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Religion, but not Parents, Predict Children's Tendency to Anthropomorphize

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Abstract

Anthropomorphism, or the attribution of human characteristics and behaviors to non-human entities, is not a new concept in psychology research, but is becoming increasingly more popular. This is likely to do with the emergence of artificial intelligence and other technologies in our society. Anthropomorphism is something that is encountered on a regular basis, and much research has been done looking at various aspects of this concept. Current research has investigated parental language and its relation to children's anthropomorphism, anthropomorphism in relation to culture, how it intersects with development, among others. However, there are gaps in the research of anthropomorphism, especially regarding child/parent relationships and mentalization behavior. Due to the surge in research in this area, and the gaps in surrounding literature, I sought to understand the potential relation between parent and child anthropomorphism. I looked to grasp the individual differences in degree of anthropomorphism in children related to parental anthropomorphic tendency. Research in this realm holds many implications, especially in parenting and the impact that parents may have on their children's inclinations to anthropomorphize. I hypothesize that there is a strong correlation between parent and child anthropomorphic beliefs, that likely increases with age. Secondly, I believe that there is a strong positive association between religious belief and anthropomorphic tendency.

Religion, but not Parents, Predict Children's Tendency to Anthropomorphize

Introduction

"Watcha doing?" Hobbes asked, "I'm killing time while I wait for life to shower me with meaning and happiness" Calvin responds (Watterson, 1988). In the popular newspaper cartoon Calvin and Hobbes, it is illustrated that Calvin, an intelligent yet mischievous little boy, has endowed Hobbes, his sarcastic stuffed tiger, with an enduring personality (Watterson, 1988). Through Calvin's attribution of personality onto Hobbes, it comes, that Hobbes attains his own desires, emotions, mind, and attraction to mischief. Hobbes exhibits a dual nature of existence in that, to Calvin, Hobbes is a living anthropomorphic tiger but, to all the other characters, he is an inanimate stuffed animal.

Anthropomorphism is the attribution of human-like characteristics to non-human entities, as seen in the Calvin and Hobbes comic strips (Severson & Lemm, 2016). The intricacies of anthropomorphism and its implications is an emerging area of research (Epley et al., 2007). Though Calvin's anthropomorphism of Hobbes is very clear and unwavering, anthropomorphism often varies between individuals. Some individuals tend to mentalize non-human others more and some mentalize less (Severson & Woodard, 2018). This may be in part due to dispositional or environmental factors that lead to lessened or heightened anthropomorphic beliefs (Severson & Lemm, 2016). This researched looked to examine two of the possible environmental factors that may affect anthropomorphism tendencies: parents and religion.

Current research on anthropomorphism has explored both how anthropomorphism changes developmentally and how it is related to prosocial attitudes, social understanding, and empathy (Springer et al., 1996, Tahiroglu & Taylor, 2019). In Tahiroglu and Taylor (2019) the researchers explored the correlates of anthropomorphism, as well as the attribution of

unobservable mental states to inanimate entities and non-human animals. In this research, they found that anthropomorphism was not strongly correlated with social understanding in adults or with theory of mind in children (Tahiroglu & Taylor, 2019). However, they did find evidence of a link between anthropomorphism and reports of having imaginary companions (Tahiroglu & Taylor, 2019). Additionally, there has been a multitude of research that examines the change of anthropomorphic tendency through development. This area of research includes that of Springer et al. (1996). In this research, they aimed to understand the development of sensitivity to specific patterns of movement that, in turn, reveal interpersonal states of non-human entities (Springer et al., 1996). This sensitivity to movement and internal state reflects the development of the attribution of emotional states to non-humans that is present in anthropomorphic behavior (Springer et al., 1996). In this research, they had preschoolers and adults view an animated film created by Heider and Simmel (1944) that showed a series of moving geometric figures. After watching the film, the adults and children answered a set of questions about traits, emotions, and relationships present within the figures in the video (Springer et al., 1996). In this, they found that both five-year-olds and adults obtained similar impressions of the film (Springer et al., 1996). However, they also found that the responses of 3-year-olds and 4-year-olds differed from the others (Springer et al., 1996). These results support the idea that sensitivity to patterns of motion that reveal interpersonal events and emotions emerge gradually through developmental stages and become especially prevalent once children enter their preschool years (Springer et al., 1996). This surge of research regarding anthropomorphic tendency and the development through age has given great insight and direction for future research in the realm of anthropomorphism and mentalization behavior.

