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**SPECIAL SECTION RESPONSE TO COMMENTARIES**

# The integration of emotional availability into a developmental psychopathology framework: Reflections on the Special Section and future directions

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We appreciate both the opportunity to co-edit this Special Section of *Development and Psychopathology* and the thoughtful commentaries provided by Marjorie Beeghly, Marc Bornstein, Robert Emde, and David Oppenheim. Their commentaries review historical perspectives, provide new insights, and suggest future horizons for the study of emotional availability (EA) within a developmental psychopathology framework. Along with the collection of empirical studies in this Special Section, they begin to chart a course for further growth and integration of EA into the field of developmental psychopathology. Taking stock of the research on EA, we realize that there is now a sufficient corpus to suggest that research focusing on this construct, as operationalized by the EA Scales (Biringen, Robinson, & Emde, 1998) is entering a more mature phase of inquiry. In the last 14 years, research on EA, including several special journal issues on the topic (see Biringen & Easterbrooks, 2008; Easterbrooks & Biringen, 2000, 2005, 2009), has explored the methodological concerns, reliability, and validity of the EA Scales and application across different samples and ages. This “critical mass” of knowledge (more than 100 peer-reviewed publications) supports the current focus on asking incisive questions for the field of developmental psychopathology (Cicchetti & Toth, 1995, 2009).

In our Commentary, we refer to the collection of studies in this Special Section, the invited commentaries, and works in progress designed to address the lacunae in research in this area. The invited commentators both applaud and challenge the conclusions of the authors and editors of this Special Section, pointing to several areas ripe for further discussion: methodological, theoretical, and applied.

## Methodological

Several of the commentaries raised interesting questions about the EA Scales, the common instrument used across all of the studies in this Special Section, questions related to the construction of the scales, and questions about analysis strategies for the use of the scales. We are especially intrigued by the suggestion of both Oppenheim (2012) and Bornstein, Suwalsky, and Breakstone (2012) of looking at patterns of the EA Scales rather than specific scales only, in part because these patterns may reveal more of the dyadic, relational aspects that reflect the nature of the EA construct. As far as we know, only two studies (Easterbrooks, Barrett, Brady, & Davis, 2007; Easterbrooks, Chaudhuri, & Gestsdottir, 2005) have taken such an analytic approach. These two studies of mother–child and father–child EA identified patterns of synchronous and asynchronous dyadic EA interactions between parents and their very young children. The dyadic patterns were associated with aspects of family life circumstances and context (e.g., mother–father relationships, caregiving contexts, parental depressive symptoms). We look forward to future work using such dyad-centered approaches that may foster knowledge about developmental psychopathology and lead to interventions based on particular dyadic patterns.

Regarding the scales themselves, changes in the most recent version of the EA Scales coding manual (4th ed.; Biringen, 2008) also present a more nuanced operationalization of EA. In the new edition of the coding manual, the EA Clinical Screener provides a dimensional and pattern approach that has been validated against the Diagnostic Classification of Mental Health and Development Disorders of Infancy and Early Childhood Parent–Infant Relationship Global Assessment Scale (Motz et al., 2010; and Attachment Q-Sort for child care providers: Baker & Biringen, 2011). Emde (2012) refers to the need for psychiatry to use EA in understanding and predicting psychiatric disorders, and to include the system as an aspect of intervention paradigms. The hybrid pattern/dimensional approach offered by the use of the EA

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Clinical Screener along with the fourth edition of the EA Scales will be appealing not only for research on developmental psychopathology but in the day to day clinical practice of treating clients and documenting steps of progress.

One issue highlighted by Bornstein et al. (2012) is the need for greater clarity of scale points, and, potentially, the meaning of the scale points. One of the attractive aspects of the EA approach has been the emphasis on continued development of the instrument to reflect the refinements of thinking and knowledge base in the area, and continued checks on interlab reliability (that is, not just reliability within one's laboratory or facility) but centralized reliability. We expect that several advances of the fourth edition speak to this issue: (a) expansion of the EA Scales from a 52-page (3rd ed.) to a 108-page manual (4th ed.) for the Infancy/Early Childhood Version and almost comparable lengths for the versions for older children; (b) creating 7-point scales for all dimensions, so that an observer can code on the same metric; (c) requiring direct/global scores that capture the observer's overall gestalt of an interaction (on 7-point Likert-type scales); (d) requiring scoring on 7 subscales within each of the six dimensions (sensitivity, nonhostility, nonintrusiveness, structuring, child responsiveness, child involvement), so that each dimension is rated on a 29-point metric that more fully captures the variability among cases; and (f) given the global and nuanced nature of the system, interlab reliability every 2 years, so that observers have a chance to check in about their observations and use of the system.

