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Beliefs about Origins and Eternal Life: How Easy Is Formal Religious Theory Development?

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ABSTRACT

Two studies investigated children's and their parents' reasoning about their mental and bodily states during the time prior to biological conception–"preexistence." Prior research has suggested that, in the absence of a religious script, children display untutored intuitions that they existed as largely disembodied emotional beings during preexistence. This research explored whether children who are being taught a formal theological doctrine about preexistence initially display similar default intuitive tendencies and whether these facilitate acquisition of the specific formal religious doctrine that they are learning. Adult (N = 38) and 7-to 12-year-old (N = 59) members of the Church of Jesus Christ of Latter-day Saints judged whether their mental and bodily capacities functioned during preexistence. Results showed that by 11- to 12-years of age, children's responses increasingly aligned with their parents' doctrinally-accurate beliefs that they had a full range of mental states (i.e., epistemic, emotions, desires) and certain bodily capacities (i.e., perceptual, external body parts) during preexistence. However, at all ages, children deviated from their parents' theologically-correct views, with children showing greatest consistency in privileging emotions as the continuous core of personhood. Findings converge with afterlife research to support conclusions that, across cultures, children are "intuitive eternalists" about psychological states. However, their intuitive tendencies also act as constraints on formal religious theory-building by primarily expediting the acquisition of those aspects of religious doctrine that are intuition-consistent not the doctrine as a whole. The process of becoming theologically correct therefore takes time and effort suggesting parallels to the process of acquiring formal scientific accuracy.

Commonsense intuitions appear to be a double-edged sword. Constructed as innate cognitive constraints influence interpretations of everyday phenomenal experiences and informal social exchanges, they can be key influences on conceptual and social development but are often seen as operating quite differently within distinct domains of learning and experience. For example, in the context of science education, intuitive ideas or theories are frequently regarded as obstacles to learning because they can embody ontological or causal assumptions at odds with those of formal scientific theories (e.g., Coley & Tanner, 2012; Kelemen, 2019; McCloskey, 1983; Shtulman, 2017; see Rhodes & Mandalaywala, 2017 for

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their role in inaccurate stereotype formation). By contrast, in the context of religious education, they are often seen as a direct bridge to acquisition–naturally resonating with the categories and causes of formal religious belief systems in ways that render those beliefs readily learned and transmitted to others (e.g., Barrett, 2012; Bering, 2012; Boyer, 2008; Emmons, 2016; Kelemen, 2004; McCauley, 2011; but see Boyer, 1994, 2008). Simply put then, developing formal scientific expertise is often characterized as complex and hard while developing formal religious expertise is viewed as natural, simple, and easy. But over the course of development, how easily do children acquire theological expertise? Furthermore, do untutored commonsense intuitions always help, or in a parallel to scientific learning, are there signs that they sometimes constrain, hinder or slow the acquisition of formal religious doctrine? In this research, we explore these questions with a view to illuminating religious theory development in ways that are also relevant to understanding the process of theory development more generally.

Specifically, in the present study, we examine 7- to 12-year-old children's acquisition of formal theological ideas about personal origins and eternal life within the religious belief system of The Church of Jesus Christ of Latter-day Saints (henceforth referred to by the Church's preferred informal term of the "LDS Church" rather than the non-preferred, "Mormon Church"). We focus on middle childhood to early adolescence because past child developmental research has documented culturally recurrent intuitions about immortality in this age range (e.g., Bering, 2012; Harris, 2012). Furthermore, LDS Church members receive extensive, prescribed and unique theological schooling about eternal life during this period. In brief, from early on, children in the LDS Church are not only taught about the existence of an afterlife as in most other Abrahamic faiths but they are also taught about a period of embodied spiritual personhood that occurs prior to life on earth and is known as "Premortal Life." Children in the LDS church therefore provide a valuable and distinctive window into formal religious theory development. By considering them, we can gain insight into whether early intuitive ideas might ease formal doctrinal learning–such that children show adult-like competence from relatively early in their religious instruction–or whether these intuitions might have slowing effects of the kind observed in science learning.

However, in order to consider the learning challenges that may be associated with the acquisition of the LDS Church's specific prelife theology, let us first turn to whether there is any evidence that children across cultures display untutored intuitions about eternal life–intuitions that are not in themselves inherently religious in content but which might be expected to influence or constrain the process of children's religious socialization.

Ideas about eternal existence in afterlife

Reflecting their centrality to the Abrahamic traditions adhered to by most of the world's religious believers, prior research on notions of immortality has focused on afterlife beliefs. A recurrent trend in these studies is that, when asked to consider whether various capacities function after death, children tend to view mental states (e.g., abilities to have emotions and thoughts) as more potent and eternally persistent than physical states (e.g., having a beating heart, functioning eye; Astuti & Harris, 2008; Bering & Bjorklund, 2004; Harris & Giménez, 2005; Lane, Zhu, Evans, & Wellman, 2016). This tendency has been observed in both Western and non-Western samples (e.g., Astuti & Harris, 2008; Bering, Hernández Blasi, & Bjorklund, 2005; but see Lane et al., 2016; Watson-Jones, Busch, Harris, & Legare, 2017),

across various experimental methods including those that prime different reasoning contexts to explore context-sensitivity (e.g., religious versus medical; Astuti & Harris, 2008; Harris & Giménez, 2005; Watson-Jones et al., 2017), and–in support of the idea that these reflect untaught intuitions–even in some of the youngest, and therefore least religiously enculturated, age groups studied (e.g., 5-year-olds; Bering & Bjorklund, 2004; Bering et al., 2005; Lane et al., 2016).

The mental state privileging pattern has been interpreted from two different theoretical perspectives. According to a prevailing socio-cultural view on the origins of religious belief (e.g., Boyatzis, 2005; Braswell, Rosengren, & Berenbaum, 2012; Corriveau, Chen, & Harris, 2014; Dawkins, 2006; Richert & Harris, 2008), it is entirely explained by the cultural transmission of religious or supernatural ideas. That is, children learn their religious beliefs based on cumulative exposure to cultural narratives that are often delivered by their parents (e.g. Cui et al., 2020). These cultural narratives tend to teach or imply that the soul not the body persists after death so children's ideas reflect this. This interpretation is supported by various developmental findings. For example, priming studies have shown that psychological immortality beliefs strengthen with age, just as a socio-cultural exposure account would predict (e.g., Harris & Giménez, 2005).

However, afterlife research has also yielded results that are consistent with an alternative constructivist view of children's early tendency to endorse eternal mentality. Specifically, some studies reveal that young children's psychological immortality beliefs are stronger than older children's, with beliefs in postmortem mental persistence appearing to weaken with age as biological knowledge increases (e.g., Bering & Bjorklund, 2004; see Bering, 2006, 2012 for reviews). This pattern of weakening over development has been treated as consistent with evolutionarily-based "cognitive byproduct" accounts of religious belief. These acknowledge that culturally transmitted testimony is critical to the detailed acquisition of culture-specific religious ideas (e.g., belief in Christian Heaven versus Islamic Paradise) but argue that such transmission is facilitated by early predictably-developing cognitive predispositions or abilities that make certain ideas attractive or easily processed. That is, culture-specific details aside, religious ideas about eternal spiritual existences and designing gods take root because they fall on fertile ground – fertile ground derived from more basic capacities and intuitions that are not inherently religious but are instead the products of typically developing human minds.

