounting for variance in outcome and providing explanatory constructs that are compelling and parsimonious and that emerge from existing scientific knowledge. The value of the meta-emotion concept does not come from its ability to predict child outcomes; indeed, direct effects are minimal. What parental meta-emotion provides is a conceptual theoretical framework for understanding parenting and physiological processes that are central to children's adjustment. With this incremental increase in understanding, we open up another avenue for intervention into the complex structure of family relations.

The path models also suggest a program of experimentation. As much as we believe that path analytic methods are useful tools for developing models, we also believe that these models cannot be believed without real experiments. The value of the theory, then, will lie in its ability to generate interesting experiments and in the ability of these experiments to lead to useful clinical trials.

Meta-Emotion and Individual Characteristics of the Child

The question of person–environment fit has been of long-standing interest for developmen-

tal psychology and is important for research on family meta-emotion philosophy. The degree to which individual characteristics of the child, such as temperament or gender, affect parental coaching remains an open question. The nature of the relationship between child characteristics and parental meta-emotion philosophy can take several forms. Parental meta-emotion philosophy may be directly affected by child temperament; that is, parents may select a parenting style that is consistent with a child's temperament. Alternately, parental coaching may interact with temperamental characteristics in affecting child outcomes.

In our article (Gottman et al., 1996), we present data examining the direct relationship between temperament and parental coaching. Two sets of data address this issue. First, we found that parental reports of temperament on the Differential Emotions Scale were not related to parental coaching. Second, if we agree with Porges' argument that vagal tone is an index of temperament (Porges, Doussard-Roosevelt, Portales, & Suess, 1994), we found considerable evidence that temperamental variables do indeed affect emotion coaching. In all our models, reversing the arrows so that the direction of effects was from vagal tone to emotion coaching produced models that were equally consistent with the data. Thus, having a child who is able to regulate physiological arousal may make it easier for parents to coach their child during emotional moments. We can speculate about why this may be the case. Given that vagal tone has been associated with attentional processes (Linnemeyer & Porges, 1986; Porges, 1991; Porges & Humphreys, 1977; Porges & Raskin, 1969; Richards, 1985), children who are able to physiologically self-soothe may be better able to focus their attention on parental input when they are emotionally aroused. In so doing, they may make better use of parents' coaching efforts, which functions to reinforce parents so that coaching becomes an increasingly active part of their parenting repertoire.

We have also conducted some additional analyses to examine whether parental coaching interacts with temperamental characteristics in affecting child outcomes (Gottman et al., in press). Parents' ratings of child emotionality, activity, and shyness on the Buss and Plomin (1984) temperament scale and ratings of child's soothability and persistence were obtained when the child was 5 years old. Again, parental ratings of child temperament were not related to parental coaching. Temperament was related to child outcomes. We found that parental ratings of activity level and shyness at age 5 years predicted teacher ratings of negative peer interaction at age 8 years. Children who were highly active and shy were rated by teachers as having more negative peer interactions. Parental ratings of child persistence were also directly related to academic achievement and child illness at age 8 years. Children who were more persistent had higher levels of academic achievement, but they were also more physically ill. However, regression analyses indicated a significant interaction between emotion coaching and child persistence even after accounting for variance attributable to child persistence or parental coaching. Persistent children who had emotion-coaching parents had higher academic achievement, and they also had better health at age 8 years than persistent children whose parents were not emotion coaching. Thus, these data suggest that coaching may indeed interact with certain temperamental qualities of children in buffering them from poor adjustment. Additional research is needed to specify both the dimensions of child temperament that interact with parental coaching and the specific forms of maladjustment that are alleviated or exacerbated through the interaction between temperament and parental coaching. Given the limitations of parental report of temperament noted by Eisenberg (1996) and others, additional work using both ratings and laboratory-based observations of temperament may be helpful in disentangling this phenomenon.

Cowan (1996) raises the question of whether meta-emotion is subject to gender effects. Gender effects might be found in parents, children, or parent–child dyads. In our research, we have relatively low power to test these hypotheses, but we have conducted some initial exploratory analyses (Gottman et al., in press). Comparisons between mothers and fathers indicated that mothers are more aware and more coaching of emotion than fathers, and that fathers are less aware of sadness than mothers. No other main effects or interaction effects were found. Nor were there any main or interaction effects with child gender. Thus, at the level of individual variables in the models, some differences emerged between mother's and father's awareness and coaching of emotion.

We also asked a different question of the

data, namely, whether the theoretical models would hold equally well for fathers and mothers and for boys and girls. When we broke down the parenting variables (i.e., derogation, scaffolding–praising) by parent and examined correlations between all variables in the model, the pattern of correlations suggested that one would be successful constructing father models but unsuccessful constructing mother models for models of both negative and positive parenting (Gottman, Katz, & Hooven, in press). In general, it appeared that the major effects of the parenting variables were father effects.

