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Sociocultural Context and Methodological Pluralism Matter for all Developmental Science

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In the Monograph, *Joint Attention in Human and Chimpanzee Infants in Varied Socio-ecological Contexts*, Kim Bard and her co-authors (2021) offer concepts and findings that really matter for our field. They suggest that much past research on *Joint Attention* (JA) begins by using the default assumption that JA is defined as social bouts in which "an infant looks or gestures to an adult female to share attention about an object, within a positive emotional atmosphere" (p. 7). They argue that the expression of JA may be expected to differ across ecocultural and structural contexts which have varied community socialization goals, parenting strategies, caregiving practices, and ethnotheories. In recognition that infants' interactions may often involve sharing activities (not only objects), involve a variety of partners (not only mothers), may be initiated by those partners (not only by infants themselves), and may involve varied emotions (not necessarily positive), the research team expanded their focus from JA to *Coordinated Joint Engagement* (CJE). The latter construct conceptualizes attention as socially distributed, enmeshed within its cultural and ecological context.

More generally, Bard and colleagues advocate a comparative, mixed-methods approach to conceptualizing and carrying out research, arguing that "Particular forms of social cognition (and their functions) are highly influenced by lived experiences that vary across socio-ecological and cultural settings. Infants develop types of social cognition that are aligned with culture-specific parenting practices, ethnotheories, and socialization goals" (p. 190). This conceptual framework for thinking about the development of shared attention can likewise be applied to all other developmental processes and matters for children and families everywhere (Keller & Bard, 2017; Chen, Fu, & Yiu, 2019; Gottlieb & DeLoache, 2017; Lancy, 2014; LeVine & LeVine, 2016; Rogoff, 2003; Weisner, 2020). The Monograph includes human infants in three socioecological communities: urban university towns in the U.K.; foraging lifestyles in the tropical rainforest of Africa (Aka); and subsistence farming lifestyles in rural Cameroon (Nso).

Two features of the work by Bard and colleagues deserve highlighting, and could be extended across all topics in developmental science. First, this research team links CJE to their deep knowledge about the sociocultural ecology of each studied group, knowledge that they have

gained through years of ethnographic connections and personal commitments to fieldwork. Second, the team shows that mixed qualitative and quantitative methods are essential for discovering findings that matter in sociocultural context.

Sociocultural Context: The Cultural Learning Environment

The authors recognize that, even though they carefully describe each of the cultural contexts and communities with regard to infants, they "could not determine which particular variables of the socio-ecology, or the culture were related to specific forms of joint attention" (Bard et al., 2021, p. 179). Establishing specific links is an important aspirational goal, but one which sets a very high bar. In this respect, the authors have done the next best thing by using their rich knowledge of each community's *culture complex* — a suite of interconnected cultural, social, and ecological and subsistence conditions that cohere and jointly influence the behavioral and cognitive processes described for CJE. The team had very specific data on the way that the culture complex of each community led to the interaction patterns with children they observed and then successfully represented in their coding.

There are many strong conceptual frameworks available for the project of linking specific cultural contexts and developmental learning processes in a *Cultural Learning Environment*, or CLE (Edwards & Bloch, 2010). For example, Worthman (2010) reviews three variations on bio-ecocultural frameworks that provide more detailed ways to describe and measure culture and ecology. These include the developmental niche (Harkness & Super, 1996), bioecocultural frameworks, and ecocultural theories (Whiting & Edwards, 1988). Key is the focus on socioecological structure and daily routines, and activities and practices associated with settings created within the CLE. (See Cole, 1996; Goodnow, Miller, & Kessel, 1995; Whiting, 1980.)

Routine activities (e.g., mealtimes, bedtimes, family visits, homework, reading together, chores, caregiving to others, going to church or prayer, school, play, screen time, "play dates") constitute the pathways children and caregivers are on. Routine scripted activities and cultural practices make up the "stepping stones" of those pathways in this conceptual framework. Activities consist of resources; normative scripts; the people participating and their relationships; feelings, emotions and motives driving and engaging participation; and being relatively stable, patterned, and expectable. These activities in local cultural settings organize children's attention and emotion and thus variations in CJE. This is an operational way to describe the settings within which "lived experience" occurs: "Let me just tell you what happens from the time I get up in the morning until I go to sleep at night" as a mother put it (Bernheimer & Weisner, 2007, p. 192). Asking this mother to instead fill out a survey or questionnaire about taking care of her children and how stressful it might be, or if she has enough resources, can be useful but is incomplete because it lacks veridicality, and is not close to the actual activities and experiences of the mother and her children. Ecology, institutions, colonial histories, and broader structural constraints and opportunities help account for the organization of daily routines and the activities that make up those routines.