Although having a common measurement system and relationship language can be useful in the field of developmental psychopathology, how scale points are translated into risk status is also pertinent. Vliegen, Luyten, and Biringen (2009) proposed that adult sensitivity (on the 3rd ed., 9-point scale) could be divided into three zones, with "risk" indicated by scores 1 to 5, "nonrisk" corresponding to scores of 5.5 to 6.5, and "optimal" indicated by scores of 7 to 9; and child responsiveness could be divided into "risk" (scores of 1–3), "nonrisk" (scores of 3.5–4.5), and "optimal" (scores of 5–7) zones. This categorization was adopted by van den Dries et al. (2012) in this Special Section. Given further refinement of the system, we now prefer to view the child scales between 3.5 and 4.5 as "some risk," as these scores also are indicative of challenges for children's emotional relationships (e.g., an overconnected style of relatedness); similarly, we believe it important to further refine "risk" using the adult scales, with the lowest scores indicating a heightened level of risk. For the fourth edition, which includes the use of the EA Clinical Screener (range between 1 and 100), an adult-child relationship is assigned into one of four zones with the lowest three zones all considered "risky," albeit at different levels: "problematic zone" (1–40), "detachment" (41–60), "complicated EA" (61–80), and "dyadic emotionally availability" (81–100). Adult sensitivity and child responsiveness dimensions figure most prominently into assignment to these zones (with scores of 1–2/2.5 on either scale suggestive of "problematic zone"; scores of 3–3.5 suggestive of "detachment"; scores in the midrange suggestive of "complicated EA";

and scores above 5.5 suggestive of "dyadic EA"). Although the emphasis is on adult sensitivity and child responsiveness, all the scales are taken into account to arrive at this summary of EA and risk.

Emde (2012) and Bornstein et al. (2012) raised questions about measurement issues, including approaches to coding using the EA Scales. Specifically, might there be a "halo effect" across scales when a single rater is coding either both members of the dyad, or all of the scales for a particular dyad? We believe that there may be a potential to engender halo effects, especially in the coding of sensitivity when it is coded without a second look specifically to create clear boundaries between the different dimensions. Thus, the fourth edition addresses the multicollinearity issue by creating a second look, referred to as a two-tiered system (noted by Emde, 2012), where the coding is initially drafted, but then finalized only after consideration of potential halo effects. The multicollinearity issue can be handled only by a conscious recognition of this as a problem, and with attempts to maintain separable dimensions through this two-tiered system, whereby the coder takes some distance from the initial coding and reviews the codes to maintain boundaries (Emde, 2012). An additional approach to reduce the potential halo effect across parent-child ratings (taken in Easterbrooks' lab and growing in popularity now) is to have separate coding teams for each member of the dyad (so that mother and child are coded separately, e.g.). We encourage more such research, with varying use of contexts to assess EA.

We address some possible misconceptions about the use of the EA Scales, including the perception that the scales might not adequately capture issues of control and discipline. One of the major dimensions of EA (structuring) is devoted to the very issue of limit setting and discipline (pp. 63–66 in the 3rd ed.). Further, in the fourth edition, two subscales specifically address this issue, that is, subscale 4 (limit setting) and subscale 5 (remaining firm in the face of pressure). One of the papers in this issue (Timmer, Thompson, Culver, Urquiza, & Altenhofen, 2012) has generated quite interesting results using an observational paradigm that relies on increasing parental control over the interaction that often generates opportunities for discipline. Although most of the extant literature uses free-play contexts that set the stage only for an aspect of structuring (i.e., proactive guidance), the structuring dimension also assesses limit setting and disciplinary strategies, provided the context or circumstances call for this strategy.

