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Building a Model of Cultural Universality with Specificity for Global Early Childhood Development

Dana Charles McCoy
Harvard Graduate School of Education

Address correspondence to:
dana_mccoy@gse.harvard.edu
Larsen Hall 704
14 Appian Way
Cambridge, MA 02138
United States of America
Abstract

Numerous long-standing developmental theories have emphasized the important role that culture and context play in shaping young children’s skill development. Nevertheless, explicit models describing the extent to which early childhood development (ECD) may be similar (universal) versus different (specific) across cultures remain lacking. In this article, I review evidence from multiple fields regarding both similarities and differences in the form, timing, and relevance of early health, learning, and psychosocial skills across cultures. I then synthesize this evidence, highlighting themes intended to build an integrated model of developmental universality with specificity that can be used to inform both science and policy. I end with a set of recommendations for the field, including suggestions for a more inclusive approach to studying ECD that breaks down established barriers between fields, stakeholders, and geographies.
Building a Model of Cultural Universality with Specificity for Global Early Childhood Development

Developmental theory has long recognized the importance of culture and context for shaping children’s development. Numerous foundational theories in our field posit that children’s development is inextricably linked with their environments, including the micro-level contexts that shape their daily social and physical interactions, as well as the broader identities, values, and attitudes of the cultures in which they are embedded (Bronfenbrenner & Morris, 2006). Despite these theoretical roots, the empirical literature on child development has been widely criticized for its reliance on predominantly WEIRD (Western, Educated, Industrialized, Rich, Democratic) samples (Nielson et al., 2017; Morelli et al., 2018; Rogoff et al., 2017). Indeed, whereas nearly 90 percent of the world’s children live in a low- or middle-income country (LMIC; World Bank, 2019), fewer than eight percent of studies published in the top three developmental psychology journals focus on these settings (Nielson et al., 2017). Furthermore, what rich evidence does exist to document cross-cultural similarities and differences in children’s skills has yet to be synthesized into a cohesive model for understanding development on a global scale.

In the absence of such a model, experts have speculated that WEIRD frameworks for conceptualizing, defining, and operationalizing children’s skills are likely to dominate both the science of child development, as well as efforts made to improve it on a global scale. For example, Levine and colleagues (2008) note that this “general problem of child development research” means that “investigators tend to make theoretical claims or assumptions about the human species as a whole but they tend to support them with locally collected data from their own, usually Euro-american, populations” (p. 57). Given increased recognition of the importance
of child development globally, this “problem” is also likely to have implications for policy and practice. For example, Target 4.2 of the United Nations’ Sustainable Development Goals (SDGs) focuses on achieving universal “access to quality early childhood development, care and pre-primary education” by 2030, with a specific indicator (4.2.1) tracking the proportion of children under age five who are “developmentally on track in health, learning and psychosocial well-being” (United Nations Statistics, 2021). The SDG era marks a significant opportunity for countries to invest in and influence the lives of young children around the world. Nevertheless, the lack of basic models for understanding the universality and specificity of early childhood development (ECD) skills across cultures has raised questions on the part of both researchers and policymakers regarding how best to operationalize SDG 4.2.1, including how to balance competing goals of international comparability and cultural specificity when defining, measuring, and prioritizing health, learning, and psychosocial wellbeing (Olusanya et al., 2021; Rao et al., 2020).

In a step toward addressing these questions, the present article introduces a framework for conceptualizing global ECD that is rooted in existing evidence regarding what ECD skills look like (their form), when they emerge (their timing), and the extent to which they are valued (their relevance) across a range of cultural contexts. I begin with a discussion of findings supporting developmental universality largely drawn from public health, a field that has been central to bringing ECD into global policy agendas (see, for example, the 2007, 2011, and 2017 Lancet ECD series). I then consider the large and interdisciplinary body of research that supports specificity in the form, timing, and relevance of ECD skills based on cultural context. Following this review, I bring these two bodies of evidence together, highlighting themes intended to
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generate a more integrated model of universality and specificity in the developmental sciences. I then conclude by articulating several future directions for the field.

