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Belief, Culture, & Development:

Insights from Studying the Development of Religious Beliefs and Behaviors

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Abstract: We describe the theoretical and methodological contributions of a cultural and developmental approach to the study of religious belief and behavior. We focus on how the study of religious development can provide a foothold into answering some key questions in developmental science: What is belief? What is culture? What is the nature of human development? Throughout the chapter, we provide examples of methodological innovations that have emerged over the course of the first year of a global, collaborative research project into the development of religious beliefs and behaviors.

Key words (3-4): religion, cultural psychology, development, collaborative research

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Religious and supernatural concepts are fundamental to human cognition and provide a lens through which to explore similarity and variation in learning mechanisms and knowledge representation across cultures. The fact that developmental science as a field has historically ignored and marginalized thinking about belief in the religious and supernatural has impeded the collective narrative about the nature of the human mind (Johnson, 2021). The building blocks of many religious traditions—concepts of disembodied deities, ideas about the afterlife, a sense of commonality with other members of the faith—might be expected to share some underlying structural features based on universal aspects of human reasoning (e.g., our tendency to reason about the world via “folk theories,” our tendency to “essentialize” concepts and categories) (Richert & Lesage, in press; Rottman & Kelemen, 2012), while also varying dramatically across individual belief systems (e.g., whether there is a God or gods, what happens to humans after death, what norms and practices adherents should follow; Richert & Smith, 2012). As such, research into religious and supernatural concepts provides insights into the ways in which cognition and culture are mutually constituted (Kirmayer, Worthman, Kitayama, Lemelson, & Cummings, 2020).

Of particular interest to developmentalists is the fact that religion poses a unique learning problem to the developing child. Although some individuals report directly perceiving religious and supernatural agents and phenomena (e.g., hearing the voice of God, witnessing miracles; Luhrmann, 2020), from the perspective of a developing child religious and supernatural phenomena are generally unobservable. Instead of learning about gods, spirits, miracles, and the like through direct observation or independent experimentation, children learn about these

phenomena primarily—if not exclusively—through other people: through observing people’s behaviors and making inferences about their beliefs, through listening to explicit testimony and direct instruction, and through active participation in religious and spiritual practices (Gauvain & Nicolaidis, 2015). Studying the mechanisms by which such concepts are acquired thus provides a powerful means of elucidating commonalities and variation across contexts in the cultural transmission of beliefs about the unobservable.

Researchers interested in studying religious beliefs and behaviors face numerous, complex methodological challenges. These challenges are immediately apparent when one attempts to define what a research program with religion as a focus is truly studying (Paloutzian & Park, 2021). Within developmental science, religious development has been defined as “the child's growth within an organized community that has shared narratives, practices, teachings, rituals, and symbols” (Boyatzis, 2005, p. 125) specifically dedicated to connecting people to that which they deem to be sacred or divine (James, 1902/1977). However, scholars aiming to provide definitions of religion often find themselves in a common situation: although there are many features that appear to be core to religious systems of beliefs and practices, religions also exist without those core features (Cohen, 2009). For example, Sosis (2019) delineated eight building blocks of religious systems: “authority, meaning, moral obligation, myth, ritual, sacred, supernatural agents, and taboo” (p. 424). A program of research into religion must clarify which of these building blocks are of interest and whether the phenomenon of interest is ‘religion’ if any of the building blocks are absent.

Unpacking one of these building blocks - ritual - highlights even more challenges. Although most religions incorporate ritual (e.g., Sosis, 2019), what defines ritual itself is debated (e.g., Whitehouse & McCauley, 2005) and some religions focus more on rituals and other

practices, while others focus more on other aspects of religion such as belief or membership in the faith community (Cohen, 2009). Researchers studying the *acquisition* of religious rituals during childhood face the additional difficulty of grappling with beliefs and norms surrounding children's observation of and involvement in rituals—which are likely as important to understand as the nature of the rituals themselves (Legare & Nielsen, 2020). Similar observations might also be made about any of the other building blocks highlighted by Sosis (2019): authority, meaning, moral obligation, and so on.

These difficulties in defining what is (and is not) religion highlight the critical need for clarity and intentionality in identifying the goals of any research program, selecting methods to address those goals, and recognizing the ways in which these theoretical and methodological choices constrain generalizability. As such, the study of religious beliefs and behaviors provides a lens through which to explore several big questions in developmental science. We focus this chapter around three big questions: (1) what is belief, (2) what is culture, and (3) what is the nature of human development?

Throughout, we describe methodological innovations we have been developing over this past year (since September 2020) with researchers in the Developing Belief Network (DBN). We launched the DBN through funding from the John Templeton Foundation, with the aim of exploring the development of religious belief and behavior. The DBN consists of 10 inaugural research teams representing 30 field sites spanning 18 countries and including all major world religions, as well as several local, small-scale belief systems. At the time of writing this chapter, the collaborative team is actively piloting a method. In Table 1, we provide a brief overview of the research questions and methods we plan to use in our first collaborative data collection effort.

Once finalized, these methods (and their translations) will be made publically available on our website (www.developingbelief.com) and on the OSF (Open Science Framework).

In the following sections, we provide examples of how this team has approached the development of a collaborative research protocol for studying the development of religious beliefs and behavior in early childhood through the lens of cognitive and social cognitive development. We conclude with a description of an open and team science approach to studying the development of religious beliefs and share the collective wisdom gained from soliciting a wide range of perspectives representing cultural and methodological diversity.

[Insert Table 1 about here.]

Table 1. The Developing Belief Network is guided by high-level interests in variability within and across cultural and religious settings in the acquisition and transmission of religious cognition and behavior. In our first wave of data collection, we are focused on the following research questions, which we illustrate here with brief descriptions and examples from our emergent study protocol.

