

The Ghost in My Body: Children's Developing Concept of the Soul*

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ABSTRACT

Two experiments were conducted to explore whether children, who have been exposed to the concept of the soul, differentiate the soul from the mind. In the first experiment, 4- to 12-year-old children were asked about whether a religious ritual affects the mind, the brain, or the soul. The majority of the children claimed that only the soul was different after baptism. In a follow-up study, 6- to 12-year-old children were tested more explicitly on what factors differentiate the soul from the mind and the brain. Children differentiated the soul from the mind and the brain along two dimensions: function and stability. In contrast to their responses about the mind and the brain, children did not claim that the soul was important for cognitive, non-cognitive, or biological functioning. Children consistently indicated that the mind and the brain change and grow over time. In contrast, children indicated that the soul is something that stays constant and is devoted to various, predominantly spiritual, functions.

By seven years of age, children demonstrate a fairly solid understanding of the role that the mind and the brain play in identity. For example, if told a story about a child's brain that is transplanted into the

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body of a pig, 7-year-old children, but not 5-year-olds, will claim that the pig has the child's preferences and memories, and would claim to be a child rather than a pig (Johnson, 1990). Furthermore, when told stories about a horse who receives the brain of a cow, 8-year-olds consistently claim that the horse would have the memories, thoughts, and preferences of the cow (Gottfried, Gelman, & Schultz, 1999). Children demonstrate this understanding even earlier if the transplant involves the mind rather than the brain (Corriveau, Pasquini, & Harris, in press). However, children raised in North America are also exposed to another aspect of identity that goes beyond memories and thoughts and preferences, namely that people have souls.

Many world religions have doctrines and beliefs about the 'soul'. The Christian Bible does not mention a soul explicitly. Traditionally, however, Christians typically regard the soul as the spiritual essence of a human being, which originates with God, is immortal, and can leave the body at death. According to the Islamic Qur'an, Allah 'breathes' a soul into humans. The soul is pure at birth and can grow and achieve nearness to God through righteous living. At death, the soul transitions to an eternal afterlife, either in Heaven or Hell. Similarly, Jewish tradition holds that God breathes the soul into humans. Classic rabbinic literature offers various definitions and interpretations of the purpose of the soul. Sometimes the soul is categorized as desire, emotion, and intellect, and other times it is considered to be a person's moral virtues. In still other cases it is defined as the 'Higher-Self' that enables one to be aware of the existence of God and to live on after death. In the Hindu and Jain traditions, the *jīva* is the individual soul and is generally considered to be the immortal essence of a living being. The *jīva* evolves through reincarnation, from mineral to vegetable to the animal kingdom. A *jīva* accumulates karma in a given life, which then determines its next incarnation in the following life on earth. Nevertheless, in both Jainism and Hinduism, a *jīva* can eventually escape the earthly cycle of life and death.

The pervasiveness of a soul concept in various religious doctrines suggests there may be something intuitive about attributing a 'spiritual essence' to people. In fact, in a recent analysis of the concept of the soul, Bloom (2004) has argued that people are common-sense dualists. More specifically, he suggests that even infants distinguish between bodies

and souls, that this distinction is innate, and that it may be impossible to extinguish. He further argues that this common-sense dualism provides the foundation for numerous inclinations that make us uniquely human. These inclinations include religious concepts, such as the belief in an afterlife, belief in supernatural entities, emotions like empathy and disgust, and even our amusement with slap-stick humor.

Bloom (2004) builds his case for the innateness of this common-sense dualism on research in early social cognition. For example, newborn babies, seemingly instinctually, imitate the facial expressions of adults (Meltzoff & Moore, 1977). In addition, infants as young as 4- to 6-months appear to have expectations about social interactions with people (Rochat & Striano, 1999). Shortly after, 7-month-old infants display different expectations for objects and people, in that they do not appear surprised when people violate object principles, but are surprised when objects violate those principles (e.g., Kuhlmeier, Bloom, & Wynn, in press; Spelke, Phillips, & Woodward, 1995). In essence, Bloom (2004) suggests that insofar as babies treat people differently than objects, intention attribution is actually an early form of dualism.

