

Culture and early social-cognitive development

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Abstract

From a developmental systems perspective, this chapter focuses on the question whether culture matters for children's early social-cognitive development. Based on a review of the current cross-cultural literature, we evaluate the current state of research on cross-cultural similarities and differences in major developmental milestones of early social cognition, namely (i) the development of self-awareness and an understanding of self and others as intentional agents, (ii) advanced forms of social learning and (iii) prosocial cognition and behavior. Overall, the current cross-cultural research suggests universality without uniformity: the common suite of social-cognitive skills emerges reliably and, at the same time, there are culture-specific accentuations of social-cognitive development across domains that mostly are in line with cultural values, beliefs and practices. By following different agendas when providing and structuring physical and social settings for their children, caregivers coherently organize infants' nascent intuitions, sentiments, and inclinations into increasingly coherent patterns of attention, appraisal, experience and behavior that are in line with cultural ideals and beliefs. By doing so, culturally informed social interaction sets the stage for culture-specific modulations of social cognition already in the first years of life.

Keywords

Culture, Social-cognitive development, Developmental systems, Self-awareness, Other-awareness, Social learning, Prosociality

1 Culture and early social-cognitive development from a developmental systems perspective

The key issue that we address in this review is, whether culture matters for children's early social-cognitive development. We define social cognition broadly as ways of understanding humans and human behavior, including self and others, and their relationships. By focusing on early social-cognitive development, we limit our review

to the development from birth until the onset of explicit meta-representation, that is, roughly the first 3–4 years of life. Methodologically, in the studies reviewed here, *understanding* is inferred from infants' and toddlers' behavior, including both social behavior and implicit behavioral measures.

Generally, the question whether culture matters for early social-cognitive development can be addressed from two different perspectives. From a phylogenetic perspective, the question is whether and in what way the evolution of social cognition in humans is related to the evolution of humans as a cultural species. From an ontogenetic perspective, the question is what the cross-cultural similarities and differences are that characterize children's early social cognition as it develops within social interaction. While the answer to the first question is theoretical and informed our decision on which aspects of social cognition to attend to, the answer to the second question sets out to review the current evidence and to identify empirical and conceptual gaps for future research.

Concerning the phylogenetic perspective, we mainly draw on cultural evolutionary theory (e.g., [Henrich and Henrich, 2006](#); [Henrich and McElreath, 2003](#); [Richerson and Boyd, 2008](#)) and argue that, once cumulative culture had emerged, humans' competence depended on increasingly larger bodies of socially transmitted skills and knowledge. This dependence on culture constituted a selection pressure for genetic evolution toward efficient cultural transmission, which resulted in increasingly higher levels of mind-reading capacities, specific biases in social learning, including conformity and normativity, and increased levels of (pro)sociality. Thus, the tentative answer to our first question is that much of humans' social cognition is the result of a continuous adaptation to an increasingly cultural world. Since humans are a highly cultural species, much of humans' social cognition is intricately linked to the appropriation, modification, and transmission of culture. Along these lines, our review focuses on the development of understanding self and other, advanced forms of social learning and prosocial cognition and behavior as core aspects of social-cognitive development.

From an ontogenetic perspective, the question becomes whether the specific culture a child grows up in has an effect on social-cognitive development. Based on relational developmental systems and transactional meta-theoretical frameworks ([Gottlieb, 2007](#); [Overton, 2013](#); [Oyama, 2000](#); [Sameroff, 2010](#)), we think of child development as the development of a system that is composed of elements at different levels, including sub-personal levels, such as cells or organs, the individual and its physical and socio-cultural environment. Importantly, these approaches emphasize the reciprocity of influences within and between these elements and levels of the system that lead to stability and change of system states across time. Thus, no level has causal priority, but it is the self-organizing interaction between levels that drives development ([Smith and Thelen, 2003](#)). Along these lines, we go beyond sub-personal processes and individual developmental outcomes and will equally attend to social interaction between children and the caregivers as a further core component of the developmental system. In social interaction, the individual developmental level of the child dynamically interacts with the socio-cultural level,

namely culturally informed caregiving behavior. In particular, we assume that caregivers' beliefs and practices, together with toddlers' behavioral inclinations, constitute the social interactional processes that inform social-cognitive development. When reviewing and discussing the current literature, we will also draw on basic principles of dynamic system theory (Thelen and Smith, 2007; van Geert, 1994), most importantly the concept of attractor states that are the stable states a developmental system settles in and that become important when defining the role that caregivers' culturally informed beliefs and practices play in child development.

Based on this framework, it is a central assumption that it is through social interactional processes that the developmental system stabilizes and changes and, hence, the child develops. By development we mean that either new developmental attainments emerge (including motives, cognition and behavior) or that developmental attainments become further differentiated and integrated at increasingly complex and novel levels of organization. Along these lines, a child's current motives and social-cognitive processes are not conceptualized as "innate" but as the result of reciprocal transactions between intra- and interpersonal processes up to this point in development.