Research questions	Tasks	Example questions for children	Example questions for parents and caregivers
How do folk theories support and constrain concepts of and beliefs in religious agents? How does exposure to religious and supernatural beliefs influence the development of folk theories?	Assessments of familiarity with and judgments of the reality status of religious and spiritual entities and causes.	Have you ever heard of the Evil Eye? Is the Evil Eye real?	Is the Evil Eye real or not real? How sure are you about this?
	Battery of questions about the properties of religious or spiritual agents, designed to assess whether agents violate the laws of folk physics, biology, psychology, and sociology.	Is Jesus ever in different places at the same time, or is Jesus always in one place at a time? Would Ganesha be ok if Ganesha were all alone forever, or would Ganesha get lonely?	Is Jesus ever in different places at the same time, or is Jesus always in one place at a time? How sure are you about this? Would Ganesha be ok if Ganesha were all alone forever, or would Ganesha get lonely? How sure are you about this?
How do children develop an understanding of religion as a social category? How is this related to their parents' understanding?	Assessment of knowledge of and self-identification with indicators of religious identity and affiliation.	This kid goes to Mass on Sundays. Is he like you or not like you? Is he Catholic or not Catholic?	–
	Assessment of the degree to which	Could someone tell if a person is Jewish or	[same as child]

	religious group membership is “essentialized.”	<p>Muslim by looking inside their body at their blood and their bones?</p> <p>Is it possible for Catholic people to become Evangelicals?</p>	
	Judgments of the severity of violations of religious norms.	<p>This is Xiao Lu. Xiao Lu is Buddhist. Xiao Lu sometimes eats meat. Is that ok or not ok? What if the Buddha said it was ok? What if the person was not Buddhist?</p>	<p>If you found out that your child ate meat, how would you feel? Sad, disgusted, afraid, worried, angry, ashamed, embarrassed, guilty, surprised, relieved, happy, proud, something else, no emotion...</p>
What are the ways in which parents communicate with their children about religious beliefs, behaviors, and expectations?	Self-reports and parental reports of information sources for children’s religious beliefs and behaviors.	<p>You just answered a lot of questions about angels. Can you tell me more about how you know all of this about angels? If you wanted to know more about angels, how would you find out?</p> <p>Let’s imagine there’s a new child in your neighborhood. If that child has questions about what to do when they go to Nabi Ayoub’s shrine, what should they do?</p>	<p>How much do you agree with the following statements? My child should ask questions about religion; It is helpful to discuss religion with my child; It is important for my child to read and understand books about religion; It is important for my child to be open to the guidance of people with expertise about religion; It is important for children to visit places where they can learn about religion.</p>
	Open-ended storytelling about what information (religious and otherwise) is critical	Let’s imagine there’s a new child in your neighborhood who is going to come inside your house for the	–

	for a new child to know when visiting the child's family.	first time. They need your help to figure out how to do things the right way when they come over. What should they do when you sit down at the table to eat dinner? What should they do before they go to sleep? What if they came over on a Friday night? What if they came over during Passover?	
	Conversations between children and caregivers (parents, grandparents, or older siblings) about existentially arousing topics.	Where does the world come from? What happens when people die? Why do some groups of people not get along with other groups of people?	

What is Belief?

Studying the development of religious belief and behavior provides leverage for addressing a broad question at the core of human psychology and at the center of much research in cognitive development: What is belief?

The concept of belief is of deep interest to anyone studying religion and religious cognition. In many religions, there are certain beliefs that are fundamental to the faith. For Christians, these core beliefs might include believing in a triune God, believing that Jesus died for the sins of humanity, or believing in Heaven and Hell; for Muslims, they might include believing that there is no god but God, believing that Muhammad was the last in a line of

prophets, or believing in the divine decree; for Buddhists, they might include believing in karma, believing in a cycle of rebirth, or believing that there is no unchanging, permanent “self”; for Jews, they might include believing in a unitary God, that God created a sacred covenant with the Jewish people, and that the Messiah will come to unite the Jewish people; for Hindus, they might include believing in many gods, believing in reincarnation, and believing in a universal soul. The emphasis placed on upholding and adhering to specific religious beliefs as compared to engaging in religious rituals and practices varies across religious and cultural groups (Cohen, 2009). In at least some settings, the US among them, certain religious beliefs are salient enough that in everyday life people use the phrase “believer” to refer to a committed member of their faith, and the phrase “my beliefs” as shorthand for their religious commitments, values, and affiliations.

But these are not the only kinds of “beliefs” psychologists care about. In addition to being used to endorse the beings (“I believe in God”), events (“I believe that Muhammad was a prophet”), phenomena (“I believe in reincarnation”), and causal theories (“I believe in karma”) that feature so prominently in the major world religions, the word *belief* has many other meanings, both in daily life and in the psychological literature. Most commonly, researchers in cognitive development conceptualize beliefs as components of mental models that capture what people hold to be true about the world. This approach is most clearly evident in classic studies of theory of mind, in which children are asked to reason about the “beliefs” of other people, which may be accurate or inaccurate representations of reality (e.g., “Sally believes that the marble is in the box”; Baron-Cohen, Leslie, & Frith, 1985; see Wellman, 2014, for an overview). Beyond this, in English at least, the word *believe* can also be used to express opinions (“I believe the best color is purple”), values (“I believe in transparency”), and worldviews (“I believe that people are fundamentally good”); to signal uncertainty (“I believe that she is coming but let me

double-check”), trust (“I believe you”), or social endorsement (“I believe in you”). Belief, in other words, is a multifaceted psychological phenomenon.

What, then, is a belief? What are the implications of these observations for psychologists in general, and developmentalists in particular?

First, these examples indicate that researchers would do well to distinguish clearly among the many meanings of *belief* in their work, and to incorporate multiple kinds of belief into psychological theories. Indeed, some recent research suggests that there are important psychological differences between religious beliefs and the kinds of matter-of-fact beliefs about the ordinary physical world that have received much attention in cognitive development, differences which are reflected in ordinary people’s language use both in corpus studies and in experimental work conducted across diverse linguistic and cultural settings (Heiphetz, Landers, & Van Leeuwen, 2021; Van Leeuwen, Weisman, & Luhrmann, 2021). In this view, religious beliefs and matter-of-fact beliefs represent distinct “cognitive attitudes” (Van Leeuwen, 2014). Matter-of-fact beliefs like “I believe that the marble is in the box” are characterized by being context-independent, effortless (and perhaps even non-conscious), stable in the absence of counterevidence but readily updated in light of new evidence, and by providing an inferential basis for action (e.g., where one searches for a marble) and as well as further cognition (e.g., what one imagines would happen if someone were to open the box looking for the marble when the marble had been moved to the basket). In contrast, religious beliefs like “I believe that people go to heaven when they die” are characterized by being more compartmentalized and therefore more context-dependent (Astuti & Harris, 2008; G3menez & Harris, 2005; Watson-Jones, Busch, Harris, & Legare, 2016), by requiring more effort and practice to sustain (Luhrmann, 2020; Norenzayan, 2013), by being marked by some degree of uncertainty (Clegg, Cui, Harris, &

Corriveau, 2019; Davoodi, Jamshidi-Sianaki, Abedi, Payir, Cui, Harris, & Corriveau, 2019), by being relatively immune to counterevidence (Liquin, Metz, & Lombrozo, 2020; Van Leeuwen, 2017; Woolley & Ghossainy, 2013), and by being deeply intertwined with one's sense of identity (Durkheim, 1912).