If these results hold on replication, they may reflect current trends in the changing behavior of fathers. Levant (1988) reviewed evidence showing large secular trends in the amount of time many men spend on family work as well as secular trends in how relatively important the men said these activities were to them. It may also be the case that, over time, some fathers are becoming more entrenched as traditional and authoritarian fathers as part of a shift in the United States toward a more conservative political set of values. Our homogeneity of variance tests showed fathers were much more variable as a group in both derogation and scaffolding–praising parenting than mothers (e.g., the variance in fathers' derogatory parenting was 2.6 times that of mothers). This greater variability in fathers' (compared to mothers') parenting, could, in part, explain our father effects. A recent study of 10-year-old Greek island children by Roe (1980) spoke to this point. She found that spanking and fear of their fathers were characteristic of low-empathic participants (assessed by the Feshbach and Roe Situational Test). However, participants whose fathers were away most of the year scored high on empathy, even though spanking was common for mothers as well as fathers. The results were explained by the very positive relationship some of these children had with their mothers and the distant, ambivalent relationship they had with most of their fathers. In the Greek study, most of the fathers were cold and distant, whereas there was a greater range of variation among mothers, with some mothers described as very warm and compensating for the father's coldness. We would expect the mothers to account for most of the variance in child outcome. In our study, there was less variation in mothers' parenting, and so fathers could account for more of the variance in child outcome. This may lend some credence to the notion that fathers in the United States today are going through great changes and polarization, with some fathers polarizing to the right in favor of authoritarian and critical parenting and some polarizing to the left toward more emotionally engaged parenting.

We also examined whether the theoretical models held equally well for girls and boys. We lacked the power to be able to perform these comparisons for all outcome variables, but as an example of the kind of test we would like to complete, we conducted a two-groups path analysis (using the program EQS [Bentler, 1989]) for boys and girls for the peer relations outcome variable. In this analysis, it was possible to test whether there were significant differences for each path of the model. There were no statistically significant gender differences for any path in the model for either the univariate test statistics or for the cumulative multivariate tests statistics. It is premature to conclude that there are no gender differences because the power was too low with our sample size (31 boys and 25 girls for most analyses) to adequately test for differences between boys and girls. However, we reran these analyses, artificially doubling the *N*s for each group; still, no paths were significantly different using the univariate tests. We are just completing a replication study with an additional 65 families, which will help provide the needed power to test for differences between boys and girls and to compare models for fathers and mothers separately for boys and girls.

Emotion Regulation and Child Vagal Tone

Eisenberg (1996) makes some interesting points about possible relations between vagal tone and emotion regulation. She distinguishes between three types of regulation—emotion regulation, behavioral regulation, and instrumental coping or problem management—and speculates about which regulation dimensions are most closely tapped by vagal functioning. Understanding how children who are high in vagal tone regulate emotion is an important theoretical challenge. We recently examined two possible hypotheses of how a higher vagal tone may function: One is a stress inoculation hypothesis, and the other is a recovery hypoth-

esis. According to a stress inoculation hypothesis, having high vagal tone protects the child from having a strong physiological reaction to stressful life events. If the stress inoculation hypothesis were true, the child should maintain a high vagal tone and lowered heart rate during normally stressful interactions. According to a recovery hypothesis, having high vagal tone enables a child to recover quickly from strong physiological arousal during stress. If the recovery hypothesis were true, then a child with high vagal tone could be quite physiologically reactive during stressful interactions but should recover more quickly.

We found that children who were high in basal vagal tone reacted more strongly to stress-inducing parental behaviors but also recovered more quickly from physiological arousal (Gottman & Katz, 1996). Children with high vagal tone did not avoid situations that led to stress, nor were they nonreactive. Instead, in our data, their hearts were highly reactive to environmental events (see also Porges, 1991), but they were able to recover more quickly than children low in basal vagal tone. This combination is quite unusual from a physiological standpoint.

Emotion Dysregulation: A Third Meta-Emotion Philosophy?

Cowan (1996) speculates that there may be more than two types of meta-emotion philosophies. Consistent with the work on adult attachment, he questions whether some parents may be overly involved in their own and their children's emotions, whereas others may find negative affect disorganizing. We (Gottman et al., in press) noted that some parents in the meta-emotion interview reported feeling emotionally out of control. One scale of the meta-emotion coding system contains items that assess parents' emotion dysregulation, either with sadness or anger. Parents who were dysregulated (a) had difficulty regulating the intensity of the emotion; (b) reported that the emotion occurs often and is difficult to get over; (c) indicated that the emotion has been a problem or a concern, and that they have needed help with the emotion; and (d) thought the emotion could be dangerous.