While most theories on social-cognitive development recognize the important role of social interaction for child development, they differ widely in whether they, first, assume cross-cultural variation in social interaction and, second, assume that this variation leads to cross-cultural variation in child development. While some theories (e.g., Callaghan et al., 2011; Tomasello et al., 2005) propose that, given a species-typical environment, the developing child will make the social experiences necessary for key social-cognitive capacities to emerge and differentiate in universally uniform ways, cultural and ecocultural approaches to social-cognitive development propose that the ways in which children experience and understand the self, others, and their relationship (e.g., Keller and Kärtner, 2013) or the ways in which children attend to and learn from others differ across cultures already during the first years of life (e.g., Rogoff, 2003; Super and Harkness, 1986). Thus, the current review will evaluate both positions, namely universal uniformity and culture-specificity of early social-cognitive development, when integrating and discussing the current literature.

Across theories, it is a widely shared assumption that children's appropriation of culture depends on a set of key psychological mechanisms among them both motivational and social-cognitive processes. Concerning motivational processes, soon after birth children show a strong motivation to engage with others in positive ways (Keller, 2007) and, later on, to participate in ongoing endeavors (Rogoff, 2003). This social motivation and the experiences that result from children's participation are intricately related to the development of key aspects of social cognition, namely: (a) the development of self-awareness and an understanding of self and others as intentional agents, (b) advanced forms of social learning, including high-fidelity imitation and the normative stance, and (c) prosocial cognition, motivation and behavior (Kärtner, 2015, 2018; Rakoczy and Schmidt, 2013; Tomasello et al., 2005). According to theories in comparative psychology (e.g., van Schaik, 2016)

and cultural evolutionary theory (e.g., Richerson and Boyd, 2008), these are some of the key psychological mechanisms that make humans cultural beings and that make human culture distinct, namely cumulative and pervasive.

In the following, we will review theoretical proposals and empirical findings that address these three developmental milestones of social cognition. In doing so, our review takes into account both developmental outcomes and the social embeddedness of that development. In this sense, we focus on, first, cross-cultural similarities and differences in the emergence of developmental attainments and, second, cross-cultural differences in social interactions that are associated with culture-specific development.

2 Cross-cultural similarities and differences along key developmental milestones

2.1 The self and other in infancy and toddlerhood

2.1.1 Self-awareness

In the first months of life, infants' nascent awareness of self and others develops within social interaction with their primary caregivers. One proximal mechanism that sensitizes infants to their internal mental states has been suggested by Gergely and Watson (1996, 1999) in their social biofeedback model. The authors' basic idea is that—based on infants' interest in human faces and their sensitivity for contingent responsiveness—infants are sensitized to their own internal states by caregivers' repeated displays of partially imitative and marked reflections of infants' affective and intentional states.

One developmental indicator of an increasing self-awareness is the *2-month shift* that describes a qualitative change in the way infants interact with their social environment: They become more attentive, look longer at others' faces, and start smiling socially. Based on findings from longitudinal studies, Lavelli and Fogel (2002, 2005) describe the mother-infant dyad as a dynamic, co-regulatory system that stabilizes around specific ideal states, namely the visually attentive and positively aroused infant. More specifically, by combining ontogenetic (i.e., longitudinal trajectories of infant and maternal behavior) with microgenetic (i.e., transitional probabilities given maternal or infant behavior) analyses, the study by Lavelli and Fogel (2005) shows that, across the first months of life, certain behaviors of the mother and infant elicit specific behaviors from the interaction partner, leading to cycles of mutual amplification. For instance, while maternal talk or smile is both contingent on and leads to infants' simple attention in the first month, there are strong bidirectional links between maternal talk or smile and both infant cooing and smiling in the third month of life. Thus, with infant age, these patterns become increasingly more complex and reliable and, as a consequence, the developmental system establishes and stabilizes the behavioral patterns associated with the 2-month shift.

While this co-constructive theory (see also Messinger and Fogel, 2007) assumes that the developmental system—consisting of the developing infant and the

mother—stabilizes around universally uniform ideal states (so-called attractor states in the dynamic systems terminology), namely the visually attentive and positively aroused infant, other studies have shown that these ideal states critically depend on caregivers' cultural models, that is, shared beliefs about infant development and associated practices. If the cultural model is about positive emotionality within face-to-face interaction, caregivers will be motivated to establish and sustain mutual gaze and social smiling in their infants (see also Kärtner, 2015; Kärtner et al., 2013). However, if the cultural model is about the quiet and calm child, social smiles may pass by unnoticed. Along these lines, cross-cultural studies have shown that the development of both mutual gaze and social smiling are contingent on cultural beliefs and practices: Only if caregivers value mutual gaze and social smiling—as indexed by culture-specific contingency patterns (Kärtner et al., 2008, 2010b) or affect mirroring (Broesch et al., 2016; Wörmann et al., 2012, 2014)—will their infants show an increase in mutual gaze and smiling—an indicator of accentuated self-awareness—toward the end of the second month (Kärtner et al., 2010b; Wörmann et al., 2012, 2014).