The findings reported by Bard and colleagues show not only variations across cultures and species, but also support their universalist claim regarding shared intentionality, specifically,

their overarching conclusion that "triadic connectedness, the conceptual construct underlying joint attention, is commonly exhibited by human and chimpanzee infants" (p. 190). Observed episodes of triadic connectedness occurred in almost two-thirds of the sampled time segments, leading the authors to remark: "We consider the ubiquity of triadic connectedness to be the most important finding in our studies" (p. 172). At the same time, however, they found no single form of CJE to be normative across the samples. The authors link evolved universal learning mechanisms with equally universal alignment with the specific characteristics of the varied cultural learning environments that they are born into. Konner (2010) for example, evocatively describes the child as an active *Culture Acquisition Device* (CAD), prepared by evolution to discover what the world is like — what is safe, dangerous, patterned, and interesting. Konner outlines 20 of these CADs, divided into four broad categories of learning mechanisms that are involved in the acquisition of culture (and any information from the environment): reactive, facilitative, emotional, and symbolic processes.

A productive future agenda for the study of CJE and culture, context, and human development would be to systematically consider the infant or child as a well-prepared culture acquisition device, living in one of the many diverse cultural contexts found around the world, recruiting these attentional and learning mechanisms during cultural activities that matter for survival and the developmental pathways valued in that community. With the findings about CJE reported in the current Monograph, perhaps an additional and more expansive research program could be planned. A program like this could extend beyond the participant groups sampled to date, using not only the extensive codes already described in the Monograph, but expanding them further as needed for additional cultures. Ideally, such research would also include systematic attention to comparative measures of infant routines, activities, and settings.

In addition to the contributions of the Monograph in proposing a more inclusive definition of joint attention (as Coordinated Joint Engagement), and the goal of valorizing the lives and practices of the African communities with their samples, the Monograph includes cross-species comparisons of human and chimpanzee joint engagement. The authors include these comparisons in order to explore and describe the extent to which humans display unique joint attention characteristics, including the core ability of "… triadic connectedness, that is, engaging with some one about some thing…". The Monograph found that this was a common occurrence across the human and chimpanzee infant samples, but also found significant variation within and across all infant samples.

The authors recognize that some of their infant samples are small, but we should also consider how difficult it is to assemble such important, diverse samples, gain trust, and carry out the observations! The Monograph authors themselves reflect on this: "Given our descriptive results, which must be considered illustrative not definitive given our small samples, we offer the Monograph as a proof of concept to show the promise of decolonizing important topics in developmental science." Readers, if they prefer, can consider the group comparisons across the samples not only based on the quantitative analyses, but also as discoveries of important community (or species) patterns of CJE, explored through rich ethnographic research and systematic observations using new and more inclusive coding categories, now worthy of further study with larger samples in many more communities.

Some might be concerned as well about the direct cross-species comparisons of both African and U.K. samples with chimpanzees, since some invidious comparisons of Africans to chimpanzees and other primates is a painful historical issue and so might come to mind for some. Cross-cultural and cross-species comparisons can sometimes be a sensitive topic in conversations about "decolonizing" research. I raise this not because there is anything in this Monograph whatsoever suggesting such a concern — but to be sure that any concern is recognized and that it is clear that great care was taken. The Monograph authors emphasize that diversity, plasticity, and variability are major principles of adaptation. Cross-species comparisons such as in this Monograph investigate the extent to which humans display unique joint attention characteristics. The intention for such comparisons throughout this Monograph is to broaden existing definitions of joint attention, and that is why — and the only reason why — the Monograph includes these cross-species comparisons.