These dimensions of variability among beliefs demonstrate how psychological studies of religion shed new light on broader theories of cognition, and by extension, how comparing children's acquisition of religious beliefs to the acquisition of other beliefs could inform broad theories of cognitive development and social learning. They highlight multiple areas for future research. For example, at what point in development do children distinguish between religious and matter-of-fact beliefs in the people around them (for example, by accurately predicting the circumstances under which another person will or will not revise their religious or matter-of-fact beliefs)? At what point in development do children distinguish between these two cognitive attitudes in themselves (for example, by revising some of their own beliefs, but not others, in the face of counterevidence; or by using some of their own beliefs, but not others, to guide their social preferences and sense of identity)? In what ways do traditional accounts of the development of "belief-desire reasoning" account for the development of children's reasoning about *religious* beliefs and their role in human behavior, and where do these accounts fail?

Importantly, religious beliefs offer more than just a foil for matter-of-fact beliefs. The juxtaposition between religious and other beliefs not only highlights the ways in which different kinds of cognitive attitudes and mental representations diverge, but also highlights similarities between matter-of-fact and religious beliefs that often go unrecognized in the developmental science literature. In particular, incorporating religious beliefs into theories of cognition and

cognitive development highlights the need to take into account the affective, motivational, and social aspects of mental representations and their development.

Along these lines, one particularly illuminating aspect of the distinction between religious and matter-matter-of-fact beliefs in Van Leeuwen's (2014) theoretical perspective is that it is a distinction in *cognitive attitudes*, not in contents: People can relate to the same idea in many ways, and it is the variations in ways of relating to an idea that mark the critical difference between matter-of-fact beliefs and religious beliefs. To use one of Van Leeuwen et al.'s (2021) examples, one person could have a matter-of-fact belief that Jesus was born in Bethlehem, which might provide a basis for further inferences about the life of Jesus. If that person learns of evidence or encounters testimony to the contrary (for example, the arguments of some New Testament scholars that Jesus was most likely born in Nazareth; e.g., Ehrman, 2016) that person might revise their belief accordingly. However, another person might instead hold a *religious* belief that Jesus was born in Bethlehem, in which case they might not be swayed by such historical arguments and might find them irrelevant, irreverent, and perhaps even offensive—an affront to their social group membership and their personal identity.

We would go one step further and argue that many seemingly non-religious beliefs do not fall squarely into the category of “matter-of-fact” beliefs. Beliefs about climate change, the shape of the earth, the efficacy of vaccines, the events of September 11th, 2001, the origin of the COVID-19 pandemic, and the outcome of the 2020 US election, are recent examples of topics that for many people have become issues of personal identity and social affiliation that go beyond ordinary matters of fact. Likewise, scientific questions about when a fetus's life begins, or the biological underpinnings of race, sex, gender, and sexuality are very difficult to discuss in the United States without at least implicitly engaging in social and political discourse. Even

beliefs about topics as superficially mundane as the location of a marble (in the box or the basket; e.g., Baron-Cohen et al., 1985) might not be fully encapsulated from concurrent affective, motivational, and social processes. For example, the person looking for the marble may be thinking to themselves: “Where do I hope the marble is?” or, “What kind of person would hide a marble from her friend anyway?”

Taken together, what researchers uncover about the various beliefs at the core of many world religions, their role in human reasoning, and their acquisition in childhood could bring to light previously unknown or undocumented aspects of all manner of mental representations and the social, cultural, cognitive, and developmental processes by which they are acquired, maintained, revised, and used in everyday life.

Much of the DBN’s first collaborative research project centers on questions about how children around the world acquire beliefs about the beings, causal forces, practices, norms, and identity markers that are emphasized by the religious setting in which they are developing, and how these beliefs inform children’s developing sense of social group membership and identity (in Van Leeuwen’s [2014] terminology, how these beliefs become “religious beliefs”). Many of these beliefs pertain to unobservable, abstract phenomena, such as gods, spirits, the origins of the universe, what happens after death, or whether there is some “essence” that makes a Hindu person Hindu and a Muslim person Muslim (see Davoodi et al., 2019; Richert & Smith, 2012; White, 2021). But of course, religions are not the only systems of belief that include beliefs about the unobservable (e.g., Harris & Corriveau, 2014; Harris & Richert, 2008). In planning this research, we have found it useful to explicitly clarify the research goal of shedding light on the similarities and differences in children’s acquisition of religious and matter-of-fact beliefs across development, cultural settings, and religious traditions. Distinguishing between belief

contents and cognitive attitudes has helped us attend to the social, affective, and motivational causes and consequences of beliefs, and to hypothesize the role of these beliefs in other domains of reasoning.

This focus on the unobservable comes with many methodological challenges. In many domains of research in cognitive development (e.g., folk physics, facial recognition), we can assume that individual children within and across cultural settings share some experiences in common—but in the case of phenomena that are unobservable by definition, this is not the case. As we discuss in the following section, religious beliefs and spiritual experiences are often deeply personal and idiosyncratic, variable across individuals and even within a single individual in different moments and contexts in their life. This makes it difficult to “standardize” study protocols across participants—even participants who share religious and cultural backgrounds: words like “God,” “destiny,” and “Jewish” might mean different things to different participants. Further complicating matters,, researchers often cannot include visual depictions of religious and supernatural phenomena as stimuli in their studies, because they may be too abstract to depict (e.g., karma), because they are understood to be invisible (e.g., certain kinds of spirits), or because it is forbidden to depict them (e.g., Allah). Meanwhile, describing these phenomena in detail or providing definitions to participants can also be problematic, given the fact that religious beliefs are often deeply personal and parents likely would prefer that researchers do not “teach” their children about these topics during a research study (e.g., by providing a description or explanation of “God” or what it means to be “Jewish” that may contradict the parents’ own beliefs).