In the second year, these cross-cultural differences in self-awareness manifest in an earlier onset of a specific type of self-awareness indexed by *mirror self-recognition* (Broesch et al., 2011; Cebioglu and Broesch, under review; Kärtner et al., 2012; Keller et al., 2004; Rochat et al., 2012). As discussed by Kärtner et al. (2012), mirror self-recognition (MSR) reflects becoming aware of oneself from a bird's eye view, based on a representation of the self as an autonomous intentional agent (i.e., the “Me”) that is based on subjective self-awareness (i.e., the “I”). In their cross-cultural study, these authors report that the ability to identify one's mirror image develops significantly earlier in educated urban middle-class contexts that emphasize the development of autonomy—educated middle-class families from Osnabrück, Germany and Delhi, India—compared to toddlers living in subsistence-based farming ecologies—here rural Nso families from Cameroon and families in Rajasthan, living about 100 km outside of Delhi. In support of the cross-cultural validity of self-recognition task, there were no effects of increasing mirror familiarity across time and MSR was correlated with reported pronoun use, especially in the two rural samples (Kärtner et al., 2012; cf. Broesch et al., 2011; Rochat et al., 2012).

Overall, these studies suggest that self-awareness emerges reliably across cultures. At the same time, there are marked differences concerning the developmental pattern of the 2-month shift and the age of emergence of MSR that suggest cultural differences in the development of self-awareness that are contingent on culture-specific beliefs and practices. More specifically, current evidence suggests that caregivers from cultures that emphasize autonomy and independence show caregiving behavior that accentuates children's self-awareness in infancy and toddlerhood.

2.1.2 Other-awareness and mindreading

As infants and toddlers become aware of their own experience, their behavior reflects an increasingly sophisticated understanding of others' mental states. While there is a large literature on cross-cultural similarities and differences in advanced mind-reading skills, especially explicit false-belief understanding (Callaghan et al., 2005;

Wellman et al., 2001), and associated social interactional processes (e.g., mental state talk, see Taumoepeau et al., 2019), there are only a few studies focusing on the emergence and differentiation of mind-reading capacities earlier in life.

In a notable study, Callaghan et al. (2011) report universal occurrence of six different indices of *understanding and sharing others' intention and attention* (i.e., gaze following, joint attention, imitation, pointing, helping, and cooperation) based on studies with 10- to 25-month-olds from three different cultures, namely middle-class families in rural Canada and families with low levels of formal education from rural, small-scale communities in Peru and India. For all indices, performance was either above chance or higher than in a control condition in all three cultures, supporting the authors' assumption of reliable emergence across cultures. At the same time, the data reported show considerable cross-cultural variation in several tasks. For standardized and intentional imitation (i.e., imitation of intended, but unsuccessful outcomes), pointing and gaze following infants from rural Canada showed higher performance, at least for some ages and especially when compared to rural Indian infants. Assuming accentuated self-awareness in Canada (see Section 2.1.1), this culture-specific pattern could be interpreted according to the co-emergence hypothesis (e.g., de Waal, 2008) that states that other-awareness emerges simultaneously with self-awareness. Alternatively, this relative advance of Canadian toddlers could be interpreted as a method bias, favoring toddlers from Western contexts. Against this latter interpretation speaks a reversed pattern of findings for collaboration, that the authors also interpret as an index for understanding others' intentions. More specifically, Peruvian and Indian toddlers overall showed more reengagement attempts—trying to reactivate a suddenly un-cooperative partner—than toddlers from Canada and, furthermore, there was a more distinct increase with age within the former two cultures. While these findings would be in conflict with a pure co-emergence interpretation, we suggest that the collaboration tasks may tap into a different aspect of socio-cognitive development as well, namely the development of prosocial behavior (see Section 2.3).

Another set of studies focused on infant *pointing* that emerges around 12 months and indexes the awareness of others as intentional agents and the intention to establish joint attention with another person over a third object or event. In that sense, infants point for others in order to inform them helpfully or to point out new or absent referents (Liszkowski et al., 2012; Tomasello et al., 2007) and there is first evidence that this behavior emerges around the same age across cultures. Based on a standardized elicitation procedure—a decorated room that mothers and their infants explored—Liszkowski et al. (2012) could show that the majority of 10- to 14-month-olds showed index-finger pointing across seven different cultures, ranging from Western educated urban middle-class families to families from Non-Western subsistence-based farming communities with basic levels of formal education.

When resorting to more ecologically valid designs, Salomo and Liszkowski (2013) could show that pointing emerged between 10 and 14 months in educated urban middle-class families from Nijmegen (Netherlands) and Shanghai and Yucatec-speaking Mayan families in Yucatán Mexico from a remote rural area. Furthermore, there were cross-cultural differences in the degree of pointing and other

deictic gestures that depended on social interaction, namely the density of triadic interaction and partners' use of deictic gestures, especially index-finger pointing, which was largest in families from Shanghai, followed by families in Nijmegen and, at last, Mayan families. Brown (2012) reports similar findings—namely cross-cultural similarities in interaction formats and the emergence of pointing and cross-cultural differences regarding the density and frequency of target behavior—across two small-scale subsistence-based communities, namely Mayan communities in Mexico and Rossel Islanders from Papua New-Guinea. Based on her findings, she stresses the cultural-specific role that pointing might play in the organization of children's attention.