I rely on several premises for this review and synthesis. First, to enhance policy relevance, I focus predominantly on skills within the domains and subdomains of ECD defined by UNICEF, the custodian agency for SDG 4.2.1 (see Table 1). Second, I draw from recent models to define culture not just as a large-scale macro-systemic influence tied to a particular sociopolitical boundary, but also as a proximal force that shapes “both the process and the content of daily activity and… thus inseparable from all contexts where developmental processes and outcomes take place” (Vélez-Agosto et al., 2017, p. 903). Accordingly, I include in this review studies that compare children’s ECD skills across and within a wide range of ecological contexts and groupings (e.g., countries, sites, ethnic groups, etc.). Finally, although I intend to present a balanced summary of the broader literature, it is important to note that this review is neither systematic nor comprehensive. Accordingly, future studies on universality and specificity will be needed to confirm the conclusions of this work.

Evidence for Developmental Universality

Reflecting roots in public health and epidemiology, much of the research supporting universality in the form and timing of ECD skills has used large observational cohort designs to quantify cross-country similarities in early-life skills. Perhaps the best known of these studies focused on motor milestones, which fall under UNICEF’s health domain. This study found that 90 percent of surveyed infants in Ghana, India, Norway, Oman, and the United States followed a universal sequence of sitting, crawling, standing with and without assistance, and walking with and without assistance, with each milestone met within a relatively reliable window of 5.4 to 10.0 months (WHO & de Onis, 2006). This study on motor milestones has been followed by
several other multi-national initiatives covering a wider range of ECD skills, including a recent
*Nature Communications* study of two-year-olds in Brazil, India, Italy, Kenya, and the United
Kingdom, which concluded that “[t]he sequence and timing of attainment of neurodevelopmental
milestones and associated behaviours in early childhood are… likely innate and universal,
as long as nutritional and health needs are met” (Villar et al., 2019, p. 1). Other multidisciplinary
research has drawn similar conclusions regarding universality in the health and learning domains
based on relatively homogenous cross-country patterns of basic motor, language, and cognitive
milestone attainment (Callaghan et al., 2011; Ertem et al., 2018). Evidence in the psychosocial
domain, however, is both more sparse and less conclusive (Ertem et al., 2018; Villar et al.,
2019), potentially due to a lack of agreed upon global frameworks for defining and measuring
social-emotional skills (Bayley et al., 2021).

The conclusions regarding universality from these cohort studies come with two key
caveats. First, many of the studies mentioned above intentionally focused on so-called healthy
children, excluding not just those with disabilities, but also those from high-risk environments or
with perinatal complications, chronic illnesses, malnutrition, or other physical conditions. As
such, claims regarding universality must be viewed in light of the non-representativeness of these
samples. Notably, other cohort studies using more diverse samples have failed to replicate these
patterns of universality, finding significant variation in children’s receptive vocabulary and
general development scores across countries (Fernald et al., 2012; Lopez-Boo, 2016).
Collectively, these results suggest that developmental commonalities may be contingent on basic
social and biological supports that, although increasingly available in LMICs, are not yet
universally accessible. Supporting this conclusion, a recent study of 4,649 infants and toddlers in
eight country sites found that similarities in the age of basic motor and language milestone
attainment were found only for the small subset of children in each context with highly educated caregivers who provided regular cognitive stimulation (Fink et al., 2019).

Second, by virtue of their size and comparative goals, most of these cohort studies purposefully utilized measurement tools reflecting a relatively limited and basic set of skills believed *a priori* to be culturally invariant, limiting their conceptual coverage and corresponding conclusions (Rao et al., 2020). Although efforts to validate these tools have shown minimal evidence for their complete cross-cultural equivalence (i.e., full scalar invariance), comparability of developmental skills appears to be stronger using measures targeting children under age three (Waldman et al., 2021) and weaker for those in the preschool period (Halpin et al., 2019), hinting at potential age-related differences in universality. Similar to findings from the cohort studies described above, evidence on the comparability of psychosocial instruments has been particularly mixed, with some studies showing comparable factor structures across countries and others not (Janus et al., 2011; Rao et al., 2019).