The DBN has employed a combination of strategies to address these challenges. In our first wave of data collection, we have opted to avoid definitions and descriptions altogether,

relying on individual researchers' familiarity with their field sites in combination with semi-structured interviews with local experts in religion and religious education to identify concepts and labels that we can be fairly confident many children in that site will be familiar with. To ensure we are not teaching children about any religious, spiritual, or supernatural phenomena, initial studies will include assessments of children's own familiarity with and conceptualization of religious concepts, rather than offering children definitions or explanations that go beyond what they demonstrate themselves.

A primary reason for this approach is an ethical one: as researchers, we have the potential to influence children's religious concepts and beliefs. This issue is important not only in the domain of religion, but also for many of the studies we conduct as psychologists in general: does participating in (even basic) research studies catalyze long-lasting change in thought and behavior? In the DBN, we have taken the proactive stance of minimizing the effect of our interview on how children think about their religion. Thus, per the example above, if a child asks what a certain term means, the interviewer will say things like, "What do you think '*term*' means?" or "When I say '*term*', what do you think of?" This approach will reveal if the child has some concept of the phenomena in question (e.g., "Well I know '*karma*' has to do with how you treat others") or if the child really does not know it (e.g., "When I hear '*karma*', I think of '*caramel*'"). In future waves of data collection, we may also choose to involve participants in this process by confirming descriptions or definitions with the parent before beginning the research study to ensure the descriptions or definitions are culturally sensitive and appropriate, or asking parents or other community members for help interpreting results (Levac, Ronis, Cowper-Smith, & Vaccarino, 2019).

In summary, the study of religious beliefs highlights the complex nature of studying any mental representations about unobservable phenomena. In particular, a focus on religious beliefs highlights that many cognitive attitudes considered to be uniquely human contain not only content but also myriad social, affective, and motivational causes and consequences. In order to understand these causes and consequences of religious beliefs, researchers must also consider the cultural context in which these religious beliefs are acquired and transmitted. In the following section, we highlight how the endeavor further challenges researchers to articulate what they believe they are studying when they study “culture.”

What is Culture?

Although some religious concepts may be rooted in basic, universal aspects of human psychology (Richert & Smith, 2012; Rottman & Kelemen, 2012), no human child is born with anything approaching the nuanced, sophisticated religious and supernatural beliefs that are integrated into most human adults’ representations of the world. Instead, the child must learn and internalize the religious beliefs and behaviors that surround them, making religion an especially salient case study of processes of socialization and enculturation. Because religion is a complex phenomenon that varies substantially across cultural and historical settings, studying the development of religious belief and behavior forces developmental scholars to grapple with age-old questions about socialization, enculturation, and cultural transmission: What is culture, how do we operationalize and measure culture, and what is the relation between culture and development?

As we emphasized in the previous section, learning within a religious domain is constrained by the fact that many religious phenomena are understood to be difficult or impossible to observe directly (White, 2021). Thus, rather than being driven by direct

observation of the phenomena at hand, as in many of the domains of learning that have been the focus of cognitive development, learning about religious beliefs and behaviors is likely driven primarily by *social* processes, including cultural learning (Tomasello, 2000), social learning (e.g., Gelman, 2009), explicit teaching (Kline, 2015), learning through testimony (e.g., Harris & Corriveau, 2020), learning through text (Corriveau, Einav, Robinson, & Harris, 2014; Einav, Rydland, Grøver, Robinson, & Harris, 2018), and learning through participation, observation, and pitching in (Gauvain, 2001; Rogoff, 2003). In this sense, religion provides an opportunity to observe these social-cultural processes in the absence of learning mechanisms that hinge on the learner having direct perceptual access to the phenomenon of interest. (Although we note that even phenomena that can be learned about through direct observation and experimentation often incorporate cultural values, tools, and processes; e.g., Gauvain & Perez, 2015.)

An added layer of complexity to studying religious beliefs and behaviors is the fact that religious beliefs and spiritual experiences are often deeply personal and subjective, rather than matters of objective truth that most individuals within a cultural setting would agree upon (Paloutzian & Park, 2021). (We alluded to this briefly in the previous section.) This means that a child might be exposed to diverse opinions from different individuals even within his or her close family (e.g., mother vs. father); receive different information via different learning mechanisms (e.g., through listening to what people say they believe vs. through observing how people behave); and might encounter conflicting information in different learning settings (e.g., at home vs. in school vs. in a house of worship). The complexity of this learning problem for the developing child makes the acquisition of religious beliefs and behaviors all the more interesting to developmentalists (see, e.g., Davoodi et al., 2020; Harris, Pasquini, Duke, Asscher, & Pons, 2006)—and all the more difficult to study. This complexity is not unique to religious

development; indeed, in many domains individual differences within a social group are often just as large, if not larger, than differences in central tendencies between groups (Rozin, 2003). But while these individual differences are frequently overlooked in other domains of study, in the study of religion, the idiosyncratic and personal nature of the beliefs is an essential element of the phenomenon of interest. As such, religion as a topic of study highlights the ways in which the individual and the social levels of culture are inextricably linked (e.g., Causadias, 2013), and can offer insights for scholars interested in culture and development.

Attempts to define what is and what is not culture have permeated the social sciences since the mid-1940s. Kroeber and Kluckhohn (1952) traced the first use of the word “culture” in line with modern definitions to an 1871 essay by Edward Burnett Tylor. By 1952, Kroeber and Kluckhohn (1952) documented 164 definitions of the term. With a movement primarily beginning in the early 1970s, cohorts of developmental scientists have grappled with how to both theorize and quantify the influence of culture on development (Rogoff & Chavajay, 1995). Gauvain and Perez (2015) described two approaches psychological research has taken to the study of culture. The first approach is to conceptualize culture as an independent variable used to predict differences and to identify universals in developmental outcomes by comparing outcomes in one cultural group to the same outcomes in another cultural group (i.e., cross-cultural research). The second approach is to conceptualize culture as a system of meaning that supports and guides development and to analyze that process within a single cultural setting (i.e., within-culture research).