Associated with the current debate on explicit (elicited-response tasks) and implicit (spontaneous-response tasks) theory of mind (see, e.g., Rakoczy, 2017) or, more accurately, false-belief understanding, Barrett et al. (2013) report first evidence based on three different tasks (preferential looking, anticipatory looking and violation of expectation) that suggests that *implicit false-belief understanding* emerges at comparable ages across different rural, traditional Non-Western cultural communities with low levels of formal education, namely the Salar (China), Shuar/Colono (Ecuador) and Yasawan (Fiji).

Overall, these findings suggest that both understanding and sharing others' intention and attention and implicit false-belief understanding emerge reliably across cultures in the second and third year of life. Although the authors of these studies mostly set out to test assumptions on universal uniformity (testing either against chance or a control condition in each culture), the studies also report significant cross-cultural variation in pointing, imitation, helping, and cooperation. Taking these differences as signal (i.e., meaningful differences between cultures) and not noise (i.e., methodological artifacts), the culture-specific accentuation of pointing, imitation and helping are in line with the co-emergence hypothesis that suggests that accentuated self-awareness—that is found in cultures that emphasize autonomy—is associated with higher other-awareness. In the studies reviewed in this section, it was only in the case of pointing that the question of cultural differences was empirically addressed from a social interactionist perspective and findings support the assumption that the development of pointing is related to the density of triadic interaction and the use of deictic gestures during everyday interaction. To conclude, current evidence points at cross-cultural similarities and differences in infants' and toddlers' other-awareness. At the same time, evidence is scarce and future studies should aim at not only describing similarities and differences across cultures, but should also assess experiences during social interaction that led to its development.

2.2 Learning by imitating others

2.2.1 Imitation

Infants and toddlers are predisposed to learn during social interaction. One powerful and early emerging social learning mechanism is observational learning, that is, learning by observing others' actions. The typical generalized assumption concerning the development of observational learning—based largely on experimental

studies in Europe, the United States, and Japan—is as follows: Children start by simple imitation of modeled behavior around 6 months, before they start engaging in deferred imitation, that is, imitating after a delay of minutes to days after observing a model, later in the first year. During the second year, toddlers start imitating the model's intention rather than the model's actual behavior (intentional imitation, Meltzoff, 1995), before they start engaging in high-fidelity imitation sometime during their third year, copying reliably not only causally relevant, but also causally irrelevant behavior (Horner and Whiten, 2005).

Concerning *simple imitation*, the study by Callaghan et al. (2011) provides evidence that, by 9–12 months of age, most children imitated at least one modeled action, especially in a natural imitation task, across three cultures, namely rural contexts in Canada, Peru, and India. Furthermore, toddlers from all three cultures reliably demonstrated *intentional imitation* by 18 months and both simple and intentional imitation improved during the second year of life in all three cultures. In studies on *deferred imitation*, 9-month-olds from urban German middle-class and rural Cameroonian Nso farmer families showed similar imitation rates after a 15-min delay and infants in both cultures more readily imitated an adult model as compared to a child model (Graf et al., 2014; Teiser et al., 2014). Concerning cross-cultural differences, Canadian toddlers performed better in both simple and intentional imitation, especially compared to the Indian toddlers (Callaghan et al., 2011). While the authors of that study accentuate the pattern of reliable emergence in the second year, these cross-cultural differences could be interpreted in light of the co-emergence hypothesis that couples self- to other-awareness (see Section 2.1).

In the context of imitation and observational learning, infants' *sensitivity to others' direct communication* is commonly argued to be a design feature of social learning (Csibra and Gergely, 2009). Thus, it is a common assumption that social learning is generally facilitated by addressing the child directly and studies on infant imitation typically chose paradigms with child-directed modeling. Since previous findings came from cultures in which direct and instructional interaction with infants is commonplace, Shneidman et al. (2016a) tested whether this sensitivity for child-directed interaction rather reflects social interactional experiences than an a priori learning mechanism. Different than in studies with US American toddlers from middle-class families, 15- to 21-month-olds from Yucatec Mayan villages performed equally well in a child-directed condition—in which infants were directly taught novel actions on objects—and an observational third-party condition—in which infants simply observed actors performing novel actions on objects. In another study with slightly older children (24- to 41-month-olds) from the same cultures, Shneidman et al. (2016b) found that when varying additional features between conditions—namely not only child-directedness as in the previous study, but child-directedness together with a salient focus on the target object and target action—children of both cultures imitated the target behavior more often in the child-focused condition. Overall, these findings support the interpretation that child-directed interactions do not, per se, have critical, a priori informational value for young learners, but might acquire this function, depending on social experience.

At the same time, cultural similarities seem to increase when enriching child-centeredness with other features that further accentuate the target behavior.