Examples of such fundamental capacities include naturally developing tendencies to ascribe goals to agents' actions and teleologically construe objects as existing for purposes (e.g., Kelemen, 2004 on "intuitive theism"). Such untutored and reliably-developing tendencies predispose selective attention to particularly intuitive features of theological doctrines about eternal spirits while also acting as constraints by deemphasizing aspects that are less intuitive. Consistent with this biased processing, religious non-experts may therefore make systematic errors when learning or reasoning about formal theological doctrine–errors that represent religious misconceptions from the perspective of theological authorities or "theologically correct" experts. An example is Christian adults' tendency to make inferences that implicitly, intuitively assume God is a physically bounded entity (e.g. God answers everyone's prayers sequentially) even though a theologically correct doctrinal response assumes God is omnipresent (i.e. God should be able to answer all prayers simultaneously); see e.g., Barrett, 2012; Bering, 2012; Bloom, 2005; Boyer, 1994; Kelemen,

2004; Rottman & Kelemen, 2012 on byproduct proposals; Barrett & Keil, 1996; Bering, 2006; Heiphetz, Lane, Waytz, & Young, 2018, on theological correctness).

Specific intuitions promoting notions of eternal existence

Cognitive byproduct accounts propose that reliably developing intuitive tendencies may promote the acquisition of certain aspects of formal religious belief systems while hindering or constraining others. But what specific kinds of intuitions might be relevant when accounting for the early emergence and cultural recurrence of ideas that individuals' minds – rather than their bodies – eternally exist? The primary candidate here is the claim that children are intuitive dualists who are predisposed to view mental life as largely or fully dissociated from bodily life, perhaps, in part, because human beings phenomenologically experience their minds and bodies as discrete (e.g., Bering, 2002, 2006; Bloom, 2005; Nichols, 2007; Pereira, Faísca, & de Sá-Saraiva, 2012; see also Forstmann, Brugmer, & Mussweiler, 2012). Additional claims about intrinsic cognitive sources of intuitive dualism vary. For example, consistent with findings that young children seem generally disinclined to judge bodily functions as entirely ceasing at death (e.g., Bering & Bjorklund, 2004; Harris & Giménez, 2005), it has been suggested that children are only ever weak dualists. It is argued that this is because children view agents as remaining mentally potent after death for social reasons (e.g. they are motivated to affiliate or communicate with them) yet find it hard to envisage socially engaging with agents that have absolutely no physically localizing body (see Hodge, 2008, 2011; also De Cruz & De Smedt, 2017).

However, these details of cognitive byproduct proposals aside, all theoretical claims that psychological immortality beliefs are rooted in basic cognitive intuitions rather than purely derived from culturally transmitted ideas about the supernatural (e.g. religious testimony, ritual narratives, myths) run into a key interpretational obstacle. This is that they derive from studies on the afterlife period, and cultural scripts about the afterlife that involve persons (e.g., ghosts) who remain more psychologically than biologically potent after death are ubiquitous features of secular and religious culture. Consider, for example, that one of highest grossing children's animated films to date is Disney-Pixar's *Coco*–an extended rumination on psychological states in the afterlife. In short, it is not possible to rule out that afterlife findings seen as consistent with early emerging dualistic intuitions about eternal mentality might solely reflect socio-culturally transmitted ideas (Bering & Bjorklund, 2004; Bering et al., 2005).

Intuitive ideas about eternal existence in prelife

As a result of this interpretational issue, Emmons and Kelemen (2014) sought to explore whether children would show any spontaneous intuitions about eternal mental existence if asked about a period for which they had no secular or religious cultural script. The studies focused on the abstract period known as "prelife"–a time before biological conception and corporeal embodiment on earth. While some Western religious and philosophical traditions (including the LDS Church) posit such a stage of personhood, this belief is substantially less prevalent than ideas about the afterlife. The main question of interest was, therefore, whether children in cultures *without* any kind of prelife script would nevertheless intuit they had some kind of eternal prelife existence before they were ever inside their

mother's body. To do this, Emmons and Kelemen (2014) adapted the method from Bering and Bjorklund (2004) afterlife research and asked 7- to 12-year-old children from two disparate cultures about the functioning of a series of their own mental and bodily capacities prior to biological conception rather than after death.[1] The two disparate cultures were urban Ecuadorian children from the large-scale city environment of Quito and rural, indigenous Shuar children living within their traditional, small-scale hunter-horticulturalist communities in the natural environment of the Amazonian Basin.

Consistent with proposals that there are intuitive foundations to notions of eternity, results showed that despite the two groups' very different cultural backgrounds – but similar lack of any kind of exposure to a prelife script–from the youngest age, children tended to judge that they had prelife capacities and that their psychological functioning was greater than their bodily functioning, even as bodily capacities were never judged as entirely absent. These weak dualist intuitions about eternal prelife capacities decreased with age as children's biological justifications increased. However, importantly, one pattern was observable across all ages in both cultures: Among mental states, children consistently identified their capacities for emotion and, to a lesser extent, desire as functioning before biological conception while denying that they had cognitive-epistemic capacities for memory and thought. A further study then replicated this privileging of emotions and desires when children were asked about capacities in early life (i.e., in the prenatal and infancy periods; Emmons & Kelemen, 2015). It is a pattern that is noteworthy given various social psychological findings which indicate that adults associate mental capacities like emotions and desires with notions of "soul", also viewing them as core or essential human features that confer personhood and moral standing on the living things that display them (Emmons & Kelemen, 2015; Gray, Young, & Waytz, 2012; Haslam, 2006; Haslam, Bain, Douge, Lee, & Bastian, 2005; Richert & Harris, 2006, 2008; Richert & Smith, 2012; Roazzi, Nyhof, & Johnson, 2013; Weisman, Dweck, & Markman, 2017).

The present study: The role of eternalist intuitions in religious theory acquisition

In summary, research suggests that from early on, children without relevant religious scripts have untutored intuitions that mental states like emotions and desires form the core to an eternal personhood. This essential core is one that is intuited as preceding material embodiment on earth, remains central to the idea of what it is to be a person with moral status during biological life, and is capable of persisting in the afterlife period beyond death. But do untaught culturally recurrent intuitions like these, with their interesting mappings to some formal religious notions of an immutable mental soul, make the acquisition of all related formal religious doctrines easy? That is, do children achieve theological accuracy relatively quickly once they are exposed to a formal canon of beliefs that, arguably, builds on this intuitive core rather than requiring fundamental conceptual change to it?

[1]Method note: The focus was on 7- to 12-year-olds because younger children were not found to understand the distinction between the prelife and pregnancy periods (see Emmons & Kelemen, 2014, 2015). Note also that classification of bodily versus mental capacities followed Bering and Bjorklund (2004) but across the afterlife literature there are differences between studies in what qualifies as a bodily capacity–which in addition to the use of different age groups across studies–has complicated the interpretive and developmental picture (see Lane et al., 2016).