The field of developmental psychology primarily began with the first, cross-cultural research approach. This approach can provide valuable insights to understanding development and developmental mechanisms (ojalehto & Medin, 2015), but it also has some pitfalls. In their

seminal piece, Cole and Bruner (1971) outlined ways in which the field of psychology had typically explained cultural, racial, or economic differences in cognitive performance by relying on the assumptions that these differences were best understood as deficits, deviations from “normal” development and argued that differences in cognitive performance in particular might be explained by the fact that the tasks and stimuli were more familiar and more “ecologically significant” (p. 873) to some children than they were to others. For example, a typical formal language assessment—conducted in the lab by a stranger speaking in “Standard American English,” with the child isolated from any family or friends—might underestimate the language abilities of children from working class backgrounds and minoritized racial and ethnic groups; whereas an assessment at home, including the child’s family members or friends, and conducted in the dialect most familiar to the child might reveal rich linguistic capabilities.

Although Cole and Bruner made this argument in 1971, cross-cultural approaches to the study of development have a continued history of implying that when children from a racial, ethnic, social, or cultural group that has not been represented in the historical canon of developmental literature differ from previous findings in the body of literature, these differences represent development that has somehow deviated from ‘typical’ or ‘normative’ development (Gauvain & Perez, 2015; Rogoff, Coppens, Alcalá, Aceves-Azuara, Ruvalcaba, López, & Dayton, 2017). Although there is value in understanding the ways and reasons cultural traditions do and do not differ, the habit of utilizing these comparisons to characterize the behaviors of minoritized groups as “deviations” from the norm continues to permeate the field of developmental psychology, with the implication that ‘culture’ influences racial/ethnic minorities but not Whites (Causadias, Vitriol, & Atkin, 2018), “Easterners” but not “Westerners,” and so on. A challenge to researchers of religion is that much (although not all) of the research on

religion in development has focused on the development of religious concepts and experiences in Christian children in the United States (Johnson, 2021; Nyhof & Johnson, 2017). Thus, research programs examining the rich diversity of religious beliefs and behaviors in development need to proactively resist the pull toward cross-religion comparisons that prioritize or treat as normative the experiences and beliefs of White, Christian children in the United States.

The second tradition of thinking about culture emphasizes that incorporating culture into studies of cognition and development must go beyond highlighting similarities and differences between cultural groups and focus instead on learning within the cultural system itself (Gauvain & Perez, 2015). Drawing from Bruner (1990), Gauvain (2005) defined culture as a “system of shared meaning and action transmitted across generations” (p. 11). As this definition implies, development occurs embedded within cultural contexts and the study of development cannot be separated from understanding the cultural context in which development occurs. In other words, culture and developmental outcomes are “mutually constitutive processes rather than separate variables” (ojalehto & Medin, 2015, p. 215). Importantly, culture operates at both a social level and an individual level that are impossible to extricate from each other (Causadias, 2013).

In line with this approach, Rogoff, Dahl, and Callanan (2018) have called for a greater focus in developmental science on the “lived experiences” of children, in contrast to theoretical and methodological approaches that treat culture either as an inherent characteristic of an individual (e.g., ethnicity, race, SES) or as an “external, homogenous” (p. 8) influence on children. This tradition of thought emphasizes that culture is not an “influence” or “effect” on a developmental process that would otherwise unfold in some kind of universal way (Causadias et al., 2018); we cannot disentangle cognition from culture because they are mutually constituting processes. From this perspective, stripping cognition of context by removing all personally-

relevant, culturally-salient features of our studies would strip cognition of its meaning (if it were even possible). There is no such thing as cognition without culture, or development without enculturation. As we have noted above, the study of religion, a cultural system populated with such deeply and existentially personal beliefs and practices, highlights the problems of interpretation and generalizability that could occur when researchers strip concepts out of their contexts.

As ojaletto and Medin (2015) have noted, the ways in which researchers view and define culture as a construct lead to programs of research that vary in their goals and their predictions, as well as their methods and measurements (see also Rogoff and Chavajay, 1995). As with any other program of research into cultural influences on development, researchers of religion have to make explicit decisions about what are the ecologically-valid beliefs and behaviors to study, what transmission processes are most relevant for those beliefs and behavior, and how to capture and compare beliefs and behaviors at different ages and in different parts of the world. The nature and variety of these decisions present a challenge to a collaborative effort as large as the DBN: As our readers might expect of any network made up of dozens of scientists, the many researchers who make up the DBN have diverse goals when it comes to studying the development of religious beliefs and behaviors across diverse cultural settings. Documenting and explaining *differences* in beliefs and behaviors across religious and cultural groups and documenting and explaining the *similarities* that cut across these differences are equally important goals to our collaborative; and we all share the goal of understanding the cultural and developmental processes that yield these similarities and differences, although we might understand these processes through different theoretical lenses. As such, the DBN has learned much from both of the conceptualizations of culture in development outlined above.

In the spirit of foregrounding ecological significance while balancing goals of cross-religion and cross-cultural comparisons, we proactively set aside two full years to an iterative and collaborative process of design, translation and back-translation, cultural adaptation, piloting, and revision of all of the measures included in our work, rather than using unrevised, pre-existing psychological assessments and experimental protocols. One year into the process, we have identified many instances in which employing standard measures of cognitive development, or using our own first instinct about new methods and stimuli, could have resulted in underestimating or otherwise mischaracterizing children's developing understanding of religious beliefs and behaviors. To give two examples: Many standard theory of mind assessments hinge on one character playing a trick on the other character (e.g., hiding the toy in a new location while their friend is out of the room); and our first instinct for comparing conceptualizations of religious agents was to ask all children about "the 'biggest' god" (Norenzayan, 2013) in their local context. But while friends "tricking" friends is a mode of playful interaction that is likely quite familiar and socially appropriate in the US, it struck some of us as likely to feel quite alien to young children in other settings; and while research teams working in monotheistic settings found it quite natural and obvious to ask children about agents like "God" or "Allah," research teams working in polytheistic settings were concerned that asking about the "biggest" overarching, unified god concept would underestimate the detailed knowledge and specific beliefs that children have about the "smaller" gods and goddesses that are far more salient in children's lives.