There has recently been an expansion in research in this area, given the increase in technology present in our everyday lives. Technology is present in almost every aspect of our daily lives, meaning it likely is having an impact on the ways that children are mentalizing their surroundings, and attributing human like characteristics to the technology around them (Epley et al.). Technology, though, is only one feature of external factors that can influence a child's anthropomorphic tendency. Children's ability and tendency to mentalize the world by creating an understanding through the attribution of characteristics to various aspects of their surroundings, is affected by a multitude of environmental factors (Tahiroglu & Taylor, 2019). External factors such as parent's tendency to anthropomorphize, religious belief, socioeconomic status, and ethnicity all have the potential to affect the ways in which children anthropomorphize the world around them. Though there is current research on aspects of anthropomorphism, there are certainly gaps in the research, specifically within child/parent relationships and religious affiliation. Due to the gaps in current anthropomorphism research and literature, I was led to seek to understand; (1) the potential relation between parent and child anthropomorphism and (2) the potential effect of religious affiliation on tendency to anthropomorphize. Anthropomorphism tendencies of children can inform other areas of research interest including understanding children's world views, their attribution of intention, and very generally how they understand the natural world surrounding them.

This research was exploratory in nature, as I took an existing data set and looked for patterns that had not yet been identified. When this data set was originally obtained, the researchers did not look at the relation between parental and child anthropomorphism, nor the relation of religious affiliation with tendency to anthropomorphize. Rather, these researchers were interested in understanding how children preferred to attain information, either from

confident adults or hesitant adults (Severson & Woodard, 2018). When beginning this research, I primarily was interested in looking at the relation between parent and child anthropomorphism. Once I had analyzed those findings, I decided to also investigate the affiliation with religion and its effect on anthropomorphic tendency. Because of the nature of the data set, I was able to explore areas that had not been investigated, in order to see which of the external variables were affecting children's and parent's tendency to anthropomorphize. After looking at the various facets of the data, I ultimately aimed to understand the individual differences in degree of anthropomorphism related to parental anthropomorphizing behavior, and the degree of anthropomorphism in relation to religious belief systems.

Method

Participants

The child sample (N=49) included children ranging in age from 36-107 months (M=71.2, SD=21.7) with 53.1% identified as male and 46.9% identified as female. When asked about the ethnicity of the participating child, the parents reported the child's ethnic origins as European (66.7%), East Indian (8.3%), more than one ethnicity (6.3%), Native American (4.2%), and African (2.1%). It is also important to note that parents self-reported their child as having a diagnosed or suspected developmental delay, and further specified the child as being diagnosed (n=1) with or suspected (n=2) of having Autism Spectrum Disorder.

Accompanying parents or legal guardians (N=44) of the participating children also participated in this study, with some parents having more than one child participating (thus the slightly smaller parent sample size). Of the parents, 86.4% *(*n=38) identified as female and 13.6% *(*n=6) identified as male. Parents provided additional demographic information about themselves and their family (Table 1).