In arguing for common-sense dualism, Bloom (2004) does not distinguish the concept of the soul from the concept of the mind. There is reason to believe, however, that these concepts do differ. Words that distinguish something like a soul from something like a mind are present in many languages. For example, in Japanese culture, there are several gradations of the 'self' concept dealing with mental, physical, and spiritual aspects of the self (Lillard, 1998). In particular, there is the *seishin*, which is closely linked to a spirit and is separate from the *hara*, which is the vital center of the body and mind, and the *ki*, which circulates through the body and the mind. In another example, the Lohorong Rai of East Nepal claim that all people have *lawa*, which is the essence of life that animates the body, giving it consciousness, but also acts independently from the body (Hardman, 1981). According to Hardman (1981), an individual's *lawa* is separate from her *niva*, which corresponds to our notion of a mind. Furthermore, in a study of afterlife beliefs among Vevo children and adults in rural Madagascar, Astuti and Harris (2005) asked participants about whether the body (*vata*), mind (*say*), and spirit (*fanahy*) continue to work after death. Adults and older children were more likely to say that the spirit continues after death than the

mind or the body, suggesting that there is indeed a distinction between mind and spirit and that they serve different functions for an individual.

Thus, even though children in a variety of cultures are exposed to the idea of a spirit or soul that inhabits one's body, we know very little about, or even if this concept is differentiated from other identity-giving entities, namely the brain and the mind. Two experiments were conducted to explore whether children who have been exposed to the concept of the soul differentiate the soul from the mind and the brain. In the first experiment, children were asked whether a religious ritual affects the mind, the brain, or the soul. In a follow-up experiment, children were tested more explicitly on what differentiates the soul from the mind and the brain.

Experiment 1

Experiment 1 was conducted as a separate part of a study examining children's understanding of religious rituals. This first experiment assessed whether children thought a religious ritual (namely baptism) changes a baby's brain, mind, or soul. Children were told stories about babies who were baptized and asked questions about the baptism. Following these stories, a series of interview questions about baptism were asked.

Method

Participants

Sixty-five children between the ages of four and twelve years were recruited through the Sunday School rosters of Lutheran churches in southeastern Michigan and the greater Boston area ($M = 8;4$, range = 4;9 to 12;1). There were 28 girls and 37 boys, and all children were from middle class families. Children were divided into three groups by age: young ($n = 22$, $M = 6;2$, range = 4;9 to 6;11, 11 girls, 11 boys), middle ($n = 23$, $M = 8;6$, range = 7;0 to 9;11, 8 girls, 15 boys), and old ($n = 20$, $M = 10;8$, range = 10;0 to 12;1, 9 girls, 11 boys).

Procedure

Participants were recruited to answer a series of questions about the ritual of baptism. Before answering these questions, each child was pre-

sented with at least one vignette describing a baptism and asked a series of questions as the vignette progressed. Following the vignettes, children were asked six questions (the focus of the present study) designed to tap into children's developing concept of a soul. Children were asked how a baby is different after baptism than before. Specifically, they were asked three questions about the *general location* of the difference: 1) Is the difference on the inside or outside of the baby? 2) Can you see the difference? and 3) Can you touch the difference? They were also asked three questions about the *specific entity* associated with the difference (i.e., mind, brain, and soul). The order of the last three questions, concerning the mind, brain, and soul, was counterbalanced across participants.

Table 1

Number of children in each age group getting 0, 1, 2, or 3 of the 'location of difference' questions correct in Experiment 1

		Total Number Correct			
		0	1	2	3
Age Group	Young	2	4	7	6
	Middle	0	1	6	14
	Old	0	0	4	16

Results & Discussion

Participants' responses to the three *general location* questions were coded for whether they were correct (1) or incorrect (0). Responses were considered correct if they indicated that the baptism ritual results in a difference: (i) on the inside of the baby that (ii) cannot be seen and (iii) cannot be touched. The number of correct responses for each child was then tallied, and the total number correct by age group is shown in Table 1. More than half (55.4%) of the children responded correctly on all three of the questions. There was a significant correlation between age and the number of correct responses ($\gamma = .63, p < .001$). One-sample *t*-tests confirmed that the middle ($t [20] = 8.70, p < .001$) and older ($t [19] = 14.17, p < .001$) groups of children were significantly above chance in the number of questions answered correctly, but the youngest group of children was not significantly different from chance.