Beyond form and timing, substantially less empirical research is available to support the universal *relevance* of health, learning, and psychosocial skills. Perhaps the strongest – albeit largely anecdotal – evidence stems from policy frameworks. Ghana’s national ECD policy, for example, explicitly recognizes the aim of “protecting the child’s rights to develop his or her full cognitive, emotional, social and physical potential” (Ghana Ministry of Women and Children’s Affairs, 2004, p. 4). Similar alignment has been shown between the domains of development covered by SDG Indicator 4.2.1 and the ECD policies of Brazil, Bangladesh, and numerous other countries, suggesting that – at least at the highest level – the key domains of ECD cited in the SDGs are likely to be universally relevant and valued. Nevertheless, additional work is needed to confirm whether governments are defining these domains in similar ways (e.g., whether the skills
that define cognitive potential in Ghana are the same as those in Brazil), and whether the relative value of each domain/skill may differ across countries. It is also unclear whether national policy frameworks are truly reflective of local values and priorities versus those of elite decision-makers, who may share more Western perspectives.

**Evidence for Developmental Specificity**

This evidence on developmental universality can be juxtaposed by a long-standing body of multidisciplinary research – much of which has leveraged more in-depth, mixed-methods approaches – that has produced consistent and convincing evidence for specificity in the form and timing of ECD skills across multiple domains, including those often conceptualized as more innate. In the health domain, for example, studies have shown earlier and more independent attainment of basic motor skills in rural African settings relative to other contexts (Karasik et al., 2015; Werner, 1972). In the learning and psychosocial domains, work has shown substantial cross-cultural variation with regard to when children use expressive language (Lohaus et al., 2011), how they manage and respond to anger (Cole et al., 2002), and the extent of their prosocial behavior (Trommsdorff et al., 2007), with differences that are typically more pronounced for older versus younger children (e.g., Callaghan & Corbit, 2018). In contrast to the above literature that has largely probed for socioeconomic or health-related explanations for observed cross-country variation, much of the research reporting developmental specificity in the anthropological and psychological literatures has focused on cultural inputs, ranging from specific caregiving practices to the broader norms structuring social interactions (Bornstein, 2010). This work has relied on a mix of measures, with studies using tools that require culture-specific competencies (e.g., experience with writing, familiarity with two-dimensional images) often showing larger cross-cultural differences than those designed with neutrality in mind,
potentially due the formers’ conflation of test performance and true developmental ability (e.g., Serpell, 1979). It has also focused on relatively small, predominantly convenience-based samples, severely limiting the generalizability of resulting inferences (Nielsen et al., 2017).

Increasingly, findings from large-scale cohort studies are shining light on developmental specificity, as well. For example, a recent study using data from 5,447 infants and toddlers in 11 countries showed “substantial” cross-site variability in the timing of attainment of a specific set of psychosocial milestones (McCoy et al., 2019, p. 6). In this study, where milestones were attained early varied across skills, highlighting the extent to which different skills may be prioritized within settings. For example, children in the Pakistani site demonstrated sympathy an average of seven months earlier than their peers in Ghana, whereas the reverse was true for sharing.

Beyond form and timing, a small body of evidence has explicitly highlighted variation in the relevance of different ECD skills in different cultural contexts. This evidence is particularly important for identifying ECD skills that are often left out of developmental frameworks generated based on WEIRD samples. For example, qualitative research has consistently identified social responsibility, obedience, and respect as psychosocial priorities amongst caregivers in African countries like Tanzania and Kenya (Jukes et al., 2021; Serpell, 2011), despite the fact that these characteristics are infrequently included in global research or monitoring. These different values systems are also reflected in many countries’ ECD policies. Ghana’s policy, for example, recognizes children’s moral and spiritual outcomes in addition to those reflected in the SDGs (Ghana Ministry of Women and Children’s Affairs, 2004), whereas Brazil’s early educational policy emphasizes “values of solidarity, freedom, co-operation and
respects” over traditional pre-academic skills like literacy and numeracy (UNESCO International Bureau of Education, 2006, p. 15).

A Model of Universality with Specificity

Collectively, this work suggests that the broader domains of ECD specified in SDG 4.2.1 – health, learning, and psychosocial wellbeing – appear consistently enough in the academic and policy literatures to imply their universality across cultural contexts. Nevertheless, this review also affirms substantial variability both across and within countries in the specific ways that particular ECD skills within these domains manifest, the timelines on which they emerge, the relevance that they have across settings (see Rogoff, 2003 for additional discussions). Together, these findings reinforce the notion of developmental universality without uniformity (Mesman et al., 2018), which posits that high-level agreement about the existence of basic developmental constructs does not preclude a more nuanced discussion regarding their differential manifestations across cultures.