Table 1. Parent and Family Demographics

Parent Age (years)	*n*	%
26-30	4	9.1
31-35	17	38.6
36-40	14	31.8
41-45	6	13.6
46-50	2	4.5
51-55	1	2.3
Preferred not to answer	0	0
Parent Education Level		
High school diploma	1	2.3
Some college	4	9.3
Associate's/Trade degree	4	9.3
Bachelor's degree	15	34.9
Master's degree	13	30.2
Professional degree	3	7
Doctoral degree	3	7
Preferred not to answer	0	0
Family Income		
$19,999 or less	1	2.3
$20-39,999	8	18.2
$40-69,999	10	22.7
$70-99,999	7	15.9
$100-139,999	10	22.7
$140-179,999	3	6.8
$180-219,999	1	2.3
$220,000 or more	3	6.8
Preferred not to answer	1	2.3
Religious Affiliation		
Buddhist	1	2.4
Christian	14	33.3
Jewish	1	2.4
Pan-religious	1	2.4
Non-religious	22	52.4
Preferred not to answer	3	7.1

Procedure & Materials

The materials used to collect both the parent and child data on anthropomorphism included the Individual Differences in Anthropomorphism Questionnaire- Child Form (IDAQ-CF). The

IDAQ-CF serves as measure for use with adults, as seen in Appendix A and a measure for use with children, as seen in Appendix B (Severson & Lemm, 2016). The IDAQ-CF measures and assess individual differences in children's and adult's anthropomorphism of technology, inanimate nature, animals, and overall anthropomorphism. The IDAQ-CF was adapted for use with children and adults after being modified from the original version of the IDAQ (Individual Differences in Anthropomorphism Questionnaire) (Severson & Lemm, 2016). The only notable difference between the IDAQ-CF measures for adults and children is the response scale used. For children, responses are recorded on a four-point scale and for parents they are recorded on a ten-point scale. The IDAQ-CF consists of two subscales of mentalization behaviors: one assessing anthropomorphic beliefs about technology and nature (Technology-Nature subscale) and the other assessing anthropomorphic beliefs about animals (Animal subscale) both of which are correlated, as well as giving an overall anthropomorphism score (Severson & Lemm, 2016). To use and understand this scale, children went through a two-part training to ensure understanding, using a non-anthropomorphic related question. The first aspect of the training consisted of a yes/no question to which children responded by pointing to or answering, 'yes' or 'no', given images of thumbs up and thumbs down labeled respectively (Severson & Woodard, 2018). After the original question was answered, 'yes' responses were then followed up with a second image and asked, "how much?". The children were asked to answer by pointing to a scale with three gradually tall bars labeled "a little bit (the shortest bar)," "a medium amount (the second tallest bar)", and "a lot. (the tallest bar)" as seen in appendix C (Severson & Woodard, 2018). Hence, the responses being coded on a 4-point scale: No (0), Yes-a little bit (1), Yes-medium amount (2), and Yes-a lot (3) (Severson & Woodard, 2018). The adult measure of the IDAQ-CF followed the same procedure, with the only difference being that it used a 10-point

scale ranging from 'not at all' (0) to 'a lot' (10) rather than the four-point scale and did not use images to prompt response. The 12 IDAQ-CF test items were then presented in random order following the example, non-anthropomorphism related questions. The example practice questions included items like: "Do you like candy? Do you like broccoli?". The test items included questions like: "How much does a car do things on purpose? How much does the wind do things on purpose? How much does a mountain have feelings, like happy and sad? How much does a cheetah have feelings, like happy and sad?" (Severson & Woodard, 2018).

As previously mentioned, the data set used was originally collected as part of a larger study at The University of Montana Minds Lab that examined children's learning preferences from confident and hesitant adults (Severson & Woodard, 2018). The children were given the IDAQ-CF measure by researchers conducting the study, and it was administered at the very beginning of each research session. The parents, however, were given the IDAQ-CF to complete independently, included with the questionnaire on demographic information, as seen in Appendix D (Severson and Woodard, 2018).

Results

Preliminary Analyses

The descriptive statistics (means and standard deviations) on the IDAQ-CF for both children and parents are reported in Table 2 below. Scores on both subscales and the overall scale were based on the average across the individual items. It is important to note that the children's scores are on the four-point scale, whereas the parent's scores are on the ten-point scale, with higher scores indicating greater anthropomorphism.