Our close collaboration across researchers with diverse cultural and linguistic expertise has allowed us to catch many of these instances and revise our measures accordingly. In some cases, this has meant redesigning standard cognitive assessments to be equally appropriate across

multiple diverse settings (e.g., crafting theory of mind assessments in which characters' false beliefs originate in straightforward misunderstandings rather than trickery). In other cases, this has meant tailoring the protocol to be "sample-specific" (e.g., asking leaders of each field site to select two culturally significant religious or supernatural beings to function as stimuli in a study about whether supernatural beings are subject to physical, biological, psychological, and sociological constraints, rather than attempting to standardize these stimuli across samples). Our ongoing piloting in the field will allow us to further revise the protocol to maximize ecological significance (i.e., to document children's capabilities as they manifest in the child's own cultural context.)

In the spirit of understanding culture and cognition as mutually constituting processes and studying the within-culture experiences of children, the DBN has prioritized studying the many ways in which religious beliefs and behaviors are transmitted to children by other members of their family, religious group, and broader community. Several of the studies we are developing focus on the ways in which participating in this transmission process— both as a "recipient" and as an "agent" of transmission among peers— shapes children's emerging beliefs and behaviors (Vélez-Agosto, Soto-Crespo, Vizcarrondo-Oppenheimer, Vega-Molina, & García Coll, 2017). The transmission of religious beliefs and practices to children relies on processes of cultural learning, including adults' efforts to impart knowledge (e.g., through verbal testimony), children's own sharing of religious knowledge with others, children's observations of those around them, and children's participation in religious practices (Gauvain & Nicolaides, 2015; Harris & Koenig, 2006; Rogoff, Moore, Correa-Chavez, & Dexter, 2015).

Regarding verbal testimony, a growing body of research has documented that variations in parent talk with their children about religious topics is dynamically responsive to the

content of conversation (e.g., fantastical vs. religious; Canfield & Ganea, 2014; Dore et al., 2019), the nature of cultural consensus around a particular belief (e.g., taboos of conversations about death, Astuti, 1994; if children are members of a religious minority, Davoodi et al., 2020), and children's own understanding of and belief in the topic (McLoughlin, Jacob, Samrow, & Corriveau, 2021; Tenebaum & Hohnstein, 2016). In the DBN, we will begin examination of verbal transmission through caregiver-child conversations around various topics. In the initial design, these conversations were envisioned as parent-child conversations, but members of the research team quickly indicated that these kinds of conversations would be inappropriate in some settings because the kinds of cultural conversations we were attempting to capture would actually occur among siblings or with other caregivers. We thus revised our approach to allow each site to determine the appropriate conversational partner (knowingly sacrificing the ability to compare parent-child conversations across cultures).

At the same time as they are actively attending to and processing the words and behaviors of those around them, children are also themselves becoming agents of cultural transmission (Gauvain & Nicolaidis, 2015; Harmon & Gauvain, 2019). The DBN sees a critical need in developmental science for a greater understanding of how this process develops. As an initial attempt to explore into peer-to-peer transmission processes, we have designed a task in which children are invited to teach a younger member of their religious group about how to act when in the child's home, with the aim of uncovering what are the most salient practices children choose to transmit to other children (see Table 1 for example questions of this task).

As all of these examples illustrate, conducting rigorous cultural comparisons in developmental research is difficult: Methods do not always operate equivalently in every cultural context or at every point in development (Lansford et al., 2019; Kline et al., 2018). Across the

many sites currently represented in the DBN, children tend to be exposed to different degrees of adversity (e.g., malnutrition, housing insecurity, and trauma) and varying degrees of political conflict; children tend to start formal schooling at different ages, have varying levels of access to technology, and may or may not be enrolled in formal religious education; and children might be exposed to high degrees of religious diversity, to salient tensions between a few religious groups, or to social or even governmental admonitions against religiosity—all factors which have been hypothesized (and in many cases demonstrated) to influence children’s developing understanding of and relationship with the beliefs, behaviors, and identity associated with their religion (e.g., Cui, Clegg, Yan, Davoodi, Harris, & Corriveau, 2020; Batson et al., 2002; Taylor & Glen, 2019; Glen, Taylor, & Dautel, 2019).

Preparing to compare results across cultural and religious contexts has required striking a balance between the foundational, but competing, goals of standardization and cultural appropriateness. At one extreme, prioritizing the standardization of task content would ensure that our protocols are identical across sites, but would also result in asking some children about unfamiliar or culturally inappropriate concepts. At the other extreme, prioritizing the cultural appropriateness of task content would ensure ecological significance, but would limit comparisons across cultural and religious settings. In most cases, we have instead attempted to maximize the deeper similarity of task content, either by asking children about culturally salient concepts that share certain high-level properties, or by including subsets of “universal” and “local” stimuli in the same task. This approach involves making sacrifices both in terms of the (superficial) similarity of stimuli across sites and in terms of the cultural salience of stimuli within each site, but our goal is that it will yield datasets that offer accurate reflections of each site while facilitating multi-site comparisons. We also complement more structured tasks with

opportunities for gathering rich qualitative data as children are asked to provide justifications for their responses, which will not only provide insights into children's thought processes but also into possible misunderstandings or other problems with the tasks children are asked to complete.

In sum, studying religious development forces researchers to be explicit about the many ways in which individuals (parents, families, teachers, peers), contexts (home, school, church), and broader social forces combine and interact to shape a child's developing understanding of the world. Such work requires research both across cultures, and within particular cultures, to explore unique and universal developmental pathways.

What is Human Development?

The questions "What is belief?" and "What is culture?" are intricately related to questions about learning, socialization, enculturation, and cultural transmission. In this way, studying the development of religious beliefs and behaviors highlights important issues that, we argue, apply to cognitive and social cognitive development across many domains.

First, as the previous section made clear, the study of culture and the influences of culture on cognition is profoundly necessary for fully understanding the nature of human cognition and development. A historical focus only on the development and experiences of children in Western, high-income countries means the experiences of these children (who represent less than 8% of the world's population, Nielsen, Haun, Kärtner, & Legare, 2017) define what is (assumed to be) known about development (Kline, Shamsudheen, & Broesch, 2018; Lansford et al., 2019). Ignoring the experiences of individuals in diverse physical and cultural environments results in drawing broad and generalizable conclusions about the nature of cognition from incomplete data. Simply put, this is bad for science. Cultural comparisons, paired with studies that treat cognition and culture as mutually constituting processes, are vital for understanding the constraints and

flexibility that characterize human cognition as it develops within, responds to, and creates culture.