To explore these questions–and whether intuitions might facilitate the acquisition of some aspects of theological learning but potentially slow others–in the present research we therefore studied how readily children become religiously enculturated when presented with a formal system of religious beliefs about the prelife period that is specific to the Church of Latter Day Saints. This is a preexistence theology that, counter to the intuitions seen in children without a religious script (i.e. Shuar and urban Ecuadorian), posits that persons have a full range of mental capacities in prelife and that these mental capacities are embodied in a localized bodily form with a range of physical capacities (see Primary Manuals 1–7; The Church of Jesus Christ of Latter-day Saints, 1995).

Specifically, within the LDS Church, from at least 3 years of age, children are explicitly taught in Sunday School and family religious activities, that before coming down to Earth and becoming embodied in human flesh-and-bone form, they already existed in the loving environment of Heaven as the spirit children of Heavenly Father (the LDS Church's preferred term for God). They learn that during their premortal time, every person had a spirit body with all the attributes of an earthly body, for example, physical features that allow them to walk, talk, see and listen to Heavenly Father (p. 19, Primary Manual 2, The Church of Jesus Christ of Latter-day Saints, 1995). When a person is born and becomes newly incarnate on Earth, this preexisting spiritual form then ensouls a flesh-and-bone body like a hand entering a glove (p.13, Primary Manual 2, The Church of Jesus Christ of Latter-day Saints, 1995).

Importantly, in addition to teaching children that there is a kind of bounded physical self in preexistence, LDS doctrine also characterizes premortal beings as having a rich mental life that includes capacities to think, remember and learn (i.e., epistemic states). This is because a key function of the premortal existence is to learn Heavenly Father's "Plan of Salvation." These are the actions that a person must actively choose to pursue once they enter their earthly life (e.g., praying, having faith, being married within the LDS Church, avoiding Satan's temptations) so that they can return to live with Heavenly Father again at physical death. Children are told that the Plan of Salvation was conveyed to everybody during a great meeting between Heavenly Father and his spirit children. However, this and all other aspects of preexistence were forgotten once they entered their mortal existence on Earth because a "veil of forgetfulness" descends.[2]

In short, from early on, child members of the LDS Church are being regularly taught about a psychologically rich, embodied, premortal existence. Given this tutelage, this study explores which capacities young child members of the LDS Church privilege when they think of their prelife selves and whether earlier in development, their attributions resemble the entirely untutored intuitive patterns seen in Ecuadorian and Shuar who lack a prelife script. It also examines how quickly or slowly during development children in the LDS Church show signs of thinking about their prelife existence in theologically or doctrinally correct terms. To explore these questions, in Study 1, we first documented adult theological expertise by exploring premortal existence beliefs in adult members of the LDS Church who

[2]Lack of memory for premortal life once on Earth is the reason why LDS Church members must draw on LDS scriptures and other spiritual guides (e.g. Holy Ghost, Jesus) to make correct life choices that will lead them to Salvation and thus back to Heavenly Father after death. Ultimately, correct life choices on Earth have the additional outcome that they can lead to the possession of a material rather than a spiritual body in the afterlife. Attainment of an eternal material physical existence brings an individual closer to the ideal state of Heavenly Father who already possesses an eternal material body. Indeed, it is Heavenly Father's material body that provides the template to the *spiritual* physical form (including eyes, nose etc.) of each person during preexistence.

were also parents. These parents were all actively religiously educating their children and were therefore a primary source of religious enculturation. In Study 2, we then turned to their children and the development of formal prelife beliefs between 7- to 12-years of age. Please note that data was collected well before the release of the children's animated Disney-Pixar film, *Soul*, which explores and provides a popular cultural script for prelife existence.

Study 1

Methods

Participants

Thirty-eight adult members of a Florida Temple District of The Church of Jesus Christ of Latter-day Saints were recruited from within the community by word of mouth. Most were female (97%), predominantly middle class (median annual household income: 60,000–70,000 USD), with ages ranging from approximately 25–45 years of age (exact parental birth dates were not collected). All were parents of children in Study 2.

Consistent with being active church members, self-reports indicated that most participants: had grown up in the Church (84%), read LDS scriptures at least 2–3 times a week and often daily (89%), had a current authorization to participate in temple rituals ("Temple Recommend": 89%), had been married or sealed in an LDS temple (76%), and paid the full temple tithe (95%).

Materials and procedure

Participants completed a paper and pencil survey packet. The primary measure was a general prelife capacity questionnaire that probed their agreement with a series of general statements regarding their capacities during premortal life. Specifically, participants used a four-point Likert scale (1: strongly disagree, 2: disagree, 3: agree, 4: strongly agree) to indicate the degree to which they agreed that six categories of bodily (biological, psychobiological, and perceptual) and mental capacities (epistemic, emotional, and desire capacities) were functional prior to conception (e.g., "In the premortal time, my heart could beat"). Categories designated as bodily versus mental were consistent with Emmons and Kelemen (2014). There were two capacity items per capacity category, and the 12 capacities referenced were the same as those previously administered to urban Ecuadorian and rural Shuar children, albeit children were asked about the capacities using questions (e.g., "During that time could you feel sad?") not statements as was the case with these adults (see Table 1).

Following these general prelife capacity items, participants used the same Likert scale to report their agreement with 4 LDS-specific statements about propositions that are unambiguous features of LDS Church doctrine on premortal existence (see Table 1). These provided a direct check on the doctrinal adherence of study participants. (Six other curiosity items were also probed. They were not intended as measures of unambiguous LDS doctrinal belief so are not considered further here). Finally, concentrated at the end of the questionnaire were demographic questions and queries about personal and family practices related to active LDS Church membership. Responses to the items associated with child rearing are described in

Table 1. Categories of capacities rated for agreement in Study 1.

Category	Question
General Prelife Bodily and Mental Capacity Items	
Bodily Items	
Biological	In the premortal time my eyes could work
	In the premortal time my heart beat
Psychobiological	In the premortal time I could be thirsty
	In the premortal time I could be hungry
Perceptual	In the premortal time I could watch things
	In the premortal time I could listen to things
Mental Items	
Epistemic	In the premortal time I could think things
	In the premortal time I could remember things
Emotional	In the premortal time I could feel sad
	In the premortal time I could feel happy
Desire	In the premortal time I could want things
	In the premortal time I could desire things
LDS Church-Specific Items	
Spirit	In the premortal time I had a spirit
Spiritual body	In the premortal time I had a spiritual body
Physical body	In the premortal time I had a physical body
Heavenly Father	In the premortal time I could know Heavenly Father

Study 2. Study 1 and 2 adult and child data are available at https://osf.io/katgn/?view_only=5b2b16efe176499e92ffa72d73d8e8d7

Results

General prelife capacities

To maintain consistency with prior work in urban Ecuador and the Amazonian Basin (Emmons & Kelemen, 2014, 2015), we used ANOVA to examine participants' responses, and Fisher's least significant difference (LSD) comparisons for all post hoc analyses.