Even so, the majority of the youngest group of children (68%) responded correctly on at least two of the three questions. Thus, 7- to 12-year-old children generally claim that a religious ritual (in this case, baptism) is something that changes people on the inside in a way that cannot be seen or touched. The subsequent *specific entity* questions explored what exactly on the inside of people was changed.

The percentages of children in the three age groups claiming that the brain, mind, and soul are different after baptism are displayed in Figure 1. As is evident in this figure, significantly less than half of the children ($n = 15$, 25%, $p < .001$, binomial test) claimed the brain was different after baptism; significantly more than half of children ($n = 54$, 83%, $p < .001$, binomial test) claimed that the soul was different after baptism; and children were at chance responding whether the mind was different after baptism ($n = 29$, 45%; $p = 1.00$, binomial test). A Kruskal-Wallis test, a nonparametric test to compare independent samples, confirmed that there were no significant age group differences for responses about the brain, mind, or soul. Thus, the age groups were collapsed together to compare responses across the three entities.

McNemar tests, a nonparametric test for dependent samples, were conducted comparing overall responding about whether the brain, mind, and soul are different after baptism. Children were significantly more likely to say that the soul was different after baptism than either the mind ($p < .001$) or the brain ($p < .001$). Children were also significantly more likely to say that the mind was different than the brain ($p < .01$).

In sum, children of all ages claimed that baptism changes the insides of people in an invisible and intangible fashion, and specifically changes people's souls. Moreover, children clearly differentiated the effect of baptism on the soul as compared to the mind. It is still unclear, however, what children think the soul actually does. The following experiment explores more explicitly what function children think the soul serves.

Experiment 2

This experiment was modeled on experiments conducted by Johnson and Wellman (1982), in which they explored children's concepts of the mind and the brain. Across four studies, they questioned children aged

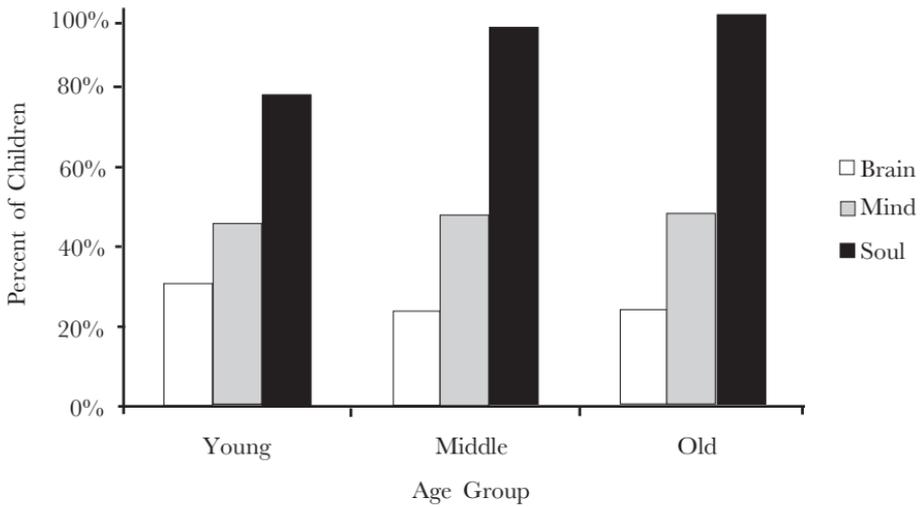


Figure 1. Percentage of children in age group in Experiment 1 who claimed the brain, mind, and soul are different after baptism.

3 to 15, as well as adults, on whether and how the mind and brain are different. They found that young children did not systematically differentiate the mind from the brain on any dimension. By age 10, however, children claimed that whereas both the mind and the brain were needed for mental functioning, only the brain was needed for non-mental functioning (i.e., involuntary behaviors, sensing, simple behaviors). Following this paradigm, children were interviewed about whether certain kinds of functioning, specifically cognitive, non-cognitive, and biological functioning, would continue without the presence of a brain, mind, or soul. In addition, participants were asked a series of ontological questions intended to target exactly what the soul 'does.'