Moving toward a more unified model of ECD that rejects binaries between universality and specificity, below I summarize several themes extrapolated from the literature reviewed above to generate a framework for developmental universality with specificity. These themes are not intended to be deterministic, nor are they to be used to assign skills to a specific location on a spectrum of universality. Rather, these themes are intended to showcase observed trends in cultural universality and specificity across several areas, with particular attention toward the intersections of these areas. Beginning with the premise that all ECD skills are culture-specific to some extent, I posit that:

1. Domain. Universality is generally most common in the health domain and least common in the psychosocial domain, with skills in the learning domain falling in the middle.
Indeed, there is scant but growing evidence for cultural specificity in the form, timing, and relevance of many – if not most – psychosocial skills.

2. **Determinants.** Universality is more common in experience-expectant ECD skills that are largely based on biological, physical, or maturational inputs. Skills that are experience-dependent, or shaped largely by environmental or cultural factors, appear to be more contextually specific. This phenomenon may help to explain why skills within the health domain may be generally more universal than those in the psychosocial domain.

3. **Dimension.** Universality in one dimension of an ECD skill (e.g., form, timing, relevance) does not guarantee universality in another. For example, some skills may look similar across cultures, but may be valued very differently.

4. **Development (Individual).** Universality is generally more common during the earliest years of life, and less common as children age. This phenomenon is likely tied to the progressive accrual of cultural, social, and other environmental determinants.

5. **Development (Sociohistorical).** Universality in ECD skills is likely increasing over time. In particular, improved economic and health conditions in LMICs, combined with cultural hybridization resulting from globalization (Pieterse, 2019), suggests that many of the biological and environmental differences thought to drive developmental specificity may be attenuated in the future, leading toward greater convergence in the form, timing, and relevance of ECD skills globally.

**Future Directions**

Overall, the trends in the literature highlighted above provide a useful starting place for building a conceptual model of ECD that more explicitly recognizes variation in the form, timing, and relevance of developmental skills while maintaining a focus on the SDGs’ “defining
feature” of universality (UNDG SD-WG, 2016, p. 1). Nevertheless, this review and the resulting themes also highlight substantial gaps in knowledge regarding whether, where, when, and how specific ECD skills may vary. Specifically, regarding the themes of domain and determinants, further evidence is most urgently needed to produce basic definitions and measures of children’s psychosocial skills across cultural contexts, as well as to understand the biological and environmental inputs that shape these skills. Regarding the theme of dimension, this review highlights a particular need for research exploring the relevance of ECD skills cross-culturally, including the extent to which different skills are valued by a diverse range of local and international stakeholders. Finally, regarding the themes of development, these findings reinforce the need for study designs that explicitly allow for the tracking and comparison of children’s skill trajectories over the full early childhood period, as well as the relevance of taking on a broader sociohistorical perspective for contextualizing ECD findings in a rapidly globalizing world.

Addressing these gaps in knowledge and establishing a more rigorous and nuanced model of developmental universality with specificity requires a body of research that is at once more localized and broader in scale. First, more localized knowledge is needed not only to test the veracity of WEIRD frameworks in non-WEIRD settings, but also to shed light on under-represented conceptualizations of ECD often left out of existing developmental models. Similar to the parable of the man looking for a key that he had misplaced across the street simply because the light was better in the area he was searching, developmental science has for too long ignored local knowledge in favor of evidence gained from convenience samples in high-income, Western contexts, leading to vast gaps in our knowledge of the skills needed to thrive in diverse parts of the world. As summarized by Harkness and colleagues (2013), “[b]ridging the gap
between cultural agendas and policy agendas for ECD will require that we assess children and their environments for the competencies that are valued in their own cultures, not just those that outside funders and managers judge *a priori* to be important” (p. 156).

Ideally, this localized research should be interdisciplinary and collaborative, breaking down established “theoretical bunkers” (Mesman et al., 2018, p. 840) to draw on the practical, conceptual, and methodological strengths of different fields and stakeholders (Marfo et al., 2011). Research that incorporates qualitative and quantitative approaches, strengths-based orientations, locally constructed measures, and the voices of local community members (e.g., parents, educators, service providers) is particularly needed (Rogoff et al., 2017). Thankfully, a growing number of examples of such work exist. Attachment scholars, for example, have provided templates for the development of nuanced, contextualized definitions of universal constructs (see Mesman et al., 2018, for a discussion). In the field of ECD, a recent series of studies by Jukes and colleagues (2021) used qualitative interviews with parents and teachers to develop a localized conceptualization of social-emotional competencies in Mtwara, Tanzania, and then built from this conceptualization to generate and quantitatively validate a measure of children’s obedience, curiosity, religiosity, and other locally relevant psychosocial constructs.