Pluralism in Methods and Diversity in Samples

Bard et al. (2021) shows the importance of diverse samples and settings using mixed methods. They note past researchers' over-reliance on samples and theory drawn from societies now often referred to as WEIRD (*W*estern, *E*ducated, *I*ndustrialized, *R*ich, and *D*emocratic; see Apicella, Norenzayan, & Henrich, 2020; Henrich, Heine, & Norenzayan, 2010). Even more limiting, many WEIRD samples traditionally have been of college students or other convenience samples, historically overrepresenting White and higher-SES populations. Rai and Fiske (2010) introduce another construct and acronym cited by the Monograph authors — *observation and description-deprived* (ODD) research evidence. Multiple methods are essential to study the psychology of natural human experience grounded in everyday life in specific natural or ecologically valid settings. Bard and colleagues succeed in their "endeavor to remove bias ingrained by an over-reliance on WEIRD samples" (p. 13) by sampling human infants that were living in urban U.K., foraging in an African rainforest (Aka), and living primarily as subsistence farmers in Cameroon (Nso). The authors endorse "current guides to best practice that urge authors to specify normativity, representativeness, and generality in developmental and comparative studies" (p. 181).

Such a research program needs to be based on methodological pluralism, and the integration of qualitative and quantitative mixed methods, an approach which is increasingly being used throughout the social sciences (Deutsch & Tolan, 2018; Small, 2011; Weisner, 2018; Weiss, Eisenhart, et al., 2019). Mixed methods and analyses can add interpretive power as a complement to statistical power. Interpretive power is the ability to understand individuals' experiences and behaviors in relation to their institutional and cultural contexts (Brady, Fryberg, & Shoda, 2018). Interdisciplinary work and mixed methods should be an expected, normative research model for a program of work exploring topics throughout developmental sciences. To code JA, for example, the author team's inclusive coding scheme had to explicitly overcome an implicit bias in existing coding schemes. They did not want to "disadvantage" the communities which, as they already knew from ethnographic and observational fieldwork, did not engage in a great amount of face-to-face contact, had numerous and varied kinds of social partners (in addition to mothers), did not regularly play with toys, valued infant emotional calmness, or valued adult-led as well as child-led interactions. The coding schemes which had

been developed earlier had not been based on studying these kinds of communities and child experiences, and as a result, these coding schemes were incomplete, lacking in descriptive usefulness and generalizability.

The same pluralism in methods helps identify and correct biases due to race, class, gender, or other groups. Biases like these are too often embedded in received methods, remaining implicit and unexamined. Kirkland (2019), for example, argues that one solution is that we need diverse, methodologically rigorous research methods that have been designed explicitly to overcome such biases. Carol Lee and colleagues also have argued for this approach in an effort to avoid race-based and other group-based exclusions when conducting work intended to advance educational scholarship and action. They comment that "understanding people's participation in cultural practices is essential to the scientific study of learning" (Lee, Nasir, Pea, & de Royston (2020, p. xvii).

Of course, specialized studies using carefully controlled conditions and focused, specific measures to study attention or any other developmental topic are essential as well, and require expertise and justify a narrower focus and sampling. Culture and context can then be bracketed out for good reasons. However, eventually, as part of any complete program of research, context needs to be placed back in. Arbitrarily ruling out plural methods and simply staying within a narrow, siloed workflow (Hruschk, Munira, Jesmin, Hackman, & Tiokhin, 2018) are insufficient for a research program intended to claim generalizability or describe normativity. Although mixed-method studies in diverse sociocultural settings can be more difficult, and they may demand more investment than do studies using easily administered and quantified survey items, they can be very rewarding. A given investigator may lack the skill sets and community knowledge needed to do mixed method studies, but as this Monograph by Bard and colleagues demonstrates, it is possible to assemble collaborative teams which can collectively offer a rich range of methodological expertise and deep knowledge of and engagement with diverse communities.

Using multiple methods and expanding the range of peoples and contexts included in research will increase the ways the resulting findings matter for developmental science (Hay, 2017). The Monograph by Bard and colleagues has modeled this approach, and thus its contribution rests not only in advancing our understanding of joint attention and coordinated joint engagement in particular, it provides a model for how developmental research may be conceptualized in general. The remarkable and varied ways children learn and understand around the world will brilliantly illuminate developmental science when we bring that light in.

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