Method

Participants

Participants were 48 children recruited from 3 distinct groups. Children were recruited from the 1st grades ($n = 15$; mean age = 6;10, $SD = .35$; 10 girls, 5 boys), 3rd grades ($n = 18$; mean age = 9;3, $SD = .35$; 6 girls, 12 boys), and 5th grades ($n = 15$; mean age = 11;0, $SD = .41$; 7 girls, 4 boys) of two Catholic schools. Among the children, there were

20 African American and 19 White children. The remaining children were either Asian ($n = 1$) or Hispanic ($n = 8$).

Procedure

Children were interviewed one-on-one by an experimenter in a quiet room of the school. At the start of the interview, children were asked to think about what newborn babies are like. They were then asked a series of questions about babies' brains, minds, and souls. Children were asked the same series of 10 questions about each entity. The questions were grouped by entity; whether participants were asked to respond to questions about the brain, mind, or soul first was counterbalanced across participants.

The interview is attached in Appendix A. Three forced-choice questions were designed to assess participants' ontological definitions. In particular, children were asked whether babies have brains, minds, and souls; whether they change or stay the same; and whether they confer identity. Children were then asked a fourth, open-ended question about what each entity does. The remaining 6 questions were modeled on the Johnson and Wellman (1982) method of asking children to imagine that each entity was taken away and to decide whether the baby could still perform a series of functions. We chose functions that fell into three categories: cognitive (i.e., dream, think), non-cognitive (i.e., see, want mommy), and behavioral (i.e., suck on thumb, use eyes).

Results & Discussion

Responses to the three ontological questions will be analyzed first. The responses to the open-ended questions about what the mind, brain, and soul do will be described last because they help to clarify the other results. The first question about each entity asked children whether a baby actually has a mind, brain, or soul when they are born. Overall, 81% of participants ($n = 39$) claimed that babies have brains, 79% ($n = 38$) claimed that babies have minds, and 90% ($n = 43$) claimed that babies have souls. Children's claims about whether babies had minds and brains were not significantly different by age group. However, the older and middle children were significantly more likely to say the babies had souls than the youngest children (contingency coefficient = .42,

$p < .01$). Collapsing the age groups, McNemar tests confirmed that the proportions of children claiming that the mind, brain, or soul exists from the start of life were not significantly different from each other.

Participants were also asked whether minds, brains, and souls change and develop over time or whether they pretty much stay the same throughout a person's life. Children generally agreed that minds (85%, $n = 41$) and brains (79%, $n = 38$) change over time. There was less agreement about whether souls change over time, with 54% ($n = 26$) claiming that souls do change, 40% ($n = 19$) claiming that souls stay the same, and 6% ($n = 3$) saying they were not sure whether souls change or not. There were no significant differences among the age groups. McNemar tests confirmed that the responses for the soul were significantly different than the responses for both the mind ($p < .05$) and the brain ($p < .05$). Participants were more likely to say that the soul stays the same throughout a person's life, but that the mind and the brain change over time.

The third ontological question assessed whether children thought that the mind, brain, and soul confer identity. They were asked whether the baby would be the same person if the mind, brain, or soul were taken away. Overall, the majority of children claimed that the baby would no longer be the same person irrespective of whether her mind (60%, $n = 29$), brain (65%, $n = 31$), or soul (67%, $n = 32$) were removed. Responses to the mind and brain questions were not significantly different by age group. However, there was a significant age change in responses on the soul questions (contingency coefficient = .38, $p < .05$). A larger proportion of the older (80%) and middle (61%) children than the younger children (57%) claimed that the baby would not be the same person without his or her soul.

In sum, children develop in their understanding of whether a baby has a soul and whether the soul imparts identity. The younger children were less likely than children in the other two age groups to claim that a baby has a soul and less likely to claim that a person's identity would change if his or her soul were taken away. The key distinction along which the soul seems to be differentiated from the mind and brain, even for the younger children, is with respect to change over time. The mind and the brain are believed to change, whereas the soul is held to be a

constant feature throughout a person's life. To further clarify how children conceive of the functions of the mind, brain, and soul, we examined their responses to the questions about whether certain functions could continue in the absence of each entity.