Parents who are dysregulated are acutely aware of their emotions, but they feel emotionally out of control. Consider the following father's description of his anger.

> F: I changed my, I used to be destructive when I was younger. My anger would result, uh, I killed a cat one time I got mad. I just took a cat and smacked it dead and threw it away. I just, I was that impulsive. Or put my hands through walls. I broke my hands twice doing it.

In the segment of the interview in which he was asked about which emotions are still hard for him, the father described his continued daily struggle with anger. Notice how he readily acknowledges his anger and is quite descriptive of his own cognitive processes and remediation techniques. For this, he would be considered high in awareness.

> I: What emotions are still hard for you?
>
> F: Anger, I would say anger 'cause I can still have a violent moment. And I can, you know, go out and do something. That's probably my worst. If I've ever get to that point—if anger finally got me I was so mad at something I'd go out and probably would hurt somebody. I wouldn't hurt Susan. I'd go out at the source, find out who it was.
>
> I: OK. How do you make sure that you don't feel angry that often if it's something you don't like to feel? How do you keep it out of your life?
>
> F: Ah, that's a hidden secret in my head. Um [pause] I really don't know. I'm just sayin that the intelligent half of my head talks to it. It says, "All right, you jerk, don't screw up." Talk, you know, "You're gonna go out, and you're gonna do something dumb, you're gonna get in all kinds of trouble, embarrass your family, and slow down and stop." I never, I guess I never let my mind get angry anymore. That's all. It's just that they do something dumb or they or I do something dumb, most of the time if I do get angry, it's because of me. I'll do something stupid. But, um, I usually just think it over, think it out. Talk, you know, start, start bringing it out and see, and then finally after, after, I have a very fast relief valve. If I do get angry now which is seldom it Ssssss quickly. I'm back. I'm out of it then. And that's probably what it is. I just don't let it, I just don't keep it in me very long.

This father's difficulty with anger was reflected in a dismissing approach to his child's anger.

> F: [Laughs.] Jackie being mad? Ahh, when's the last time...I laugh.
>
> I: You think it's cute?
>
> F: I think, yeah, it is.
>
> I: Uh-huh.

> F: She, she, she'll, "Gosh Darn It." And she'll walk away like a little midget human. It's so funny.

Thus, some dismissing parents can be aware of their own emotions but also feel emotionally dysregulated. The extent to which this represents a third unique meta-emotion philosophy or is tapping a similar construct to the preoccupied category described by attachment theorists remains to be seen. We do have evidence that feeling out of control with either anger or sadness is associated with negative events in the family (Gottman et al., in press). When the father feels out of control with anger and sadness, he is likely to be hostile toward his wife when trying to resolve marital disagreements, and he is likely to be high in derogatory parenting. His child is likely to be rated by the mother as having behavior problems and as being low in positive daily moods and is likely to be seen by the teacher as being socially withdrawn. When interacting with parents, the child is likely to be coded high on anger. For mothers, being out of control with sadness relates to different family processes than being out of control with anger. When the mother feels out of control with her sadness, this is related to her coaching her child more on both sad and angry emotions. It is likely that this is attributable to the mother compensating for a bad marriage by being a good mother to her children and buffering her children from marital conflict. However, in contrast, the mother who is out of control with her anger is actually more sad and angry in the marital interaction; she is also more unhappily married, more negative about the marriage, and more negative about the benefits of trying to resolve marital issues, and she thinks more of leaving the marriage. She is also more derogatory toward her child and is more physically ill. Her child is sad and whines more, and she sees the child as temperamentally difficult.

Future Directions

The meta-emotion interview provides us with very rich data, and we would like to end our reply with a brief qualitative summary of our study of parental emotion metaphors that the interview elicits. Some parents (primarily emotion-dismissing parents) tended to express metaphors of anger as heat, pressure, or explosion, viewing it as dangerous. Metaphors of anger as heat or pressure are quite common across cultures (Lakoff, 1993). In our study (Gottman et al., 1996), there were many metaphors for anger that suggested that people viewed anger in terms of fire, heat, blowing off steam, and calming down as cooling. Lakoff and Johnson (1980) analyzed anger using the metaphor "argument is war." In our study, many parental metaphors in the meta-emotion interview suggested that anger is viewed by some parents (primarily emotion-coaching parents) as positive and energizing. One mother said that anger gave her the motivation to say things that needed to be said. A commonly expressed view was that anger was productive for being assertive, that anger showed people they could not push the angry person around. Many parents expressed the idea that anger is positive because it requires one to have contact with people and entails communication. We found similar variation in terms of emotion metaphors about sadness. Some parents linked sadness with defeat, depression, giving up, and even with death. Other parents linked sadness with empathizing with people who suffer, and some parents said that being aware of one's sadness is important because it tells us to slow down and think of what may currently be missing in our lives.