Figure 1 shows participants' agreement rating responses by question category. A one-way within-groups ANOVA was used to explore whether participants' responses on the functionality agreement rating measure varied by question category. Mauchly's test of sphericity indicated a violation of the sphericity assumption, $\chi 2$ (14)=111.56, p<0.001. We therefore used Greenhouse-Geisser corrected degrees of freedom. This analysis revealed a significant main effect of question category, $F(1.90, 70.34) = 32.79$, $p < .001$, $\eta_p^2 = .47$, which occurred because, while adults' mean acceptance ratings of functionality were generally high for all types of prelife capacities ($M = 3.29$, $SD = 0.97$), they were highest for the epistemic mental state items and lowest for the biological and psychobiological items. Specifically, adults' prelife functionality ratings for epistemic capacities were higher than for any other capacity, $ps < 0.01$, with desire and perceptual capacities then rated higher than emotional capacities which were the lowest rated mental states, in part, due to an item effect against endorsing premortal sadness, $ps < 0.03$ (see Table 3). All of the mental and perceptual capacities were rated more functional than biological capacities, $ps < 0.002$, although the lower biological functionality ratings were due to a strong item effect; adults rejected that they had a premortal beating heart (see Table 3). Finally, psychobiological states were rated lower

than everything, *p*s < 0.001. Indeed, psychobiological states of hunger and thirst were the only capacities–aside from a beating heart–on which adults' ratings trended toward actively denying functionality.

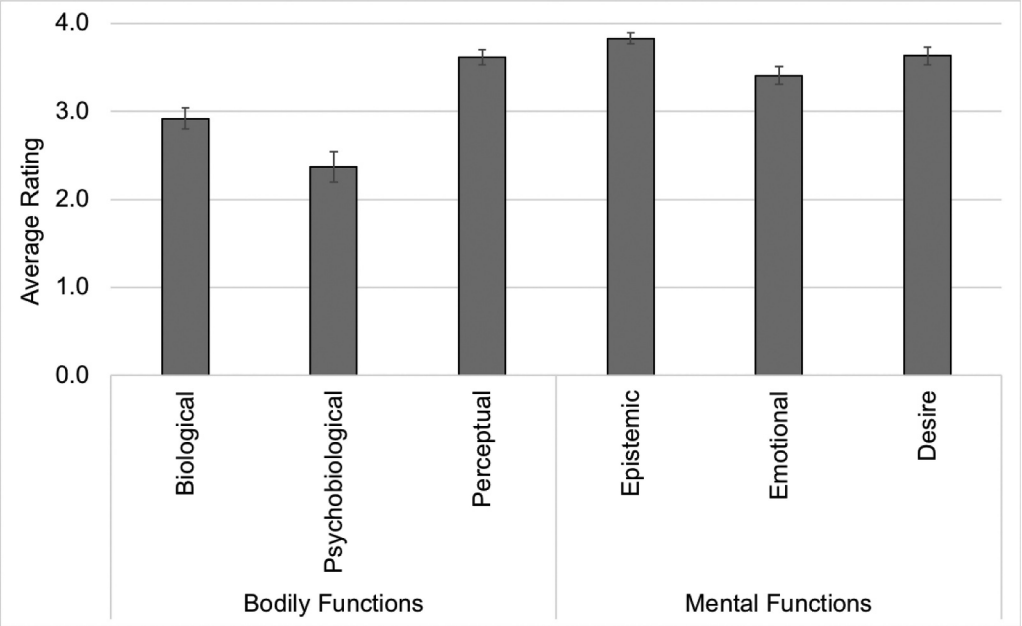

Figure 1. Adult participants' average ratings by question category for general prelife capacities (1: strongly disagree, 2: disagree, 3: agree, 4: strongly agree). Error bars show standard errors.

LDS-specific items

Overall, adults' tendencies to agree that most capacities were functional during preexistence–with lower agreements for specific corporeal attributes like a beating heart and hunger–are somewhat unsurprising given the formal theology of the LDS Church and its denial of a flesh-and-bone body during premortal existence. When asked questions that explicitly tapped agreement with LDS-specific doctrine, adults responded with near ceiling agreements to theologically correct ideas that, in premortal times, they had been spirits (M = 3.87, SD = 0.34), who had spiritual bodies (M = 3.84, SD = 0.37), but did not have flesh-and-bone physical bodies (M = 1.45, SD = 0.80), and that they knew Heavenly Father (M = 3.87, SD = 0.34). Table 4 shows the percentage of adults endorsing each statement.

Discussion

Consistent with theological doctrine, active adult members of the LDS Church agreed that all of their mental and perceptual capacities were functional during their premortal existence, although they showed tendencies to deny they could feel sad. This is consistent with formal characterizations of premortal existence with Heavenly Father as a happy time. Also, consistent with formal theology about non-material spirit bodies, they agreed that they had external bodily attributes like eyes (see Table 3) but tended to disagree that they could have corporeal psychobiological cravings

like hunger or thirst or visceral capacities like a beating heart. Adults' patterns of endorsement on these general prelife questions were consistent with near ceiling patterns of agreement with LDS-specific theological propositions that, during preexistence, their spirit had a spirit body but not a physical body and that they could know Heavenly Father. In short, Study 1 confirmed the strong presence of LDS doctrinal belief in this sample of parents. Study 2 therefore explored the extent to which their children's ideas about premortal life showed the same pattern as their parents from early on.

Study 2

Methods

Participants

Participants were children of the adults in Study 1 and therefore members of families who were very active in the LDS Church. Fifty-nine 7- to 12-year-old children participated (32 female; 80% white, 12% multi-racial, 8% Hispanic) and were divided into three age groups: 7- to 8-year-olds (n = 24, M_{age} = 8.07, SD_{age} = 0.59), 9- to 10-year-olds (n = 18, M_{age} = 9.95, SD_{age} = 0.57), and 11- to 12-year-olds (n = 17, M_{age} = 11.85, SD_{age} = 0.56). Three additional children were tested but excluded (1 due to audio recording failure; 2 because of task misunderstandings).

Parents of all children but one (n = 58) provided information on the self-report measure regarding their family's LDS community participation, religious education and child rearing practices. Specifically, 95% of parents self-reported that it was important to them that their children shared their religious beliefs; all children were reported as attending Sunday School, with 93% participating every week; 86% participated in family prayer at least 2–3 times a week; 78% of children participated almost every week per month in "Family Home Evenings" – a night per week that is set aside for family religious activity; 86% read "The Friend" which is the LDS Church's monthly magazine for early elementary school children; all children had talked to their parent(s) about the Plan of Salvation (83% did so multiple times a month); 100% of the children had also talked to their parents about premortal life (71% said that they did so multiple times a month). Only 15% of children had a non-LDS parent with any active involvement in their life. Children in this sample were therefore being regularly, actively exposed to LDS church scripture, theology, and practices from various Church sources including highly structured Sunday School and were members of families in which consistent sharing of testimony about aspects of LDS Church doctrine was highly important.

Materials and procedure

Children were tested individually in an unoccupied church classroom or in in their homes by a trusted former community member who had left to reside in another state. Care was taken to ensure that no religious images or symbols were present in rooms to avoid any religious primes. The experimenter told each child that they were going to talk about different times in the past then answer some questions about what the child could do during those times. The experimenter also stressed to children that it was not a test and that their only desire was to know what the child thought.