High-fidelity imitation (also called over-imitation) describes the tendency to imitate not only behavior that is directly relevant to achieve a goal, but also irrelevant behavior (for a recent review, see [Hoehl et al., 2019](#)). This behavior occurs reliably from around age three and is viewed as a key mechanism for acquiring the rituals, routines and conventions of a culture and for signaling group membership ([Legare and Nielsen, 2015](#); [Nielsen, 2018](#)). In that sense, some authors link high-fidelity imitation to the emergence of the normative stance ([Rakoczy and Schmidt, 2013](#)) or the concept of shared and collective intentionality ([Tomasello et al., 2012](#)). In support of this general assumption, the cross-cultural studies involving samples of 3- to 8-year-olds from Non-Western cultures support that high-fidelity imitation emerges reliably across cultures, involving samples from remote cultures with low levels of formal education living in subsistence-based ecologies ([Clegg and Legare, 2016](#); [Corriveau et al., 2017](#); [Nielsen and Tomaselli, 2010](#); [Nielsen et al., 2014](#); [Stengelin et al., 2019](#); [Taniguchi and Sanefuji, 2017](#)).

Concerning cross-cultural differences in high-fidelity imitation, [Clegg and Legare \(2016\)](#) report higher rates of high-fidelity imitation in 6- to 8-year-olds from rural Ni-Vanuatu as compared to US urban middle-class, which they interpreted as a consequence of cultural variation in child socialization for conformity. In support of this idea, [Clegg et al. \(2017\)](#) report that Ni-Vanuatu parents value conformity differently and judge conforming behavior to be intelligent and “good behavior” to a larger extent than US parents. Furthermore, [Berl and Hewlett \(2015\)](#) report the absence of high-fidelity imitation in 4- to 7-year-olds from an Aka hunter-gatherer community in the Congo basin rain forest. Finally, [Stengelin et al. \(2019\)](#) reported that urban German 3- to 7-year-olds showed higher levels of high-fidelity imitation than children from two rural Namibian communities (i.e., hunter-gatherer Hai||om, horticultural Ovambo). They speculate that these findings are associated with cultural differences in prevalence of dyadic pedagogy: While for German children child-directed pedagogy—that often affords high-fidelity imitation (e.g., teachers demand children to do things exactly the same way)—is commonplace, Namibian children rely more on observational learning. Overall, these studies report cross-cultural differences in high-fidelity imitation that may emerge as a function of social structure and caregiving practices. While the conformity interpretation offered by [Clegg et al. \(2017\)](#) might also hold for the findings from [Berl and Hewlett \(2015\)](#), since conformity is disregarded in these cultures ([Boyette and Hewlett, 2017](#)), none of the interpretations seems to be the only influence on the cross-cultural differences variation in high-fidelity imitation reported across studies, which makes a combination of independent factors that contribute to cultural variation most plausible.

To summarize, these findings indicate that infants’ and toddlers’ imitative learning is ubiquitous and highlight the importance of imitation as a powerful mechanism for the transmission of culture. Besides the reliable emergence of imitation during the first year and the reliable differentiation into more advanced forms of learning in children’s second and third year, there are also findings that point to cultural

variation, especially regarding the experience-dependent relevance of child-directed interaction for efficient social learning and the prevalence and children's reliance on different forms of imitation.

2.2.2 How is learning organized across cultures?

Infants and toddlers may learn by pure observation, however, in many cases, there is some kind of teaching—broadly defined as any behavior that facilitates learning—and many theories on cultural evolution stress the important role of teaching for cultural transmission and the emergence of cumulative culture (Richerson and Boyd, 2008; van Schaik, 2016). Thus, beyond reported similarities and differences in imitative learning during infancy and toddlerhood, other important questions are how teaching and learning is organized across cultures and whom young children learn from.

In their seminal study on the ways in which caregivers collaborate in shared activities with their 12- to 24-month-olds, Rogoff et al. (1993) describe specific patterns of how teaching and learning are organized. As it comes to cross-cultural differences, they contrast learning through instruction that is mainly organized by adults with learning through participation in adult activities that is based on toddlers' keen observation. While the former was more typical for highly-educated urban middle-class samples from the US and Turkey, the latter characterized interaction in families from a Mayan town in Guatemala and a village in India, in which children were minimally segregated from adult activities. Thus, the extent to which children are engaged in instructional, child-directed interaction with adults shows wide cross-cultural variation (for a review, see Rogoff et al., 2003), which supports Shneidman et al.'s (2016a) argument that children's sensitivity to others' direct communication may be facilitated, if not constituted, by a cultural emphasis on child-directed interaction.

Other approaches set out to chart the full repertoire of human teaching. In that sense, Kline (2015) suggested a taxonomy ranging from teaching by social tolerance (i.e., teacher does not stop close and intrusive observation) to direct active teaching characterized by explicit pupil-directed transmission of relevant information (e.g., verbal explanation). Furthermore, she provided an ethogram-based method to record and compare teaching across cultures and reports findings that all types of teaching occur, however, with moderate frequencies concerning more explicit pupil-directed strategies in a sample of villagers from Yasawa Island in the Fiji islands, living in a horticulture-fishing subsistence economy (see also Hewlett et al., 2011, for similar data on Aka and Bofi hunter-gatherers in Central Africa). Along similar lines, Hewlett and Roulette (2016) investigated whether more advanced forms of teaching could be observed in focal follows of 12- to 14-month-olds from three different camps of Aka hunter-gatherers. Focusing on teaching of skills and knowledge, these authors report regular occurrence of pointing, eye-contact, child-directed speech, naming infant or other cues to draw infant's attention that were used to enhance infants' learning. Overall, these studies suggest that pedagogical, child-directed interaction occurs across cultures, but differs in frequency and the overall teaching pattern (see Boyette and Hewlett, 2017, for data on older children).