Rather than representing a footnote in developmental psychology's research on parenting, meta-emotion, in our view, will lead the way toward a comprehensive theory of the essential heart of parenting. Haim Ginott knew that this was true, and now we are starting to gather the necessary data that will eventually lead us to recognize the contribution of his intuitive genius.

References

Bentler, P. M. (1989). *EQS structural equations program manual.* Los Angeles: BMDP Statistical Software.

Buss, A. H., & Plomin, R. (1984). *Temperament: Early developing personality traits.* Hillsdale, NJ: Erlbaum.

Cassidy, J., Parke, R. D., Butkovsky, L., & Braungart, J. M. (1992). Family–peer connections: The roles of emotional expressiveness within the family and children's understanding of emotions. *Child Development, 63,* 603–618.

Cowan, P. A. (1996). Meta-thoughts on the role of meta-emotion in children's development: Com-

ment on Gottman et al. (1996). *Journal of Family Psychology, 10,* 277–283.

Dunn, J., Brown, J., & Beardsall, L. (1991). Family talk about feeling states and children's later understanding of others' emotions. *Developmental Psychology, 27,* 448–455.

Eisenberg, N. (1996). Meta-emotion and socialization of emotion in the family—A topic whose time has come: Comment on Gottman et al. (1996). *Journal of Family Psychology, 10,* 269–276.

Eisenberg, N., & Fabes, R. A. (1994). Mothers' reactions to children's negative emotions: Relations to children's temperament and anger behavior. *Merrill-Palmer Quarterly, 40,* 138–156.

Goldstein, M. J. (1988). The family and psychopathology. *Annual Review of Psychology, 39,* 283–299.

Gottman, J. M., & Katz, L. F. (1996). *The link between vagal tone and emotion regulation.* Manuscript submitted for publication.

Gottman, J. M., Katz, L. F., & Hooven, C. (1996). Parental meta-emotion philosophy and the emotional life of families: Theoretical models and preliminary data. *Journal of Family Psychology, 10,* 243–268.

Gottman, J. M., Katz, L. F., & Hooven, C. (in press). *Meta-emotion: How families communicate emotionally.* Hillsdale, NJ: Erlbaum.

Greenberg, M. T., Kusche, C. A., Cook, E. T., & Quamma, J. P. (1995). Promoting emotional competence in school-aged children: The effects of the PATHS curriculum. *Development & Psychopathology, 7,* 117–136.

Kuhn, T. S. (1970). *The structure of scientific revolutions.* Chicago: University of Chicago Press.

Lakoff, G. (1993). *Metaphors we live by.* Chicago: University of Chicago Press.

Lakoff, G., & Johnson, M. (1980). The contemporary theory of metaphor. In A. Ortony (Ed.), *Metaphor and thought* (pp. 202–251). New York: Cambridge University Press.

Levant, R. F. (1988). Education for fatherhood. In P. Bronstein & C. Cowan (Eds.), *Fatherhood today: Men's changing role in the family* (pp. 253–275). New York: Wiley.

Linnemeyer, S. A., & Porges, S. W. (1986). Recognition memory and cardiac vagal tone in 6-month-old infants. *Infant Behavior and Development, 9,* 43–56.

Morris, R. (1984). *Dismantling the universe: The nature of scientific discovery.* New York: Simon & Schuster.

Parke, R. D., Burks, V. M., Carson, J. L., Neville, B., & Boyum, L. (1993). Family–peer relationships: A tripartite model. In R. D. Parke & S. Kellam (Eds.), *Exploring family relationships with other social contexts.* Hillsdale, NJ: Erlbaum.

Porges, S. W. (1991). Autonomic regulation and attention. In B. A. Campbell, H. Hayne, & R. Richardson (Eds.), *Attention and information processing in infants and adults* (pp. 201–223). Hillsdale, NJ: Erlbaum.

Porges, S. W., Doussard-Roosevelt, J. A., Portales, L. A., & Suess, P. E. (1994). Caridac vagal tone: Stability and relation to difficultness in infants and 3–year-olds. *Developmental Psychobiology, 27,* 289–300.

Porges, S. W., & Humphreys, M. M. (1977). Cardiac and respiratory responses during visual search in non-retarded adolescents. *American Journal of Mental Deficiency, 82,* 162–169.

Porges, S. W., & Raskin, D. C. (1969). Respiratory and heart rate components of attention. *Journal of Experimental Psychology, 81,* 497–503.

Richards, J. E. (1985). The development of sustained visual attention in infants from 14 to 26 weeks of age. *Psychophysiology, 22,* 409–416.

Roe, K. V. (1980). Toward a contingency hypothesis of empathy development. *Journal of Personality & Social Psychology, 39,* 991–994.

Received June 1, 1996
Accepted June 3, 1996 ■