Bornstein et al.'s (2012) call for rigor in new directions for EA measurement and research is compelling. As they rightly point out, recommendations have been made to use a minimum of 15–20 min (and preferably 30 min) of videotaped interaction to score EA. Yet, many studies (even in this Special Section) use very short observational periods; sometimes study constraints do not allow extended observations. Taking our cues from Ainsworth, developmental psychopathologists should be investigating what is really happening in a parent-child bond, and the only way to do this is to have more time with the dyad. Recall Biringen et al. (2005), who found that

increasing the duration of mother–infant interaction during naturalistic home observations increased the magnitude of the correlations between EA and attachment security, in a sample with children with disorganized attachments; 15-min observations predicted at the level of  $r = .21-.51$  and 2-hr observations predicted at the level of  $r = .38-.62$ . In this study, individual differences in the EA of mothers of children with insecure attachments were especially difficult to detect in the first 15 min. It may be time for the research area of developmental psychopathology to borrow from the practice area of developmental psychopathology, where the clinician would never think about an intake that lasted a few minutes. In this respect, a return to the clinical origins of EA in the work of Mahler, Pine, and Bergman (1975) and Emde (1980) may be timely.

### Theoretical and Applied Issues

We stated in our introductory section that the EA construct, and therefore the EA Scales, were based, in part, on attachment theory, and that we expect some degree of coherence between these constructs. But the constructs themselves are not identical. Emde (2012) makes an incisive comment about the EA–attachment linkages, stating, “Why would one expect any tight connections, since the constructs and the circumstances of assessment are different.” The EA Scales were developed to be partly attachment relevant and to partly capture dyadic emotional quality. It is interesting that they have been consistently predictive of attachment categories (traditional A–B–C), regardless of context (Easterbrooks & Biringen, 2000). When measured in the context of separation–reunion, the scales also have been predictive of attachment disorganization, as illustrated by Easterbrooks, Bureau, and Lyons-Ruth (2012). However, the prediction from EA to attachment disorganization dissipates when short, free-play contexts are used (van den Dries et al, 2012; Ziv, Aviezer, Gini, Sagi & Koren-Karie, 2000), although, it is interesting that one such study using a short duration and a free-play context reported a significant connection (Swanson, Beckwith, & Howard, 2000). We reiterate, “The EA Scales capture the affective tone of the dyadic relationship under *any* set of circumstances” if the goal is to predict overall affective tone, but if the goal is to detect a specific phenomenon such as disorganization of attachment, a separation–reunion context should be included in the observation protocol, because the attachment behavioral system is elicited under conditions of stress (Bowlby, 1969). This appears to be a misunderstanding of both van den Dries et al. (2012) and Oppenheim (2012) that the EA was intended to measure attachment disorganization in *any* brief, casual context. This simply is not so.

We agree with Oppenheim (2012) that development of the EA Scales owes much to the pioneering work of Ainsworth, Blehar, Waters, and Walls (1978) in their observations of mother–child interactions in the home setting. Ainsworth’s development of a set of scales, including maternal sensitivity, to capture nuances in maternal behavior, her clinical acumen

in understanding parent–child relationships, and her desire for long and elaborated observations to understand the quality of relationships, set the stage for a wealth of research examining mother–child interactions. Yet, we disagree that our characterization of EA–attachment linkages is based on inaccurate depictions of attachment theory and research. A premise of attachment theory is that attachment behavior is activated under conditions of stress or danger. The Strange Situation procedure (SSP) was developed in part because the home setting did not reliably provide sufficient opportunity to feel confident that attachment behavior was activated. This fostered the development of the SSP in which exposure to an unfamiliar stranger, in concert with separation from the attachment figure in an unfamiliar place, was a reliable activator of the attachment behavioral system. The coding of both the SSP and a more dimensional approach, the Attachment Q-Sort (Waters & Deane, 1985) relies heavily on the regulation of negative emotions and distress. Although positive emotions certainly are important in the measurement of attachment behaviors and patterns, they are more explicitly integrated into the coding of EA as operationalized in the EA Scales.

The development of the EA Scales also emerged from Emde’s pioneering work around the use of emotions in relationships. In the 1980s and 1990s when Emde (1980) first introduced the idea of “using your emotions,” it was revolutionary. Indeed, being in the context of the Emde lab, the creation and elaboration of the EA measurement system was an effortless integration of two paradigms that had not explicitly been related. Further, although Ainsworth’s view of interactions (likely) implicitly included “positive affect,” “dyadic perspective,” or “child’s perspective,” and foreshadowed EA, especially given her clinical depth and acumen, nonetheless, these components of the EA Scales (and some other components such as structuring) were not a focused part of the actual Ainsworth scales.