To derive scores for the number of cognitive, non-cognitive, and biological traits that participants claimed could continue without the mind, brain, and soul, the number of times a participant answered 'yes' to each of the two questions in the three categories were summed. Thus, participants had three scores ranging from 0 to 2: a *cognitive continuation* score, a *non-cognitive continuation* score, and a *biological continuation* score. A table of the mean continuation scores for each entity by each age group can be found in Table 2.

Table 2
Mean continuation scores (and standard deviations) for each entity by each age group for Experiment 2

		Mean Continuation Score		
		Cognitive	Non-cognitive	Biological
1st grade	Soul	1.13 (.92)	1.33 (.62)	1.52 (.74)
	Mind	.33 (.62)	1.47 (.74)	1.40 (.91)
	Brain	.40 (.74)	1.20 (.86)	1.33 (.90)
3rd grade	Soul	1.50 (.86)	1.50 (.71)	1.61 (.70)
	Mind	.78 (.81)	1.33 (.69)	1.39 (.78)
	Brain	.67 (.77)	1.17 (.76)	1.39 (.78)
5th grade	Soul	1.33 (.62)	1.87 (.52)	1.73 (.59)
	Mind	.80 (.86)	1.40 (.74)	1.13 (.96)
	Brain	.33 (.62)	1.27 (.70)	.80 (.86)

A $3 \times 3 \times 3$ Multivariate ANOVA was conducted on the continuation scores with Age Group (1st grade vs. 3rd grade vs. 5th grade) as the between-subjects variable and Entity (brain vs. mind vs. soul) and Function (cognitive vs. non-cognitive vs. biological) as the within-subjects variables. There was no effect of Age Group, indicating that responses were generally consistent across the three groups of children. There was a main effect of Entity, $F(2,90) = 20.21$, $p < .001$. Participants claimed that

more functions continue without the soul ($M = 1.51$, $SE = .09$) than the mind ($M = 1.12$, $SE = .09$), and that more functions could continue without the mind than the brain ($M = .95$, $SE = .09$). There was also a main effect of Function, $F(2,90) = 32.66$, $p < .001$. Participants were less likely to attribute continuation to cognitive functions ($M = .81$, $SE = .09$) than either non-cognitive functions ($M = 1.39$, $SE = .08$) or biological functions ($M = 1.37$, $SE = .09$).

Lastly, there was an Entity \times Function interaction, $F(4,180) = 5.71$, $p < .001$, illustrated in Figure 2, which revealed that the effect of function was stronger for the brain and mind responses than for the soul responses. This pattern was confirmed by a series of follow-up ANOVAs comparing across functions for each entity. There was a significant effect of function for the soul responses, $F(2, 94) = 6.49$, $p < .01$. However, this effect was smaller than the significant function effects for the mind ($F[2, 94] = 22.95$, $p < .001$) and the brain ($F[2, 94] = 21.93$, $p < .001$). More specifically, the effect size, in this case partial eta squared, for the soul responses was moderate ($\eta_p^2 = .12$) compared to the larger effect sizes for the mind ($\eta_p^2 = .33$) and brain ($\eta_p^2 = .32$) responses.¹ In other words, children were generally consistent in claiming that cognitive, non-cognitive, and biological functioning could continue without a soul, but were particularly likely to say that cognitive functions could not continue without a mind of a brain.

In sum, children displayed a pattern that has been found in previous research (Johnson & Wellman, 1982). More specifically, children at all ages said that a baby could not perform cognitive functions if her mind or brain were taken away. By contrast, they were likely to claim that non-cognitive and biological functions could continue without the mind or the brain. Surprisingly, even though children claimed across the board that babies had souls, they typically did not see the soul as being critical for cognitive, non-cognitive, or biological functioning, suggesting that they do not see the soul as being the same as either the mind or the brain. So, what do children think the soul actually *does*?

To address this question, we explored children's responses to the open ended questions about what minds, brains, and souls do. Responses

¹ Cohen (1988) suggested the following conventional guidelines for partial eta squared: small = .02, medium = .15, large = .35.