Second, efforts are also needed to apply this localized knowledge on a broad scale, probing explicitly for evidence of developmental universality and specificity across a wider range of cultural contexts than has been covered in the existing ECD literature. Building clearer bridges between research and policy may help to support this type of work. Indeed, it is increasingly clear that research can influence early childhood policy and practice, both on local and international scales. SDG 4.2.1, in particular, was shaped in large part by scientific evidence highlighting positive economic and developmental returns of early childhood investments, as
well as the collective advocacy of ECD researchers (e.g., Britto et al.’s 2013 Handbook, the Early Childhood Development Action Network). Less well recognized is the fact that resources and findings from policy can also shape ECD research and theory. Large-scale, nationally representative databases on child health and wellbeing originally developed for political and monitoring purposes (e.g., UNICEF’s Multiple Indicator Cluster Surveys; USAID’s Demographic and Health Surveys) have increasingly been utilized to quantify global developmental inequities and to explore the prevalence of diverse developmental inputs such as stimulation, discipline, and child nutritional status (e.g., Bornstein & Putnick, 2012; Cuartas et al., 2019). These databases have introduced a big data, cross-national, externally valid lens to what has traditionally been a field focused on small-scale, localized comparisons. Further partnerships between governments, agencies, and researchers could help to expand this corpus of knowledge beyond cross-sectional surveys with relatively superficial measures to include more longitudinal evidence on the universality and specificity of particular developmental processes valued in different parts of the world.

Conclusion

With the ratification of the SDGs, developmental science has more opportunity than ever to advance real change for the billions of young children living in LMICs. Nevertheless, for true progress to be made, greater clarity is needed within the field regarding what ECD looks like, how it develops, and what skills are most valued both across and within a wide range of countries. The successful gathering of this evidence rests on a more inclusive approach to studying ECD that breaks down established barriers between fields, stakeholders, and geographies. Building on a strong and growing body of both theoretical and empirical evidence, I argue that such an approach will move the field toward a more nuanced model of developmental
universality *with* specificity and, in doing so, will lead to more effective ECD policies on global, national, and local levels.
References


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UNIVERSALITY WITH SPECIFICITY IN EARLY CHILDHOOD

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**Table 1.** Domains and subdomains of early childhood development covered by UNICEF’s Early Childhood Development Index, the indicator for Sustainable Development Goal 4.2.1

<table>
<thead>
<tr>
<th>Domain</th>
<th>Subdomain</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>Gross motor</td>
<td>Walks on an uneven surface and jump with both feet</td>
</tr>
<tr>
<td></td>
<td>Fine motor</td>
<td>Fasten and unfasten buttons</td>
</tr>
<tr>
<td></td>
<td>Self-care</td>
<td>Put on pants or a shirt without help</td>
</tr>
<tr>
<td>Learning</td>
<td>Expressive language</td>
<td>Use words to name objects and say sentences</td>
</tr>
<tr>
<td></td>
<td>Literacy</td>
<td>Identify letters</td>
</tr>
<tr>
<td></td>
<td>Numeracy</td>
<td>Identify and count numbers</td>
</tr>
<tr>
<td></td>
<td>Pre-writing</td>
<td>Write own name</td>
</tr>
<tr>
<td></td>
<td>Executive function</td>
<td>Engage in an activity without giving up too quickly</td>
</tr>
<tr>
<td>Psychosocial</td>
<td>Emotional skills</td>
<td>Offer to help others that seem to need help</td>
</tr>
<tr>
<td></td>
<td>Social skills</td>
<td>Get along well with other children</td>
</tr>
<tr>
<td></td>
<td>Internalizing behavior</td>
<td>Seems very sad or depressed on a daily basis</td>
</tr>
<tr>
<td></td>
<td>Externalizing behavior</td>
<td>Kicks, bites, or hits other people more often than other children the same age</td>
</tr>
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