Table 2. Differences in Anthropomorphism- IDAQ/IDAQ-CF

Anthropomorphism Type	*Children's Mean*	*Children's SD*	*Parent's Mean*	*Parent's SD*
Technology/Nature Subscale	.888	.788	1.73	.983
Animal Subscale	1.53	.705	6.44	2.17
Overall Score	1.10	.645	3.31	1.08

Preliminary analyses assessed whether there were differences in anthropomorphism based on gender and age. An independent samples *t*-test indicated there were no significant gender differences in anthropomorphism for children (*p*s>.08) or for parents (*p*s>.15). The descriptive statistics (*M, SD*) and effect sizes (Cohen's *d*) by gender for children and parents is reported in Table 3. Although significant gender differences were not found, there was a medium effect, as measured by Cohen's d, on the animal subscale (*d*=.513) with girls anthropomorphizing animals more than boys. This suggests that with a larger sample size (i.e., more power), this difference would have reached a level of significance. A similar effect was found within the parent's animal subscale as well, with a medium/large effect size (*d*=.623).

Table 3. Descriptive Statistics by Gender for Parents and Children.

Anthropomorphism Type	*Children's Mean (Male)*	*Children's Mean (Female)*	*Children's SD (Male)*	*Children's SD (Female)*	*Children's Effect Size*
Technology/Nature Subscale	0.779	1.01	0.723	0.856	0.266
Animal Subscale	1.37	1.72	0.782	0.566	0.513
Overall Score	0.975	1.25	0.643	0.63	0.432
Anthropomorphism Type	*Parent's Mean (Male)*	*Parent's Mean (female)*	*Parent's SD (male)*	*Parent's SD (female)*	*Parent's Effect Size*
Technology/Nature Subscale	1.729	1.723	0.515	1.03	0.007

Animal Subscale	5.42	6.76	2.22	2.08	0.623
Overall Score	2.96	3.42	0.848	1.08	0.474

When looking at age, I found a significant negative correlation between age (months) and scores on the Technology-Nature subscale (r=-.596, p<.001) and the Overall scale (r=-.508, p<.001), but not on the Animal subscale (r=-.06, *ns*). These results indicate that with age children anthropomorphize less overall and particularly less in technology and nature. It also shows that they are however consistent in their anthropomorphism of animals across ages. Figures 1, 2, and 3 show the preliminary correlation analyses that were done in regard to age in months and tendency to anthropomorphize.

Figure 1. Scatterplot of age (months) and Technology/Nature Anthropomorphism.