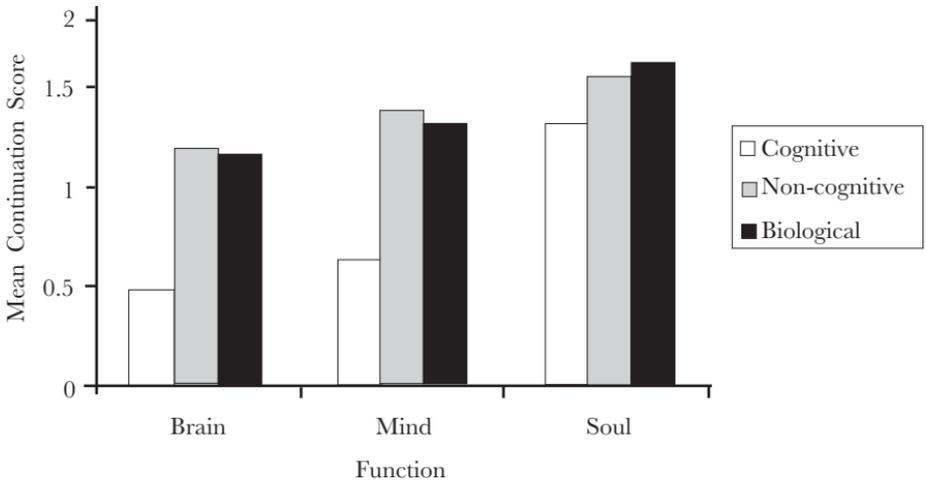


Figure 2. Entity by function interaction for Experiment 2

were coded for whether they indicated a cognitive function (e.g., organizes thoughts, helps you feel), a spiritual function (e.g., helps you tell right from wrong, life-giving force, afterlife), or a biological function (e.g., controls muscles). Children could attribute multiple functions to a given entity, therefore a given child could be coded for more than one response type or even multiple responses within the same type. Thus, the data were treated as ordinal data.

To analyze different response categories for each entity, age groups were collapsed together, and a graph of the percentage of responses falling into each category for each entity can be found in Figure 3. Wilcoxon Signed Ranks tests were conducted comparing the number of responses children provided that fell into each category.

First, children were significantly less likely to propose a cognitive function for the soul as compared to the mind ($\mathcal{Z} = 4.69, p < .001$) and to the brain ($\mathcal{Z} = 4.16, p < .001$), which were not significantly different from each other. In sharp contrast, children were significantly more likely to propose spiritual functions for the soul as compared to the mind ($\mathcal{Z} = 4.10, p < .001$) and to the brain ($\mathcal{Z} = 4.21, p < .001$), which were again not significantly different from each other. These spiritual responses indicated that the soul served a moral purpose (10%), as a life-giving force both in this life (13%, e.g., “It makes the baby alive) and in the afterlife (10%, e.g., “It goes to heaven when you die.”). Four percent

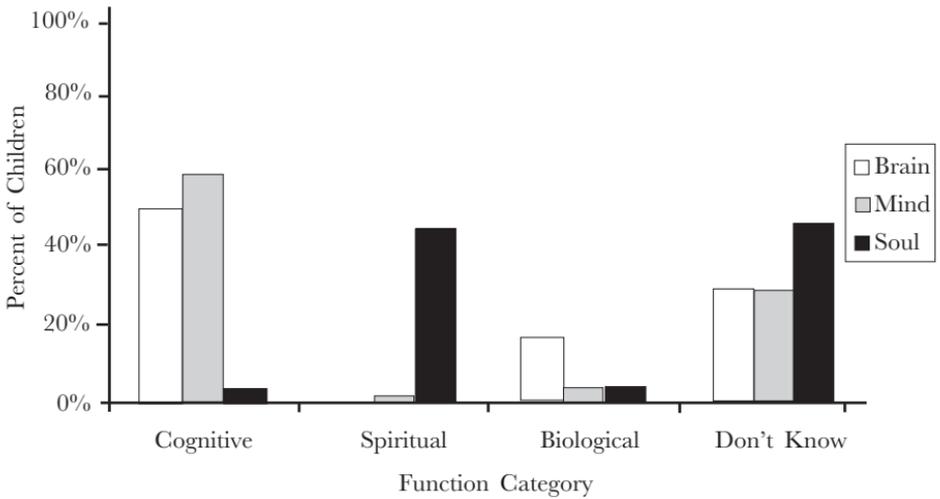


Figure 3. Percent of participants reporting each type of function in Experiment 2

(4%) described it as a ghost inside your body, an additional thirteen percent (13%) of the children claimed the soul's specific function was to love (e.g., "It's in your heart to love your mom and dad."), and six percent (6%) mentioned a connection to the divine (e.g., "It gives them contact with God.").