Beyond addressing issues of representation and generalizability, a cultural approach to developmental science also provides a lens through which to define and quantify what is meant by claims that certain aspects of cognition are or are not ‘universal.’ In much psychological discourse, a distinction between variation and universality is taken to be equivalent to the distinction between aspects of cognition that are or are not influenced by culture (Kline et al., 2018)—but viewing development through the lens of culture problematizes this assumption.

For example, one line of argument regarding religious cognition is that the seeming ubiquitous presence of belief in supernatural agents, souls/spirits, and some form of afterlife reflect the overuse of cognitive systems evolved for other purposes: psychological immortality, the intelligent design of the self, and the symbolic meaning of natural events (Bering, 2006); teleological design in natural objects (Kelemen & DiYanni, 2005); and agency detection (Atran & Norenzayan, 2004; Barrett, Richert, & Driesenga, 2001; Guthrie, 1993). The characterization developmentally is that human cognition evolved with these underlying structural features used in non-religious contexts and that human culture (in this case, a particular religion) ‘fills in’ the content of the specific supernatural belief (Kelemen, 2004). Cultural approaches, however, highlight other evolutionary or developmental trajectories that might lead to structural similarity in human cognition. In particular, although religious concepts (almost certainly) first emerged in the contexts of social groups and social interaction (Gargett, 1989), human cognition in general co-evolved with cultural systems that supported and utilized collective supernatural beliefs, practices, and identities (e.g., Heyes, 2012). As such, underlying similarities in human cognition, and even the presence of similarities in profoundly abstract concepts, could be reflective of the

fact that much of our experiences are typical of our species (Gottlieb, 1976) and develop in the context of proximal interactions infused with experiences that overlap across cultures (Vélez-Agosto et al., 2017).

Such observations are not limited to the domain of religious beliefs and behaviors. Consider the “core knowledge” and “intuitive theories” that, as many researchers have argued, appear to guide causal-explanatory processing of the physical and social world even in early infancy (Spelke & Kinzler, 2007; Wellman & Gelman, 1992). As theorized, these core cognitive processes evolved to process shared aspects of species-typical environments: all humans live in environments with natural, physical laws, with biological entities that conform to biological laws, and with other humans. These species-typical environments and experiences have shaped human brains through biological evolutionary processes, while also shaping human cultures through cultural evolutionary processes: In this sense, evidence of universality in cognition is not evidence against the role of culture in shaping a given concept or cognitive process. At the same time, even these core causal explanatory frameworks reflect some degree of cultural variation (ojalehto & Medin, 2015). Studying conceptual development—especially in a domain as rich, culturally variable, and intimately tied to folk theories as religious cognition—provides a lens through which to examine both how similarities in cultural contexts lead to similarities in human cognition, and how variation in cultural contexts leads to variation in human cognition—as well as the social-cultural forces and developmental mechanisms that might sustain or modulate these similarities and differences across development and across history.

The DBN is informed by two primary theoretical approaches to conceptualizing developmental mechanisms: social interactionism and theory building/conceptual change. From

a social interactionist perspective, the child actively constructs knowledge based on interaction with the child's caretakers and the physical and cultural context (Bruner, 1983; Vélez-Agosto et al., 2017; Vygotsky, 1978). In other words, cognition cannot be understood as the mind passively absorbing the cultural context or as the genetic unfolding of brain organization. Instead, cognitive development unfolds through children's active and socially-scaffolded interaction with their environment (Gauvain & Nicolaidis, 2015; Rogoff, Moore, Correa-Chavez, & Dexter, 2015). Our understanding of this active interaction between the child and the world is anchored in theoretical approaches that characterize cognitive development as a process of theory construction and conceptual change (Gopnik & Wellman, 2012; Hirschfeld, 2001; Keil, 1995; Killen, Rutland, & Yip, 2016; ojaletto & Medin, 2015; Wellman & Gelman, 1992). We operate from the assumption that conceptual development is grounded in early emerging, folk theories that shape the way concepts are understood, and the ways in which we make inferences about how different concepts function. Folk theories develop with age through observations of, exploration in, and conversations about the world (e.g., ojaletto & Medin, 2015); as such, theory development and culture represent mutually symbiotic and reciprocal influences on cognitive development.

The religious beliefs and behaviors that constitute the focus of our work together in the DBN provide a powerful case study of these symbiotic and reciprocal processes. Some aspects of folk theories may be common across cultural settings, representing one mechanism by which cross-cultural similarities emerge, including similarities in the domain of religious belief and behavior (i.e., folk theories constrain religious cognition). Even if folk theories themselves are similar across sites, however, they might be applied differently in different sites. For example, religious concepts often violate folk theories (Boyer, 2001), but such violations might occur for

different concepts across cultures (e.g., violations of folk biology might be more common in some places, and violations of folk psychology more common in others) and the developmental progression of these violations has not been delineated. Finally, some aspects of folk theories vary substantially across cultures (ojalehto & Medin, 2015), offering one mechanism through which cross-cultural variation emerges, including in the domain of religious belief and behavior.

A complementary framework is that of the “developmental niche” (Super & Harkness, 1986). Super and Harkness (1986) describe how the context of each individual child’s development incorporates the child’s place within a particular community, and is influenced by the child’s physical and social setting, local customs of childcare, and the psychological characteristics of caretakers, including caretakers’ beliefs about the meaning and importance of specific thoughts and behaviors. Research into the development of religious beliefs and behaviors can delineate the ways in which religions operate as specific cultural systems that frame an individual child’s development (Fung, Wong, & Park, 2018; Richert, *in press*), highlighting the ways in which the many “layers” of a child’s developmental niche are deeply intertwined (Vélez-Agosto et al., 2017).

This is particularly interesting in the case of religion because, despite the variability across (and within) individuals in their everyday lives in their religious beliefs and behaviors, there are clearly identified experts and doctrines that define the belief systems and expectations of adherents (i.e., theology, dogma, and so on). As such, the study of religion highlights the critical need, in any program of research that engages with the concept of culture, for clarification about whose perspective on culture researchers are interested in studying. For studies on religious belief and behavior, for example, is it the perspective of the religious leaders who are experts in the detailed nuances of a specific religious doctrine? Is it the perspective of

the parents of children raising their children within a particular religious belief system? Is it the children themselves?