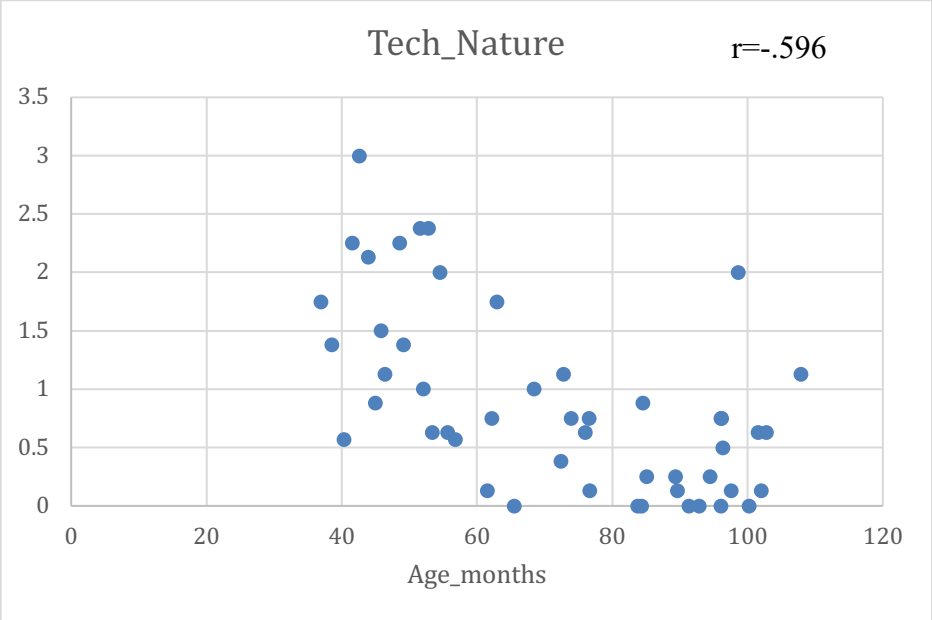


Figure 2. Scatterplot of age (months) and Animal Anthropomorphism

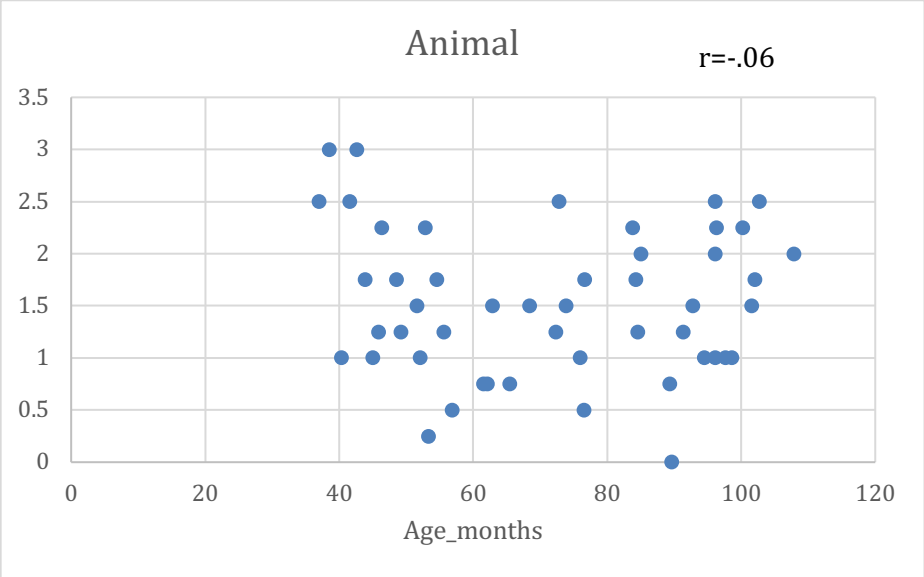
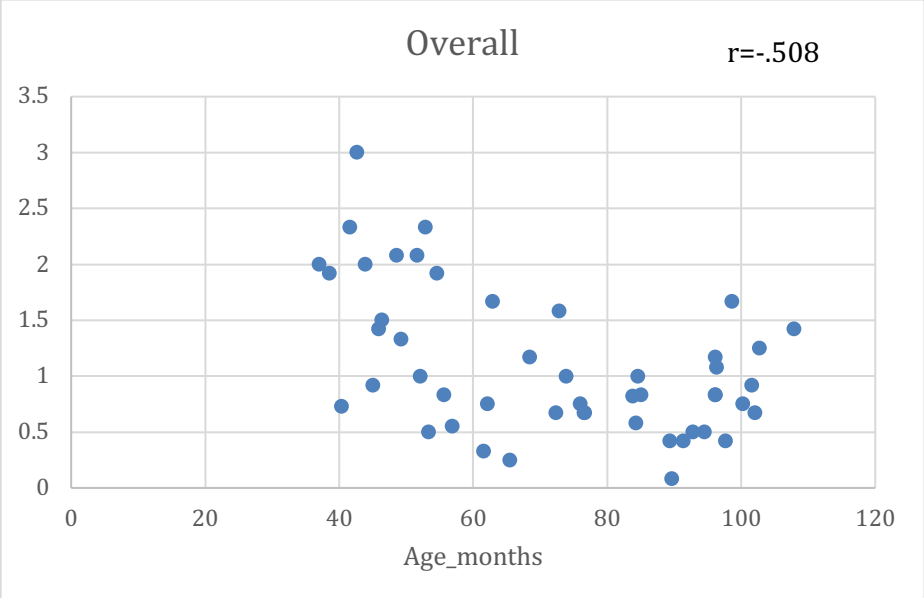