Besides parental teaching, toddlers and young children also frequently experience explicit teaching by older siblings across cultures (Howe et al., 2016; Lew-Levy et al., 2019; Rabain-Jamin et al., 2003; Scheidecker, 2017). However, content of siblings' teaching substantially differs between cultures: Whereas siblings in Western middle-class cultures focus on teaching play activities (e.g., how to use a toy), siblings from villages in the Mexican highlands or Senegal and siblings from hunter-gatherer communities in the Congo Basin frequently teach about daily activities such as cooking, washing or hunting (Hewlett and Roulette, 2016; Howe et al., 2016; Maynard, 2002; Rabain-Jamin et al., 2003).

In summary, these findings point to both similarities and differences in teaching infants and toddlers across cultures: Based on a universal repertoire of teaching strategies, studies have documented culture-specific patterns of teaching styles. More specifically, these strategies occur at different frequencies across cultures and are composed to different overall teaching patterns. Thus, there—again—is universality without uniformity: The current evidence suggests that these differences in teaching are, first, linked to caregivers' cultural models, that is, beliefs concerning teaching and learning and, second, form children's social learning, which is also based on a universal repertoire of basic social learning processes, in important and culture-specific ways.

2.3 Prosocial behaviors in toddlerhood

Prosocial behaviors are defined as behaviors that are intended to benefit others. Different subtypes of prosocial behaviors are instrumental helping, cooperation, sharing, comforting or informing others, all emerging during the second year of life (Eisenberg et al., 2015). The cross-cultural research in early childhood focuses mainly on the subtypes of helping and cooperation.

Developmental research, based largely on experimental studies in Europe, the United States, and Japan, suggests that basic elements of prosociality—(pro)social cognition, motivation, and prosocial behavior—emerge during the first and second year of life (see also Kärtner, 2018). Already 3- and 6-month-olds are capable of social evaluation, preferring characters that help others in comparison to characters that hinder others (Hamlin, 2013) and, from 9 months of age, infants understand others' needs and intentions, which build the necessary foundations to develop prosocial behaviors (e.g., Behne et al., 2005; Köster et al., 2016b, 2019; Woodward, 1998). Both lab studies (e.g., Rheingold, 1982; Warneken, 2006) and ethnographic research (Lancy, 2020; Rogoff, 2003) have shown that young children around the world are highly motivated to engage in helping and cooperative activities, such as adults' chores, by pitching in proactively and on request.

Concerning the motivation underlying prosocial behavior, it has been suggested that the motivation that drives human prosocial behaviors gradually develops from an undifferentiated blend of different motives including a general interest in joint activities and empathic concern into normatively regulated behavior that is increasingly based on moral considerations (Dahl and Paulus, 2019; Köster and Kärtner, 2019).

Based on ethnographic reports, [Lancy \(2020\)](#) proposes a similar developmental pattern: He suggests a universal “helper stage” in children’s development (14 months to 7 years of age), at which children around the world have a strong motivation to help, while at later ages prosocial behavior is rather driven by cultural-specific moral expectations that lead to substantial cross-cultural differences in prosocial motivation and behavior.

The ethnographic literature provides evidence that toddlers all around the world eagerly contribute to adult activities, however, the amount and complexity of chores they are allowed or expected to be involved in, strongly differs across cultures, varying from near to zero (e.g., WEIRD societies) to the consistent assignment of specific tasks as the child’s own duties. Typical chores that 2- to 3-year-olds help with are food gathering, feeding animals, carrying objects and sibling caretaking—the latter implying an opportunity to learn different subtypes of prosocial behaviors, such as comforting and sharing ([Lancy, 2020](#); [Rogoff, 2003](#); [Whiting and Whiting, 1975](#)).

Only a few studies have investigated cross-cultural similarities and differences in toddlers’ prosocial behaviors based on standardized observations. Following a universalist assumption, [Callaghan et al. \(2011\)](#) report that toddlers’ reliably show instrumental helping when contrasted with a no-need control condition across three cultures, namely rural contexts in Peru, India and Canada. Concerning cross-cultural differences, the study found that at 24 months, but not at 18 months, Canadian toddlers helped more than toddlers in the other two samples. [Giner Torrens and Kärtner \(2017\)](#) tested 18-month-olds from middle-class families from Delhi (India) and Münster (Germany), with the assumption that helping should be higher in Delhi, a more relational culture that emphasizes social responsiveness as a socialization goal. Different from [Callaghan et al. \(2011\)](#), they further reduced social-cognitive demands by focusing on out-of-reach tasks only (since this may also have led to the difference reported above) and found that Indian toddlers helped more often than German toddlers across tasks. Finally, a study on 18- to 30-month-olds’ helping behavior in urban Germany, urban Brazil and rural Brazil found no significant differences in an out-of-reach task ([Köster et al., 2016a](#)), and there were also no significant differences in 19-month-olds’ comforting in middle-class families from Delhi and Berlin ([Kärtner et al., 2010a](#)). Overall, there is first evidence (although mixed) that, from the second half of the second year, the frequency of prosocial behavior varies across cultures.