Beeghly (2012) noted the omission of cultural comparisons in terms of studies of EA and developmental psychopathology and recommended the consideration of cultural contexts in the development of treatment initiatives. We agree that although “research on EA virtually exploded during the past decade, with over 100 empirical studies and reviews to date” (Beeghly, 2012) and the international use of the system has extended to well over 25 countries and 5 continents, there remain important questions to ask about EA within a cultural framework. For example, issues of the meaning of the various components of the EA Scales in various cultural contexts, and for developmental psychopathology, are key questions to be addressed. A new wave of cultural and subcultural comparisons (in progress) should provide information at the basic-science level as well as at the level of treatment initiatives in a cultural context.

Each of the commentators and the investigators represented in this Special Section on EA recognize and underscore the importance of integrating the EA construct into the developmental psychopathology perspective, and the potential of such integration for understanding maladaptive and adaptive

aspects of development across the life span. But further refinement of this research paradigm includes a look to the future about how EA as a common and global “relationship language” that is used reliably and is well validated in different contexts and different age groups can inform the field of developmental psychopathology. Certainly there are limits to the use of the construct (e.g., in predicting associations with disorganized attachment from short play contexts) and refinements are necessary to inform future research. Thus, we would endorse moving to longer observational periods and varied contexts of assessment, and appreciate Beeghly’s (2012) suggestion of exploring EA in relation to age- and stage-salient developmental tasks.

Bornstein et al. (2012) note that an important conceptual aspect of EA is that it is bidirectional and dyadic, stating that both mother and infant are partners in an infant’s socialization. From a purely (but not simply) theoretical standpoint, a child’s contributions to a relationship is important. We would argue that they also are partners in the *caregiver’s* socialization. An infant who is low in responsiveness (perhaps behaviorally, but not emotionally responsive; or responding with negative emotionality) provides important information to the caregiver that will guide future interactions (and, presumably, maternal structuring, sensitivity, etc.).

When viewing EA within a developmental psychopathology perspective, and particularly in the context of evidence-based interventions, a focus on the child, as well as the caregiver, is truly appealing. A case in point is a pilot evaluation of a recent 6-week EA parenting intervention for families of children with a chronic illness (Manco-Johnson, Biringen, Stafford, & Taylor, personal communication, 2012). Given that the families were living in low-stress circumstances (with most scoring in the normative range in sensitivity, structuring, nonintrusiveness, and nonhostility), it seemed unlikely that the study could reveal positive effects of the intervention. However, at posttest, many of the parents scoring high in sensitivity improved in another aspect of EA, with some showing more structuring behaviors that took account of the child’s ability to receive the attempts, or fewer instances of subtly intrusive behavior. The most interesting part, however, was the change on the child’s side of the relationship: it was as if the children now joined their sensitive mothers in creating a mutual relationship, a circle of sensitive bids that were responded to with delight, or nonintrusive availability that was associated with greater involving behaviors on the part of the child. The EA Scales are a dyadic assessment and interventions using EA principles are beginning to reveal that the children are completing the mutuality circle begun through sensitive bids for interaction (cf. Biringen et al., 2012). Thus, we think it an important advance to make explicit the dyadic focus of the EA construct and scales, and look forward to future research that highlights the mutual relational aspects across a wide developmental spectrum.

A separate conceptual and applied issue with respect to EA is the extent to which different types of treatment initiatives can and do alter this global affective quality of parent–child rela-

tionships. In a recent randomized control trial of parent–child interaction therapy (PCIT) with a very high-risk group of abusive families in Australia (Thomas & Zimmer-Gembeck, 2011), the investigators included standard measures of child symptoms, parenting stress, and observed discrete parenting behaviors (e.g., frequency of parent verbalizations and counts of praise, questions, commands) as well as rating of global maternal sensitivity, using the EA Scales (Biringen et al., 1998). They found that the parents showed *significant* improvements (mean values) in both discrete parenting behaviors and EA sensitivity from pretest to posttest. However, a separate look at the data indicated an important distinction between discrete behavior codings and EA: well over 68% of parents showed improvements in discrete behaviors, whereas only 5% showed improvements in sensitivity, likely suggesting the challenge of changing a mother’s “affective procedures” (Emde, 1980) and, hence EA sensitivity. Findings suggest that PCIT (and potentially other behaviorally based programs designed to decrease parent–child coercive cycles) may need to be augmented with training in emotional procedures (Emde, 1980).