Figure 3. Scatterplot of age (months) and Overall Anthropomorphism



Relation between Parent and Child Anthropomorphism

In order to assess the relation between parent and child anthropomorphism, I conducted a series of bivariate Pearson's correlations. As reported in Table 4, there were no significant correlations between parent and child anthropomorphism (*p*s > .36).

Table 4. Correlation Between Parent and Child Anthropomorphism

	Parent Technology/ Nature Average	***Parent Animal Average***	***Parent Overall Average***
Child Technology/Nature Average	-.092	.135	.040
Child Animal Average	-.134	.069	-.015
Child Overall Average	-.125	.132	.024

Religious Affiliation and Anthropomorphism

After analyzing preliminary measures and the relation between parent and child anthropomorphism, I proceeded to analyze the relation between religious affiliation and anthropomorphism. The data collected on religion showed that most religious affiliation was Christian, with few identifying as Jewish, Buddhist, and Poly-religious. Because of the lack of diversity in religious affiliation, I chose to combine all religiously affiliating participants and measure that against the non-religious participants. To analyze this relation, I ran an independent means *t*-test. The test for equality of variances showed that the significance for all variables was greater than .05, leading me to assume equal variance for each group. When looking at religious affiliation, we found significance in children's anthropomorphism in the animal subscale only. The report of differences between religion and nonreligion, including *t*-values and *p*-values can be seen in Table 5 below.

Table 5. Independent Samples T-Test Religion and Non-Religion

	t-value	***p-value***	***Effect Size (Cohen's d)***
Child Technology/Nature Average	-.421	.676	.135
Child Animal Average	-2.23	.033	.733
Child Overall Average	-1.08	.287	.360
Parent Technology/Nature Average	.841	.406	.551
Parent Animal Average	.117	.907	.039
Parent Overall Average	.490	.627	.164

As Table 5 suggests, there was significance in children who identified as religious having greater tendency to anthropomorphize only on the animal subscale (*p=.033)*. For each religious subgroup (religious vs. nonreligious) the descriptive statistics for the subscales of the IDAQ-CF were recorded. For religious children (*n=17)* the means and standard deviations on the animal, technology/nature, and overall subscales were as follows: (animal subscale) *M= 1.784 SD=.755,* (technology/nature subscale) *M= 1.01 SD=.865,* (overall scale) *M=1.27 SD= .751.* For the religious parent subgroup (*n=15)* those descriptive statistics showed: (animal subscale) *M=6.40 SD=2.51,* (technology/nature subscale) *M=1.62 SD=.808,* (overall scale) *M=3.25 SD=1.19*. In the nonreligious subgroup of children (*n=22)* the data presented the descriptive statistics as follows: (animal subscale) *M= 1.261 SD=.661,* (technology/nature subscale) *M=.901 SD=.145,* (overall scale) *M=1.02 SD=.631.* Finally, the non-religious parent's (*n=22)* calculated means and standard deviations showed: (animal subscale) *M=6.49 SD=2.07,* (technology/nature subscale) *M=1.91 SD=1.14,* (overall scale) *M=3.44 SD=1.12*.