As it comes to caregivers’ cultural models, cross-cultural research found differences in adults’ cultural beliefs and expectations associated with children’s prosocial behavior. In Mayan communities, children’s helping initiatives are viewed as the primary way of learning skills through observing and pitching in, and furthermore, a way of learning about their own place in the society ([Rogoff, 2014](#)). For instance, mothers in an indigenous-heritage community in Mexico viewed children’s collaborative behaviors at home as an “honorable way of belonging and showing maturity,” whereas mothers from a cosmopolitan community in Mexico viewed collaborative behaviors at home as an undesirable task belonging to the adult world ([Alcalá et al., 2014](#)). Another line of studies has shown that helping is rather grounded in

duty-based considerations in Hindu-Indians and on more voluntaristic considerations in European Americans, where helping is seen as a matter of personal choice (Miller et al., 2017).

Along these lines, there is quasi-experimental and correlational evidence that culture-specific beliefs of helping affect caregivers' practices, which has implications for the development of early helping (Giner Torrens and Kärtner, 2017; Köster et al., 2016a). Giner Torrens and Kärtner (2017) found that mothers from Delhi reported to provide more opportunities for helping, and higher levels of disapproval after their child refused to help, whereas mothers from urban Germany reported more praise after helping. Furthermore, there were culture-specific associations between toddlers' helping and maternal disapproval. Further evidence for the relation between maternal behavior and children's prosociality comes from a study that demonstrated that maternal practices during chore assignment differs across cultures and has consequences for toddlers' prosocial behavior: While helping was associated with assertive requests by caregivers (i.e., serious and insistent requests) in rural Brazil, it was correlated with deliberate requests (i.e., asking, pleading and giving explanations) in urban Germany (Köster et al., 2016a). The findings of the latter two studies suggest that culture-specific practices contribute to the differentiation of early helping behavior, namely by accentuating and differentiating the motivational potentialities of children's early helping behavior along the lines of interpersonal responsibility and personal choice (Miller et al., 2017). This interpretation that prosocial behavior becomes more of a personal choice issue in more autonomous (also independent) cultures is further supported by the finding that 18-month-olds' comforting was associated with self-awareness—as indexed by MSR—in Berlin, but not Delhi (Kärtner et al., 2010a).

Overall, these findings show that the basic elements of prosociality—understanding others' needs and intentions, a general interest in joint activities and empathic concern and prosocial behavior—emerge reliably during the first and second year of life. When solely looking at cross-cultural variability of helping in the second year, the picture is mixed. In our view, it is important to think of the developmental system more broadly, including the social embeddedness of development: toddlers' prosocial development is linked to caregivers' cultural beliefs and practices and toddlers' nascent intuitions, sentiments, and inclinations are complemented by caregivers' behavior that is guided by culturally saturated beliefs. Consistent with these beliefs, caregivers coherently organize children's attention, appraisal, experience, and behavior around helping opportunities. Importantly, the ethnographic literature suggests that the routines that caregivers establish around toddlers' helping during everyday activities differ largely between cultures. As a consequence, the experiences that toddlers make in these social interactions have important implications for how the basic elements of prosociality are refined and develop further, including the formation of culture-specific motivations underlying early helping behavior. Thus, recurring routines during social interaction sediment and lead to changes in prosocial development, which illustrates another major tenet of dynamic systems theory, namely that development occurs over different and

nested time-scales (here, microgenetic and ontogenetic time-scale). In this sense, early prosocial behavior develops within social interaction and difference in everyday routines lead to recurrent differences in experience and behavior that manifest in culture-specific developmental pathways.

3 Concluding remarks and outlook

In this paper, we have reviewed the developmental literature on cross-cultural similarities and differences in early social cognition along three developmental milestones, namely, first, the awareness and understanding of self, others and their relationship, second, advanced forms of social learning, and, third, prosocial cognition, motivation and behavior. Together, these capacities are the key ingredients of human culture that enable advanced cultural learning.

A key theme of this review is whether early social-cognitive development itself is culturally constituted or whether this is a one-way road in that early social cognition constitutes the common core on which any human culture is built. While theories often accentuate only one of these possibilities, namely universal uniformity vs. culture-specificity of social cognition, the evidence reported above supports both perspectives to some degree and, overall, leads to a more differentiated pattern.

In support of the universality assumption, current evidence supports the conclusion that developmental attainments in all three domains emerge and differentiate reliably across the first 3 years of life. At the same time, there is evidence for cross-cultural variation across the domains of social cognition reviewed here. To highlight some of the variation reported: There is evidence for cultural variation in self-awareness as indexed by culture-specific patterns of the 2-months shift in infancy and the age of emergence of mirror self-recognition in toddlerhood. Concerning social learning, there is cultural variation regarding the sensitivity for child-directed interaction and the prevalence and children's reliance on different forms of social learning. Finally, concerning early prosocial behavior, there is first evidence that the frequency of prosocial behavior and its underlying motivation and processes vary across cultures.