In a separate case-study analysis (Dombrowski, Timmer, Blacker, & Urquiza, 2005), the investigators found that although discrete behaviors as well as maternal sensitivity improved from pre- to post-PCIT, other aspects of EA did not (e.g., structuring, child responsiveness, and child involvement). Although this was a single treatment case, the study underscores an additional point: that going beyond maternal sensitivity is an important avenue for future research and program evaluation. As alluded to earlier in this volume, we have some misgivings about using only a maternal sensitivity measure, as changing maternal behavior does not always translate into changing child behavior because many mothers are able to look somewhat sensitive in front of the camera (a quality termed *apparent sensitivity*) but not necessarily use affective skills in their everyday lives with their children. Including maternal structuring, nonintrusiveness, and nonhostility (Garvin et al., 2012; Stack et al., 2012) and the child’s side of EA are critical in intervention work, because the research indicates that the link between sensitivity and attachment (at least with short observations) is only moderate (van IJzendoorn et al., 1995). Further, some intervention research indicates that attachment security in the child may be changed without concomitant change in maternal sensitivity (Cohen et al., 1999).

Although many incisive questions were posed by the reviewers, one question not posed is the following: “How can EA be used outside the parent–child dyad?” Emde (1980), of course, first discussed the concept of EA in the context of the therapist–client relationship. Research using the system indicates that the EA Scales can be reliably applied to these relationships, and also with respect to different types of therapeutic initiatives. Rosenberg (2011) applied the measurement system in the context of brief individual child therapy in elementary schools, and Schneider (2011) applied the system in the context of animal-assisted therapy within human–animal teams (school professional, dog, and dog owner, using a standardized protocol), also in elementary schools, with



reliable assessment of the child's side of the relationship (child to therapist, child to dog, and child to school professionals/dog owner) in both projects. Of interest, child EA showed change from pretest to posttest in the animal-assisted therapy condition only.

Using EA as a marker of change in manualized intervention studies is an especially exciting frontier. Given the encouraging findings thus far, we are in a position to respond to Bornstein et al. (2012)'s last question, which is "Can we successfully intervene to enhance EA?" To this we cautiously say "yes"; however, the intervention to change EA occurs in the context of a particular dyadic relationship, and whether that corrective experience will then transfer to new contexts is a crucial intervention-science question that will further integrate EA into a developmental psychopathology framework.

The operationalization of the EA construct in the EA Scales has been used for the past 14 years, with the new fourth edition clearly explicating types of open communication and dialogue that Oppenheim (2012) suggested would be needed to enhance the system. Of course, as children get older, the communication aspect of relationships becomes particularly important. Additional indicators of communication or other attributes can be important in elucidating the system. One study (D. M. Teti, personal communication, 2012) found that maternal warmth (measured by a separate scale) was not predictive of attachment security (Attachment Q-Sort; Waters & Deane, 1985) but that EA sensitivity (using the EA Scales, 3rd ed.) was, suggesting that warmth can only go so far: sensitivity to the child's behaviors is what predicts attachment. This separation of warmth and sensitivity is an important conceptual clarification and has

been included in the fourth edition of the sensitivity scale, so that a warm but less sensitive adult can receive a score as high as (but no higher than) 4 on the 7-point scale. It is worthy of note that Mary Ainsworth (Ainsworth & Marvin, 1995) also highlighted the distinction between warmth and sensitivity, when interviewed by Robert Marvin. As suggested by Oppenheim in his Commentary (2012), including other parent-child coding systems in the same study may be helpful in furthering our understanding of the EA construct and, we add, in our understanding of the cultural applications of EA.

We close by noting that Emde's (2012) Commentary is a "predoctoral or postdoctoral student's dream," forging ahead by placing EA in the context of the new frontiers of epigenetics, affective neuroscience, and intervention science. He asks, "Can assessments of EA be helpful in guiding early targeted interventions for children who are the offspring of high stress pregnancies?" This invites an investigation of the potential for identifying markers of psychopathology prenatally and then intervening at the level of the postnatal caregiving environment, through the specificity offered by the EA Scales instrument. Although one study in this Special Section (Killeen & Teti, 2012) opens the door to the understanding of affective neuroscience using this highly developed measurement system, the questions concerning the applications of the EA concept to developmental neuroscience and developmental psychopathology are myriad and mostly unexplored. The collection of papers in this Special Section, accompanied by the invited commentaries, suggest many promising future directions for the study of EA within a developmental psychopathology framework and whet our appetites for future research endeavors.

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