Children were first presented with culturally appropriate (i.e., dressed consistent with modesty standards in the LDS Church) drawings of women, each of a different race (Black, White,

Hispanic), and asked to choose which one they thought looked the most like their mom. Once the child chose, the experimenter used the set of pictures that matched the race of the mother that the child had chosen.

To frame the prelife period, children were presented with a set of three drawings representing three developmental periods in the past: the mother before pregnancy, the pregnant mother, and an infant (see Figure 2). The three drawings were laid out for the child from left to right in chronological order (prelife period, in utero period, infancy). Children were told, "Look at these drawings. We know that these are not the people in your family, but we are going to imagine that it is you and your mom." To aid children's temporal understanding, the periods were introduced from most concrete and recent (infancy period) to the most abstract (prelife period). While pointing to the baby image, the experimenter told children: "This is you when you were a baby, can you imagine yourself then?" The experimenter then pointed to the image of the pregnant woman and told children: "This is your mom when she was pregnant with you. This (pointing to pregnant mother image) happened before this (pointing to image of baby), right?" Finally, the experimenter pointed to the non-pregnant mother, representing the prelife period, and told children: "This is your mom before she was pregnant with you, that is, before you were in your mom's belly. This (pointing to the non-pregnant mother) happened before this (pointing to the pregnant mother), right? Do you think that's true?" Experimenters told children that the prelife period was "*before* you were in your mom's belly" not only to clarify that children were not inside their mother during the prelife period but also to emphasize that the image did not represent the mother in early pregnancy when there would be no external fetal signs (see Emmons & Kelemen, 2015, for children's reasoning about the fetal period).

After the drawings were introduced, the experimenter collected the drawings and mixed them up. Children were then asked to place the pictures in the correct temporal sequence. This task was done to ensure that children understood the preconception period about which they would be asked. All participants successfully ordered the drawings on their first attempt. The three images

Figure 2. Drawings depicting the prelife, in utero, and infancy periods (from left to right).

were then picked up from the table and the experimenter placed only the prelife image (non-pregnant mother drawing) in front of the child. The experimenter told the child: "Think about yourself during this (pointing to prelife image) time when your mom was still not pregnant with you." Children were then asked the series of 12 yes-no questions about bodily and mental capacities used in past studies (Emmons & Kelemen, 2014), for example, "During that (pointing to prelife image) time, could you want things?" (see Table 2). Importantly, consistent with prior

child research, but in contrast to their parents in Study 1, children were then prompted with a "why?" to elicit their justifications. These justification prompts were included to ensure that children understood the questions about prelife and to prompt children to actively reflect on the specific capacity under question, thus avoiding any potential response sets. As elaborated below, children's responses about the functionality of each capacity were not coded based on the response to the forced-choice question alone but also based on their justification.

Following the general prelife capacity questions, children were asked the 4 LDS-specific questions about premortal life used in Study 1 to probe explicit knowledge of the LDS Church's theological doctrine on premortal life.

The prelife image remained in front of the child throughout the questioning procedure. Children were never told whether the experimenter thought their answers were right or wrong (i.e. responses that would confirm the existence of a prelife period or functional capacities during it), but were given neutral responses such as "Oh, ok, thank you!" A randomizer generator

Table 2. Categories of questions in Study 2.

Category	Question
General Prelife Bodily and Mental Capacity Items	
Bodily Items	
Biological	Could your eyes work? Why/why not? Could your heart beat? Why/why not?
Psychobiological	Could you be thirsty? Why/why not? Could you be hungry? Why/why not?
Perceptual	Could you watch something? Why/why not? Could you listen to something? Why/why not?
Mental Items	
Epistemic	Could you think things? Why/why not? Could you remember things? Why/why not?
Emotional	Could you feel sad? Why/why not? Could you feel happy? Why/why not?
Desire	Could you want anything? Why/why not? Could you desire anything? Why/why not?
LDS Church-Specific Items	
Spirit	Did you have a spirit?
Spiritual body	Did you have a spiritual body
Physical body	Did you have a physical body?
Heavenly Father	Could you know Heavenly Father?

determined two fixed question orders for the bodily and mental function questions and the LDS-specific questions. These orders distributed questions about mental and bodily states throughout the task so that the specific material children reflected upon varied from question to question.

Coding

Following Emmons and Kelemen (2014), responses to the general prelife capacity questions were coded based on the combination of the children's initial yes-no answers and their justifications. For the twelve mental and bodily state questions, two coding categories determined whether children believed the capacity was functional (i.e., it

worked) or nonfunctional (i.e., it did not work). Ambiguous responses were coded as unscorable (4.5% of responses) and, following Emmons and Kelemen (2014, 2015), were treated as nonfunctional responses for the purposes of analysis. This approach was taken to avoid ascribing functional beliefs to children unless they clearly expressed this belief.

Responses were coded as functional if children gave an initial "yes" answer that was followed by an elaborated and consistent explanation (e.g., "Yes, [I could feel happy] because you do have feelings up there") or otherwise re-confirmed that the capacity worked (e.g., "Yes, I could listen"). As in Emmons and Kelemen (2014), responses were also coded as functional if children gave an initial "no" answer but in their justification betrayed a belief that the capacity was in fact functional (e.g., "No, [I could not feel sad] because I was happy with God"). In the aforementioned example, the capacity to feel sad is implied but not expressed because the emotion of happiness supersedes it. Finally, "yes" answers followed by "I don't know" justifications were coded as functional because they displayed a bias toward functional reasoning.

Responses were coded as nonfunctional if children gave an initial "no" answer followed by an elaborated and consistent explanation (e.g., "No, [I could not be thirsty] because I didn't have a body that needed water") or otherwise confirmed that the capacity did not work (e.g., "No, [my heart] didn't beat"). "No" answers followed by "I don't know" justifications were also coded as nonfunctional because they displayed a bias toward nonfunctional reasoning. Interrater agreement was excellent (kappa = .95).

As in Emmons and Kelemen (2014), children's answer justifications were also coded for their content. For example, responses coded as functional were coded into distinct categories to differentiate between justifications that referenced: (1) existing in a spiritual realm ("functional spiritual"); (2) one's biological nature ("functional biological"), (3) one's future fate to exist on earth ("functional fate"); (4) one's social life ("functional social") or (5) one's psychological states ("functional psychological"). Nonfunctional responses could also be coded into additional categories that referenced; (6) limitations related to existing in a spiritual realm ("nonfunctional spiritual"); (7) biological limitations ("nonfunctional biological"); (8) more general limitations ("nonfunctional limited"). Justifications could have multiple parts and be coded into more than one category. Justifications that did not fall into at least one content category were coded as (9) "other." Interrater agreement was excellent (kappa = .84).