With respect to biological functions, there was a trend toward participants being more likely to provide a biological response for the brain than the soul or the mind ($\zeta = 1.90$, $p = .06$, in both cases). Lastly, children were significantly more likely to claim that they did not know what the soul was for, than either the brain or the mind ($\zeta = 2.31$, $p < .05$, in both cases).

In summary, these findings mirror those of the more direct questions reported above. The mind and brain are seen by children as serving an essentially cognitive function, but this is not true of the soul. Furthermore, children were more likely to say that they did not know what the soul was for than either the mind or the brain. This does not mean, however, that children had no ideas about what the soul does. In fact, 56% of the responses indicated that children attributed spiritual functions to the soul. Combining the results from the various portions of the survey, children appear to differentiate the soul from the mind and the brain along two dimensions: stability and function. Children

consistently conceive of the mind and the brain as entities that change and grow over time, and that are chiefly devoted to cognitive functioning. In sharp contrast, children conceive of the soul as something that stays constant, confers identity, and is devoted to a variety of spiritual functions.

General Discussion

Two experiments explored children's developing concept of the soul and whether children differentiate the soul from the mind and the brain. In Experiment 1, regardless of age, 4- to 12-year-old children differentiated the soul from the mind and the brain when asked what part of a person changes when undergoing a religious ritual. The majority of children claimed that the soul was different after baptism, whereas children were at chance about whether they thought the mind was different after baptism, and only a minority of children claimed that the brain was different after baptism.

Experiment 2 probed what children think the soul actually does. Children at all ages (6 to 12) were fairly certain that a baby could not perform cognitive functions if her mind or brain were taken away, and were less certain about whether the baby could continue non-cognitive and biological functioning without the mind and the brain, tending towards claiming that the baby could continue such functioning. In contrast, children did not claim that the soul was important for cognitive, non-cognitive, or biological functioning, suggesting that they do not see the soul as being the same as the mind or the brain.

This does not mean, however, that children did not have any ideas about what the soul does. Children indicated that the soul stays constant over a person's life, confers identity, and is devoted to a variety of spiritual functions. In particular, there was a variety of responses to the question, "What does the soul do?" Children indicated that the soul was important as a life-giving force ("It makes the baby alive."), for the afterlife ("It goes to heaven when you die."), to give a person a connection with God ("It gives them contact with God."), and to help a person tell right from wrong. Children do not appear to think that the soul is the same thing as the mind or the brain, but rather that the soul

serves important functions beyond the things that a person's mind and brain can do.

These findings are especially interesting when viewed in light of findings in recent research into children's developing ideas about what happens when people die. Harris and Gimenez (in press) report that children and most adults attribute continued mental processing after death, even though they do not attribute biological functioning to those who have died. These authors suggested that people construct both a biological and a religious conception of death, and they offer two suggestions for how these different conceptions come to coexist in children's minds. The first is that children do not fully endorse both conceptions of death, they merely respond according to how the interviewer asks the questions. The second is that the children are not aware of the contradictory nature of the two claims, namely that if the body stops working, so does the mind.

There is, however, a third possibility. It could be that when children are claiming that mental functioning continues after death, they are attributing that functioning to a person's *soul*, and not the person's mind per se. If children view the soul as something separate from a person's mind, and if this is the 'part' of the person that continues after death, then there would be no conflict for those who attribute continued functioning after death, while at the same time demonstrating a thorough understanding of what happens to the body when someone dies. If children were responding about what people continue to do after they die based on thinking about the soul, we would expect children to attribute some cognitive functioning to the soul in the survey presented here. However, children at all ages were unlikely to say that a person needs a soul for cognitive functioning, thereby undermining this third possible explanation of Harris and Gimenez's (in press) findings.