Taking the perspective of religious leaders or parents requires methodologies that are sensitive to not only the individual beliefs of these adults, but also to their normative beliefs about what children *should* believe and do, as well as their intuitions about when and how to foster particular beliefs and behaviors in children—what Harkness & Super (1992) called “parental ethnotheories”. Harkness and Super (1983) indicated that the cultural construction of child development incorporates three primary dimensions: culturally-derived criteria for what happens at each ‘stage’ in development, a set of physical and social settings, and expectations about behavior by and toward individuals at each stage. These components become coordinated and related to each other through parental ethnotheories, which provide a frame of reference that parents use to guide decisions about their children (Harkness & Super, 1992). Our research network has a specific interest in the development of religious belief and behavior in early childhood, and thus has decided to focus primarily on parental transmission of beliefs and behaviors that occur in proximal settings (Bronfenbrenner, 1992). Our methodological approach has been to develop a survey for parents that aims to understand parents’ views on their child’s religious development, with questions about who is responsible for their child’s religious instruction, at what ages children are exposed to religious beliefs, at what ages children are expected to take ownership of their own religious development, and so on.

Taking the parents’ perspective also requires the researcher to grapple with potential discrepancies between parents’ goals and their actual interactions with children. This is particularly true in the domain of religion. In day-to-day life, most people vary dramatically in their fidelity to the formalized doctrine unless explicitly asked to report their beliefs (Barrett &

Keil, 1996). Studying religious development through parents' perspectives also uncovers cases where the religious context occurs in concert with or possibly in conflict with other cultural contexts. For example, do parents have greater concern about children sharing their religious beliefs or their political beliefs? Do parents worry more about their children violating the norms of their religion or norms related to other aspects of the family's cultural/ethnic heritage? Is religious education viewed as more important than academic education? To what extent are religious beliefs, norms, and education even distinguished from the political, cultural, ethnic, or academic domains? The takeaway here is that religion provides a framework for pushing researchers to clarify the rationale for studying parental values or practices and explicitly design measures to capture the mechanisms hypothesized to influence development.

The study of religion provides especially fertile ground for research programs aiming to understand the context as the child experiences it; in other words, research programs that actively consider what children see and hear (in addition to what adults think children *should* be seeing and hearing) and center on the concept of children actively participating in their own development. Methodologically, Rogoff and Chavajay (1995) suggested that the unit of analysis should be the sociocultural activities themselves, which capture the cultural history of these shared endeavors. The danger of separating an activity into distinct elements is that a researcher may no longer be capturing the true nature of the phenomena as a whole (e.g., Cole, 1985). In other words, the window into developmental processes is enhanced by observing children utilizing their concepts in the contexts for which those concepts are intended.

Researchers interested in the study of religion can target their methods toward the concepts children are exposed to, the behaviors they are expected to perform, and the things that they see. Uncovering what it is children actually see requires gathering substantial information

from the community prior to initiating the study design process, both from relevant experts in a religious community (e.g., leaders and educators) and also directly from parents. Our research network has chosen to conduct semi-structured interviews with 2 to 4 individuals from each religious tradition included as a sample in our research, within each of the field sites included in the network. These interviews are being conducted even for traditions with which individual members feel they may have some existing expertise (i.e., they were raised in that religious context or currently affiliate with that religion). This practice ensures the individual bias and assumptions of the researchers are set aside in the interest of choosing stimuli that are endorsed by the members of the communities themselves.

In summary, the study of religious beliefs and behaviors challenges developmental scientists to explicitly grapple with questions of representation and generalizability in their research. This lens also necessitates clarity in which developmental mechanisms contribute to which aspects of belief formation and which aspects of a research program reflect a cross-cultural approach and which aspects reflect a within-culture approach to development. Importantly, collaborating with a network of researchers working around the world has provided methodological inroads to address these challenges. Thus, we conclude this chapter by highlighting the importance of collaboration and team science.

Importance of Collaboration & Team Science

As we have aimed to highlight throughout, crucial to any research program studying religion in development is diversity, not only among the beliefs, religions, and cultural settings of participants, but also critically among research teams. At its heart, the DBN is a collaborative network of researchers committed to the practices of open and team science. The research agenda aims to incorporate as much global diversity in religious belief systems as possible, and

encompasses developmental processes that are not always studied in concert. No one scientist is an expert in every religious or cultural setting or every developmental process. As such, following recommendations by Lansford et al. (2019), we have incorporated various levels of collaboration into the DBN, including beginning our inaugural research network with strategic collaborators who have existing multi-site research collaborations, working with adult experts in the communities that will be studied, and maintaining regular communication among all parties as data are being collected.

We have opted to approach our project using what the National Cancer Institute has called an *integrated research team* (Bennett, Gadlin, & Marchand, 2018), with scientists collaboratively setting the research agenda, making decisions about methods and protocol, and ultimately sharing leadership responsibility and credit. Unlike previous projects in which we have been involved where the research agenda was set from the beginning, we have worked as a network over the first year developing the research questions and methodology through a series of collaborative workshops with researchers at each of the sites. As one might expect from a collaboration involving over two dozen scientists, there are many opinions about how best to move forward, but the protocol we have landed on is significantly stronger than any that we would have designed if any of us had engaged in the research alone. Each researcher brings their expertise of researching within the context of their own field site, and works with local community members to ensure that the approach and method is valid across cultural settings . To the extent possible, we will make our protocol (including all versions that have been translated and made locally/culturally/religiously-relevant) and our data open-access, allowing these materials to be resources for the scientific community for years to come.

Conclusion

In this chapter, we have argued that studying religious beliefs and behaviors sheds new light on three constructs that are fundamental to the field of psychological science: belief, culture, and development. For the past year, the many researchers that make up the Developing Belief Network have been immersed in questioning each other's assumptions, reconsidering our own theoretical commitments, operationalizing abstract concepts, looking at standard methods with fresh eyes, developing novel methodological tools, balancing various perspectives and coordinating a diversity of research goals. While this work is challenging, it is also deeply rewarding; and we find ourselves now to be better scientists for our collaborative efforts. We suggest that all research programs would benefit from the deep engagement with core questions like "What is belief?", "What is culture?" and "What is the nature of human development?" that studying religious belief and behavior requires. At this point in our work together, we would argue that culture, belief, and development are intertwined in ways that should cause researchers to question if these aspects of human nature can (or should) be empirically and methodologically disentangled.

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