When synthesizing the findings across domains, the following picture emerges: children everywhere get increasingly aware of their own and others' inner experience and mental states, they learn by observing others and they engage in prosocial behavior. However, there are cross-cultural differences in how accentuated their self-awareness is, how much they rely on child-directed teaching and how regularly and on which motivational grounds they engage in prosocial behavior. Thus, we see culture-specificity in toddlers' experience—including attention, appraisal, motivation—and behavior. Overall, this pattern can best be described as universality without uniformity.

Importantly, while many studies just describe cultural differences, some studies explicitly link differential child development to social interactional experiences. As described above, the differential 2-month shift could be linked to cross-cultural

differences in caregivers' practices, namely maternal contingency patterns and associated emotional-intentional scaffolding that, in turn, are informed by cultural beliefs. Furthermore, cultural differences in the degree of infant pointing were related to the density of triadic interaction and partners' use of deictic gestures. Similarly, the reliance on child-directed interaction for efficient social learning and the prevalence and children's reliance on different forms of imitation, namely simple, intentional and high-fidelity imitation, has been argued to be related to culture-specific patterns of teaching.

Such "linkage studies" (Matsumoto and Yoo, 2006) are an important step for developmental and cross-cultural studies on social-cognitive development, because they empirically link the observed differences with the specific cultural sources that are hypothesized to account for these differences. For those aspects of social-cognitive development that show cultural variation, the current review offers two potent candidates for these linkages, namely first, cultural beliefs as the more distal factors that inform, second, caregivers' parenting practices, which are the proximal mechanisms underlying culture-specific development.

For developmental science, such studies are valuable because they allow to further specify the mechanisms underlying child development with a specific focus on social interactional processes. For cross-cultural psychology, these studies are essential because, without assessing these reasons and mechanisms and without demonstrating that they are associated with a specific developmental outcome, at least on the sample level, it is hard to tell whether the differences found between samples from different cultures are truly cultural differences or whether they are caused by other factors, including, for instance, ecological explanations (e.g., climate) or methodological artifacts (e.g., familiarity with test material). Thus, future studies should set out to analyze differences in caregivers' cultural beliefs and practices and how these translate into structuring during everyday routines and differential child development.

Drawing on basic principles of dynamic systems theories, the suggestions here is that cultural beliefs define the goals or attractor states for specific aspects of children's experience and behavior and presage developmental trajectories (Thelen and Smith, 2007; van Geert, 1994). Thus, depending on what seems desirable in a given culture, caregivers selectively invest energy to fuel the dynamic system so that it stabilizes and consolidates in a desirable state. These target states might refer to simple behavioral routines like infants' level of arousal and positive affect during interaction that lead to culture-specific patterns of the 2-month shift (see Section 2.1) or to more complex patterns of interrelated chains of perceptions, appraisals, experience, and behavior associated with specific social roles and situations (see Sections 2.2 and 2.3). Importantly, these target states are informed by caregivers' cultural models and give direction to the dynamic system at large.

Based on the evidence reviewed here, and in line with relational developmental system and related accounts (Overton, 2013; Sameroff, 2010), we encourage future research to consider social interaction as a core component of development, especially in research on social-cognitive development that investigates the ways in

which infants and toddlers understand humans and human behavior, including self and others, and their relationships, where social interaction is the object, and in part the source, of social cognition. Importantly, such an approach is also required, when one is interested in demonstrating cultural and cognitive impenetrability of a specific aspect of social-cognitive development, because to do so, it is necessary to demonstrate—and not only to assume—universal uniformity despite cultural variation in social interaction. To do so, experimental methods need to be complemented by ecologically valid assessments of everyday routines and caregivers' beliefs and practices.

To conclude, this review of the current cross-cultural literature on early social-cognitive development suggests universality without uniformity: the common suite of social-cognitive skills emerges reliably in the first 3 years of life. In social interaction, these capacities are accentuated in culture-specific ways that have implications for social-cognitive development from very early on. At the same time, it has to be asserted that—despite repeated calls to action (Nielsen et al., 2017)—cross-cultural research is still scarce—especially studies including samples from remote and more distant cultures. And the studies that exist are often based on small samples, which is especially problematic for studies that aim at supporting universally uniform development (e.g., Barrett et al., 2013; Callaghan et al., 2011; Liszkowski et al., 2012). Therefore, besides the conclusions presented above, an important further implication of this review is that the empirical landscape concerning cross-cultural similarities and differences in early social-cognitive development is still very patchy, offering many opportunities for future research. Ideally, future cross-cultural studies would go beyond assessing cross-cultural variation in developmental outcomes and identify linkages with other levels of the developmental system, most promising caregivers' beliefs and practices during everyday routines. On these grounds, developmental studies could further specify—beyond the evidence reviewed here—the ways in which everyday experience differs across cultures and if and how this affects early social-cognitive development.

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