On the other hand, whether respondents in Harris and Gimenez's (in press) studies were thinking about the soul is unclear, given that they were not asked to think about the soul explicitly, but rather about generic mental processes. Participants in this survey were also asked to consider the soul's role in rather generic cognitive processes. However, in a recent study with Vevo children and adults in rural Madagascar, Astuti and Harris (2005) found that participants were more likely to attribute continued functioning after death to those processes that were specific to

the after life beliefs of the culture, rather than mental processes in general. More specifically, the Vezo as a group believe that after death an individual becomes an ancestor and continues to influence the life of his or her descendents. Participants were more likely to say that a dead individual would know his wife's name, remember where his house is, and miss his children than that he would see things, hear people, and feel hungry. Thus, future research should explore more explicitly both how children view the role of the soul in the afterlife as well as their understanding of the connection between the soul and the mind in living beings.

These findings offer some support for the theory of 'psychological essentialism', which suggests that the attribution of non-obvious, hidden properties is a natural cognitive predisposition (Chandler, 2001). For example, Atran (1994) has suggested that essentialist beliefs are a key element in the folk-biology of a variety of cultures. More specifically in regards to the soul, Gelman (2003) makes a distinction between individual versus kind essentialism. She suggests that 'people attribute hidden, nonobvious, causal properties that impart identity' to individual entities (Gelman, 2003, p. 150). Similarly, Ross and Nisbett (1991) have argued that adults cross-culturally suppose that there are something like hidden essences that account for regularities in an individual's behavior. Perhaps it is this natural inclination toward individual essentialism that eventually comes to be called a 'soul' in religious communities, which would also support Bloom's (2004) contention that the concept of a soul arises from an innate predisposition to treat people differently from objects.

With this in mind, future research should explore how the developing concept of the soul varies by religious culture and exposure to religious teachings. As was reviewed in the introduction, while there are some cross-religious similarities to the concept of the soul, there are also some important differences in what different religions teach about the soul. For example, in contrast to the religious traditions discussed in the introduction, Buddhists resist claiming that a soul exists as a separate singular entity. Buddhist teaching claims that all things are impermanent: our identity is based on our sense of belonging to an ever-changing entity that is our body and mind. Similar to the concept of the soul

in other religions, the Buddhist 'mind' has had countless previous lives, and will continue to be reborn until it achieves enlightenment and can enter a Pure Land at death. Prior to enlightenment, the body and mind disintegrate at death, and any remaining *karma* continues on in a new conscious being. Thus, despite the Buddhist belief that there is no such thing as a soul, Buddhists appear to have comparable theories about some form of individual essence that can be separated from the body following an earthly death.

This points to a limitation of the method used in the two experiments reported here; they relied on children having been exposed to the word 'soul.' Recall that Bloom (2004) suggests that the idea of a 'soul' is innate. Hence, this concept should be evident in children regardless of whether they have heard the word 'soul' or not. Future research should examine whether similar underlying ideas about the 'spiritual essence' of people resonate within different cultural manifestations of the concept, as well as in the absence of any explicit cultural instruction on the idea.

Despite these limitations, the findings from these two experiments suggest that even young children who have been exposed to an idea of a soul differentiate the soul from the mind and the brain. Furthermore, children see the specific function of the soul as being spiritual in nature rather than cognitive or biological. As this developing concept likely plays a key role in decision-making on a variety of related moral issues (e.g., stem cell research, abortion, human cloning), future research also should seek to delineate how varying concepts of the soul influence decision-making and moral judgments.

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Appendix A

Ontological Questions:

Does the baby have a brain/mind/soul?

As the baby gets older, will his brain/mind/soul change and work better, or will it stay just like it is right now?

Suppose by magic the baby's brain/mind/soul was taken away, would the baby still be the same person?

What does the baby's brain/mind/soul do?

Behavioral Questions:

Could the baby still suck his thumb without a brain/mind/soul?

Could the baby still open and close her eyes without a brain/mind soul?

Cognitive Questions:

Could the baby still dream without a brain/mind/soul?

Could the baby still think without a brain/mind/soul?

Non-Cognitive Questions:

Could the baby still see things without a brain/mind/soul?

Could the baby still want his mommy without a brain/mind/soul?

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