As shown in table 5, significant religion/nonreligion differences were found only on the animal subscale for children (p=.033). After finding this significant difference in the data, I again used a Cohen's d to calculate the effect sizes for all the variable subgroups. I found that there was a strong effect on the animal subscale (d=.733) with religious individuals anthropomorphizing animals more than nonreligious individuals. There was also a medium/strong effect on the children's overall score (d=.360) as well as the parental technology/nature subscale (d=.551). These effect sizes suggests that with a larger sample size these differences would have reached a level of significance. Following the questions regarding religious affiliation, the participants were asked how strongly they held their religious beliefs. There were no significant findings regarding strength of religious belief and anthropomorphism scores (ps>.067). The findings of this research suggest overall that there is not a strong relation between parent and child anthropomorphism, but there is a relation between religious affiliation and tendency to anthropomorphize animals.

Discussion

Results of this study indicate that religion plays a role in children's tendency to mentalize the world around them, especially in regards to anthropomorphism of animals. This research was done in an exploratory manner, in that I was given the data set from previous research and therefore given the reign to identify areas present in the data set that had yet to be explored. In this evaluation I was able to identify two areas of interest in the data. Those areas of interest included children's relation of parental anthropomorphism and religious association. In researching these aspects of data collected on children's mentalization, I discovered that there is not a significant association between parent's tendency to anthropomorphize and children's tendency to do the same. In these findings, I was encouraged to continue to parse through the

various facets of data collected in the original study, leading me to further examine the aspect of religion on mentalization behavior. In doing such, I did find a significant relation between religious association and anthropomorphism of animals. Though data was collected on various typologies of religious belief, there was not significant data to support analyzing each religion individually. Instead, I chose to analyze religious association, regardless of subtype, in order to attain the size of data set needed. By combining the religion subtypes, I was able to find a significant relation with anthropomorphic tendency.

I think that the significant differences between religious and non-religious children were present, specifically on the animal subscale of the IDAQ-CF, due to the amount of anthropomorphism present in religious texts. This is especially present in the Holy Bible, which is the accepted religious text used in Christianity. As shown in Table 1, of all religiously affiliated participants, Christianity was the most common among the sample. Religious upbringing varies from family to family, but I think the incorporation of stories in religious texts and the ways in which religious thought processes are explained to children can influence the ways that religiously practicing children think about and understand the world around them. Additionally, I think that religion affects anthropomorphic tendencies toward animals specifically because of the emphasis on animals in the Holy Bible. Within Christianity and its related text, there are countless tales that use animals as the center of the story, often with the major lessons being learned through the animal. An example of this in the religion of Christianity and the Holy Bible is the tale of Adam and Eve. In this story, Eve speaks with a serpent, which in itself is anthropomorphism. However, she goes on to go against what the serpent says leading her to the main lesson learned through the rest of the story. This use of animals to convey messages to the members of the church is something that I think leads to the significant

difference in anthropomorphic tendency between religious and nonreligious individuals. Other religions aside from Christianity may have different reasonings to the difference, if having any difference at all. But, within our sample, I suspect that this use of animals in religious text could account for some of the variance.

This research and its findings in the realm of religious affiliation and anthropomorphism disposition provides compelling evidence that there is a relation between such yet, is not without limitations. As previously mentioned, the sample population of the data set lacked religious diversity. To explore this area further and more accurately, a more religiously diverse sample population would serve to be helpful, giving the researchers the ability to compare between religions instead of grouping by religious affiliation and non-religious affiliation. Future research could bring evidence to further explain these associations.

More generally, future research could provide more focused information on the religious aspect of anthropomorphism. Given that the original research study was examining children's propensity to trust either hesitant or confident adults, with the religion questions being an optional part of the parental questionnaire, a more religion focused research question could lead to better and more substantial data. In addition, subsequent studies could assess more deeply for strength of religious belief and likelihood of anthropomorphism. Though the strength assessment I performed showed no significance in relation to anthropomorphic beliefs, a larger sample size with more comprehensive religion questions could perform differently.

Finally, future work could establish if different religious text use more anthropomorphic language and are therefore more adapt to affect anthropomorphic belief systems in children.