The four LDS-specific questions were coded based on whether children's initial forced-choice accurately or inaccurately reflected LDS Church doctrine (i.e., justifications were not used to determine accuracy of response). An accurate pattern of response was to say that all capacities (spirit, spirit body, knowing Heavenly Father) were functional during preexistence except for a physical body (kappa = .93)

Results

General prelife capacities

To recap, parent members of the LDS Church displayed mean tendencies to agree or strongly agree that all their mental and bodily capacities–aside from specific flesh-

sustaining biological and psychobiological ones (heart, hunger, thirst)–were functional in prelife. The question guiding our analyses of their children then was how intuitive do their children find these theologically correct ideas? Or do we see signs that an initial intuitive focus on emotions, and perhaps desires, as the core of eternal existence has to be set aside for children to become enculturated to theologically accurate views about a rich mental and spiritual-physical premortal existence? In short, from how early in their religious education does the pattern of response from child members of the LDS Church resemble that of adult members?

Figure 3 presents children's mean general prelife functionality judgments and Table 4 presents the percentage of children who gave functionality judgments on LDS-specific beliefs. For context, Figure 3 also presents the Study 1 adults' dichotomously recoded mean rating judgments (strongly agree + agree = "functional"; disagree + strongly disagree = "nonfunctional"). Based on the same kind of dichotomous recode, Table 4 presents the percentage of adults who responded that an LDS-specific capacity was functional or nonfunctional. Despite presenting the adult data for context, parents were not included in ANOVAs comparing children's responses across age and question category given the important differences in the way children's and adults' functionality judgments were assessed.

To remain entirely consistent with Emmons and Kelemen (2014, 2015), we used ANOVA to examine participants' responses and Fisher's least significant difference (LSD) comparisons for all post hoc analyses. Preliminary analyses on children's functionality judgments revealed no gender effects so this variable was dropped

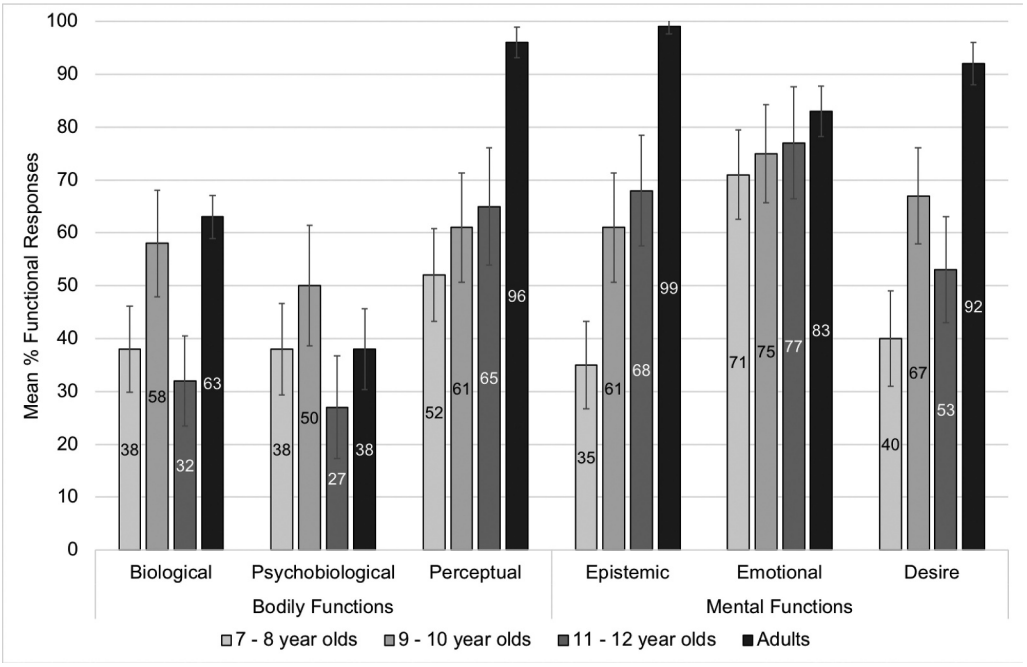

Figure 3. Mean percentage functional responses by age. Error bars show standard errors of the mean. (Adult scores based on a dichotomous recode of the 4-point rating of functionality: strongly agree and agree = functional; disagree and strongly disagree = nonfunctional).

from analyses. A 3 (child age group) × 6 (question category) mixed ANOVA, with a Greenhouse-Geisser correction due to a violation of sphericity, revealed no main effect of age group, $F(2, 56) = 1.26$, $p = .291$, $\eta_p^2 = .043$ but a main effect of question category, $F(3.59, 200.99) = 11.95$, $p < .001$, $\eta_p^2 = .176$. This occurred because, across ages, children gave the most functional responses for the emotion category–which was endorsed significantly more than all other categories, ps < 0.004 – and the least for the biological and psychobiological categories. Endorsement of the functionality of perceptual, epistemic, and desire states fell between the emotion and psychobiological categories with an age group by question category interaction indicating some age-specific patterns that were informative with regard to the process of enculturation, $F(7.18, 200.99) = 2.12$, $p = .041$, $\eta_p^2 = .070$.

Specifically, as Figure 3 shows, 7- to 8-year-olds differentiated between different capacity categories, $F(3.59, 82.50) = 5.46$, $p = .001$. They endorsed the prelife functionality of emotion capacities ($M = 71\%$, $SD = 41\%$) significantly more than all other categories except perceptual capacities. Indeed, the mean level of functionality judgments for these other categories of capacities, including desires, was generally low ($M = 38\%$ $SD = 35\%$). Lower levels of functionality were judged not only for the biological and psychobiological capacities but also epistemic capacities, creating a marked difference from parents who, consistent with theological doctrine, had endorsed this category strongly in their agreement ratings.

Nine- to 10-year-olds endorsed desire states more strongly than 7- to 8-year-olds, $p = .042$. However, by contrast with that younger age group, 9- to 10-year-olds did not sharply discriminate the functionality of different kinds of bodily and mental prelife capacities from each other, $F(2.22, 37.76) = 1.77$, $p = .181$. In general, while they displayed ideas about eternally functional capacities, these endorsements were not marked, particularly when considered in general relation to adult agreement patterns (see Table 3 for item responses). On average, 9- to 10-year-olds, endorsed bodily states 56% of the time ($SD = 38\%$) and mental states 68% ($SD = 38\%$) of the time, suggesting the lack of sharp distinctions in ideas about bodily versus mental state functionality.

Finally, the pattern among 11- to 12-year-olds differed from the other two child age groups. They endorsed the functionality of epistemic capacities more than 7- to 8-year-olds, $p = .019$. Furthermore, unlike 9- to 10-year-olds, these oldest children showed more discriminating responses to the various capacity categories, $F(5, 80) = 8.61$, $p < .001$: They tended not to substantially endorse the idea that biological and psychobiological capacities were functional in prelife ($M = 29\%$, $SD = 33\%$), endorsing these capacities significantly less than prelife perceptual abilities and all of the mental states (epistemic, emotion and desire). This category discrimination echoes much of the general pattern seen in adults' agreement ratings suggesting the beginnings of an active convergence. Despite this, simple inspection of Figure 3 (also Table 3) clearly demonstrates that even after several years of concentrated religious instruction, 11- to 12-year-olds still maintained some uncertainty in relation to adult-like doctrinal attribution patterns.

To examine whether there was any general relationship between children's ideas about premortal capacities and their parents' beliefs about them, exploratory Pearson's correlations were conducted. To avoid issues of nonindependence, if more than one child in a family participated in the study, only one sibling was randomly selected for inclusion in

Table 3. Percentage of participants providing functional responses to each item within a category (Adult scores based on dichotomous recoding of the 4-point rating of functionality: strongly agree and agree = functional; disagree and strongly disagree = nonfunctional).

		Age Groups			
Category	Capacity	7 to 8	9 to 10	11 to 12	Adults
Biological	Eyes	46	61	29	97
	Heart	29	56	35	23
Psychobiological	Thirst	42	50	24	39
	Hunger	33	47	29	35
Perceptual	Watch	38	56	65	94
	Listen	67	67	65	97
Epistemic	Remember	25	56	65	97
	Think	46	67	71	100
Emotional	Sad	71	72	76	76
	Happy	70	78	76	89
Desire	Want	42	72	59	95
	Desire	38	61	47	89

analyses, resulting in 38 parent-child pairs for comparison. Consistent with the patterns observable in Table 3, these exploratory analyses revealed no significant association between parents and children's average endorsement score for either bodily capacities, $r(36) = -0.03$, $p = .865$, or mental capacities, $r(36) = 0.03$, $p = .861$. Thus, despite signs of developmental convergence between children and adults in mean judgments of capacity functionality, within this sample of 38 families, children's ideas did not correlate with their parents' beliefs in a manner that might be expected under a straightforward cultural transmission account.

LDS-specific questions

Children's lack of full enculturation to LDS doctrine was also somewhat observable in their response to the LDS-specific questions. As Table 4 shows, children at all ages were fairly doctrinally accurate that, during the premortal period, they had spirits and capacities for knowing Heavenly Father. This accuracy extended, to some extent, to questions tapping belief in the presence of a spirit body and the absence of a physical body. However, 9- to 10-year-olds displayed a fair degree of uncertainty as to the functionality of their spirit body. As Table 3 indicates, this was also evident in their responses to general prelife items, where, on average, they displayed a greater inclination than any other age groups to think corporeal biological and psychobiological capacities (heart, hunger, thirst) might be functional during preexistence.

Table 4. Percentage of participants who endorsed functionality on LDS-specific questions (Adult scores based on dichotomous recoding of 4-point rating of functionality: strongly agree and agree = functional; disagree and strongly disagree = nonfunctional).

	Capacity			
Age Group	Spirit	Spirit Body	Physical body	Heavenly Father
7–8	83	71	17	88
9–10	89	56	22	83
11–12	100	94	0	100
Adults	100	100	8	100

Justifications

Table 5 provides examples of capacity justifications coded as functional and nonfunctional and their respective content codes. Child members of the LDS Church were generally less inclined than their parents to strongly endorse the functionality of most prelife capacities and yet functionality judgments were certainly not absent within any age group. For example, as with Ecuadorian and Shuar children, they were strongly evident across all age groups for emotional capacities although, unlike with earlier Shuar samples, young children were less likely to endorse the functionality of desires. Qualitative analyses were therefore conducted to explore what kinds of justifications were associated with children's functionality judgments – particularly for emotional states – and to examine their nonfunctionality judgments for capacities that adults had endorsed strongly but children had not (e.g., epistemic states, desires).

With regard to functionality judgments, across all items, justification types were largely evenly distributed across spiritual, psychological-and-social and biological justifications until 11-to-12-years of age when children started to evidence more explicitly spiritual reasons and fewer biological justifications. In all age groups – as with Ecuadorian and Shuar children – the justifications for the functionality of emotions were often social-psychological in nature (e.g., happiness about the prospect of meeting family, sadness at wanting to be born) but while explicitly spiritual justifications never predominated at any age (i.e., justifications explicitly referencing a religious concept like Father or the Plan of Salvation), much of the social-psychological reasoning nevertheless seemed tacitly spiritual, potentially integrating ideas that were components of the LDS Church religious doctrine that children were learning (e.g., "[yes, you could feel sad] because you weren't with the family you were supposed to be with]"[3]).

With regard to nonfunctionality judgments, at each age the majority of these occurred because children referenced biological reasons why capacities did not operate. This was particularly true for the epistemic states (e.g., "[I couldn't remember] because I wasn't alive yet"); [I couldn't think things] because I wasn't born yet"). It was also true for the desire capacities although one complicating factor for evaluating patterns of judgments on this category in general was that children often didn't know the word "desire" and, even after clarification, this may have increased their tendency to say the capacity didn't work, especially among the youngest children (see Table 3 item responses).

Discussion

Study 2 found that despite parental views that place high value on shared religious beliefs, child members of the LDS Church do not show pronounced patterns of adult-like doctrinal religious belief about eternal life until some point after 11–12-years-of age, the oldest age tested here. The process of acquiring a full suite of doctrinally accurate formal religious beliefs is therefore slow and gradual even when children are receiving relatively intensive exposure to religious teachings via regular family practices during the week and content-rich religious instruction in Sunday School.

[3]Shuar and Ecuadorian children also generated justifications similar to this one. When offered by those samples of children, this kind of justification would seem to have no obvious religious content. However, when uttered by an LDS child, the term "supposed" potentially alludes to an aspect of the Plan of Salvation.

Table 5. Samples of children's justifications and coding categories.

Functional – Spiritual
Could you be thirsty? If we can be hungry, we can be thirsty, because we still have the throat but not the physical one.
Could you watch something? Kinda, 'cause our religion says that we were in Heaven and I could watch my mom before I go down.
Could you feel happy? Yes, because, uh, I was in Heaven and I'm always happy.
Could you remember things? Yes, but when you passed through the veil you forgot almost everything about your time up in Heaven, what it looked like, who you knew up there, basically whatever up there, and you started a new life.
Functional – Biological
Could you be hungry? (Nods "yes"), because if I didn't have food I would starve.
Could you listen to something? Yes, 'cause you had ears.
Could you think things? M-hmm, because umm, because I had a brain.
Functional – Fate
Could you feel sad? Yeah, well one reason I would feel sad...is because so far a bunch of other people would have gone to Earth but then I really wanted to. [Also coded as Functional – Psych/Social]
Could you desire anything? Uh-huh, to go down to Earth, 'cause I want to have a family. [Also coded as Functional – Psych/Social]
Functional – Psych/Social
Could your heart beat? Yeah . . . Well you're a spirit, you still have a heart, you still have feelings, so why don't you have a heart? [also coded Functional – Spiritual]
Could you be hungry? Uh-huh, because you have a weird feeling that you want to eat something.
Could you feel happy? M-hmm, because I had a family.
Could you feel sad? (Nods "yes") . . . I guess sometimes because I lost a sister.
Nonfunctional – Spiritual
Could you be thirsty? No, 'cause I couldn't be hungry or thirsty because I was a spirit.
Could you remember things? Maybe I couldn't...'cause I was a spirit. I don't know, it's kind of confusing.
Could you watch something? No, 'cause TV wasn't invented when I was in Heaven.
Could you want anything? I don't think so, because you . . . didn't have any belongings or any money or anything you could use besides your spirit.
Nonfunctional – Biological
Could your heart beat? No, since you didn't have a heart, how could it beat?
Could you remember things? No, I didn't have, like, a brain to remember things.
Functional/Nonfunctional – Other
Could you be hungry? No, there was no food.
Could you think things? Mhmm, because everybody can think things.

While responses to LDS-specific questions indicated that children were largely accurate on yes/no questions directly probing central tenets of LDS preexistence doctrine, for example, that they were spirits without physical bodies, who knew Heavenly Father, children in all age groups did not fully align with their parents' more general view that in this preexistence, they had a full repertoire of mental capacities, marked perceptual capacities, and some degree of bodily presence–albeit not the corporeal kind that implies internal organs, hunger and thirst.

By contrast to adults, the youngest age group tested –7- to 8-year-olds – showed far more selective patterns of capacity attribution that were consistent with prior work revealing that children in small and large-scale cultures without a prelife script have weak dualist intuitions that they preexisted as eternal emotional beings (Emmons & Kelemen, 2014). The patterns of difference between children and adults diminished with age, with 9- to 10-year-olds, arguably, showing a transitional pattern in which a moderate degree of functionality was generalized to all capacities. Older children then started to show a more overtly, adult-aligned pattern of doctrinal endorsement. Furthermore, while 11- to 12-year-olds continued to differ from the adults on some details, they also showed increasingly explicit signs of doctrine-based spiritual reasoning.

Importantly, however, spiritual justifications were never absent at any age. In consequence however slow or difficult the acquisition of the full LDS formal prelife theological

system may be, children are receptive to those aspects that align with intuition at all ages. Specifically, in contrast to epistemic states, children never displayed difficulties assuming that their emotional capacities were functional in prelife. What this therefore suggests is that children are more prepared for formal religious teachings that are consistent with culturally recurring intuitions about eternally persisting core aspects of personhood. In the case of LDS doctrine, internalizing other less intuitive details of premortal preexistence theology–for example, those concerning aspects of premortal bodies and capacities for thought and memory–take far more time.

General discussion

Intuitive ideas are often characterized as smoothing the path to formal religious knowledge acquisition and making it relatively easy. What the current research suggests is that the developmental story is not so straightforward. Within the context of acquiring the LDS Church's formal theology on preexistence, 7- to 8-year-old Church members demonstrated many of the intuitive patterns seen in children from communities without any formal religious prelife doctrine: That is, in contrast to their parents who endorsed the existence of specific bodily and all mental capacities in prelife, 7- to 8-year-olds endorsed a weak dualist view that they preexisted their earthly life as primarily emotional beings, who lacked most other bodily and mental capacities. Interestingly, children often invoked biological knowledge to justify why certain capacities–those that their parents strongly endorsed–were not functional in prelife. For example, epistemic capacities were often judged as nonfunctional by children due to biological limitations (e.g., the absence of a brain). Despite this, children did not mobilize this same biological knowledge to reject that they had feelings of happiness and sadness during the premortal time. This suggests that children do not see emotions as intrinsically tied to biology, instead treating them as core features of persons that eternally exist somewhat independently of any bodily constraints (see also Emmons & Kelemen, 2014).

Of course, one interpretation of 7- to 8-year-old LDS children's emphasis on their premortal emotional capacities is that, rather being reflections of intuition–as in prior child samples who had no exposure to prelife narratives–their responses actually reflect the internalized structure of the LDS religious teaching and testimony that they have received to that point. Specifically, curricula intended for Sunday School and home study are designed so that instruction can commence from as early as 3-years of age: Perhaps between 3- to 8-years of age, children are only exposed to a highly piecemeal version of LDS preexistence theology–one that focuses primarily on capacities for emotion in prelife (e.g., happiness), but deemphasizes the existence of epistemic states, desires, and bodily forms and capacities. One difficulty with this argument is that the evidence from children's responses to LDS-specific questions seems to weaken it. By 7- to 8-years of age, children had clearly been exposed to a range of doctrinal narratives relating to the Plan of Salvation such that they had, for example, internalized tenets concerning the premortal existence of spiritual versus physical bodily forms and were more broadly aware that there existed "right" doctrinal answers to questions.[4] Furthermore, the claim is not consistent with even a cursory examination of the standardized LDS Sunday School learning materials for children: From early on, the LDS theology that is taught from these materials is both comprehensive and doctrinally accurate, even if it is stated in child-friendly terms.

In short, the 7- to 8-year-old's attribution pattern is not easily explained by reference to religious exposure alone and, when considered in the context of parallel intuitions generated by Ecuadorean and Shuar children, instead seems consistent with two interesting conclusions. First, across cultures, young children appear to have early developing eternalist intuitions that are not in themselves inherently religious in content but provide a foundation for the elaboration for doctrinal religious belief. Even the youngest children offered clearly identifiable spiritual justifications for their ideas about emotional eternity some of the time (approximately 25%) and, with age, their predominantly social and psychological justifications seemed to increasingly reference concepts with doctrinal heft, even when the specific doctrine itself was not stated overtly. Second, even as intuitions about emotional eternalism might operate as a bridge for learning some aspects of a theology, these same intuitions do not offer a fast and straightforward route to accurate acquisition of the formal religious belief system as a whole. Indeed, prelife capacity item responses from 9-to-10-year-olds often suggested that they were guessing, particularly when it came to somewhat counterintuitive ideas about premortal bodily existence. In short, attaining theological correctness is effortful and may be slowed because it initially requires children to set aside a focus on ideas that they find intuitively attractive so that they can connect the pieces to build out a fuller, more integrated, accurate and inference-bearing doctrinal belief system.

In many ways then, parallels can be drawn between the challenges of acquiring formal religious belief systems and those hindering the acquisition of formal scientific theories. Depending on the counterintuitiveness of the formal concept, both types of learning encounter obstacles, with initial intuitions perhaps needing to be set aside en route to learning the formal canonical view (see Ronfard, Brown, Doncaster, & Kelemen, 2021, for information processing factors influencing counterintuitive theory construction for a canonical concept in science). Of course, while the present research clarifies that – despite informal religion-consistent intuitions – the process of becoming theologically correct is far from trivial for children, these studies still leave many questions unanswered. For example, are the relatively slow patterns of learning about preexistence evidenced here also seen when children are learning prelife concepts that occur in a doctrinal context of continuous rather than linear existence, that is, when they occur as part of the kind of reincarnation theology that is more prevalent in non-Abrahamic or non-Western religions? Furthermore, would doctrinal learning by LDS children have been faster had it occurred in a context of different and perhaps more experiential teaching practices? Pursuit of these questions must wait for future research. The bottom line from this work remains however: Learning many formal scientific concepts is hard but the same is true for learning at least some formal concepts in religion.

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[4]In fact, the high number of uncodeable ambiguous/irrelevant answers generated by this sample suggested that children had enough awareness of, and anxiety about, doctrinal "right answers" that when answering general prelife capacity questions they were inclined to confabulate at the prospect of getting the answer "wrong" (see also Schachner, Zhu, Li, & Kelemen, 2017).

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Data availability statement

The data described in this article are openly available in the Open Science Framework at https://doi.org/10.17605/OSF.IO/TPA6U.

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This article has earned the Center for Open Science badge for Open Data. The data are openly accessible at https://doi.org/10.17605/OSF.IO/TPA6U.

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