Research in the realm of anthropomorphism and child development is vast and ever changing. With the data gained from the IDAQ-CF, I have further extended the possible lines of

inquiry on anthropomorphism and its relation to children's environmental factors. This research provides strong evidence that there is a relation between religious affiliation and anthropomorphic beliefs about animals in children. I hope the results of this study will prove useful for researchers interested in the nature of mentalization behavior, as well as the environmental correlates of early anthropomorphic belief systems.

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Appendix A

IDAQ-CF Measure for use with adults

IDAQ-CF Measure for use with adults

Key	Question
Tech_intention Tech_emotion Tech_mind Tech_conscious Nature_intention Nature_emotion Nature_mind Nature_conscious Animal_intention Animal_emotion Animal_mind Animal_conscious	1. How much does a car do things on purpose? 2. How much does a TV have feelings, like happy and sad? 3. How much does computer think for itself? 4. How much does a robot know that it is a robot? 5. How much does the wind do things on purpose? 6. How much does a mountain have feelings, like happy and sad? 7. How much does a tree think for itself? 8. How much does the ocean know that it is an ocean? 9. How much does a turtle do things on purpose? 10. How much does a cheetah have feelings, like happy and sad? 11. How much does an insect or bug think for itself? 12. How much does a lizard know that it is a lizard?

- Present questions in random order
- Response on a 10-point scale
  - "Not at all" = 1
  - "Very much" = 10

Example question:
How much does a car do things on purpose?

1	2	3	4	5	6	7	8	9	10
Not at all									Very much

Appendix B

IDAQ-CF Measure for use with children

Individual Differences in Anthropomorphism Questionnaire – Child Form (IDAQ-CF)
Severson & Lemm (2016)

Scoring Sheet

Training Questions Ordered		No	Yes - A little	Yes - Medium	Yes - A lot
T1	Do you like candy? (YES/NO) If yes, How much do you like candy?	0	1	2	3
T2	Do you like broccoli? (YES/NO) If yes, How much do you like broccoli?	0	1	2	3
T3	Do you like carrots? (YES/NO) If yes, How much do you like carrots?	0	1	2	3

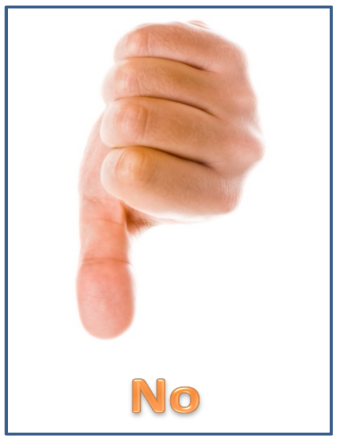
IDAQ-Child Short Form Questions Random Order			No	Yes - A little	Yes - Medium	Yes - A lot
Technology	1	Does a **robot** know it's a robot? (YES/NO) If yes, How much does a robot know it's a robot?	0	1	2	3
	2	Does a **TV** have feelings, like happy & sad? (YES/NO) If yes, How much does a TV have feelings (happy & sad)?	0	1	2	3
	3	Does a **car** do things on purpose? (YES/NO) If yes, How much does a car do things on purpose?	0	1	2	3
	4	Does a **computer** think for itself? (YES/NO) If yes, How much does a computer think for itself?	0	1	2	3
Inanimate Nature	5	Does a **mountain** have feelings, like happy & sad? (YES/NO) If yes, How much does a mountain have feelings (happy & sad)?	0	1	2	3
	6	Does the **ocean** know it's an ocean? (YES/NO) If yes, How much does the ocean know it's an ocean?	0	1	2	3
	7	Does a **tree** think for itself? (YES/NO) If yes, How much does a tree think for itself?	0	1	2	3
	8	Does the **wind** do things on purpose? (YES/NO) If yes, How much does the wind do things on purpose?	0	1	2	3
Animals	9	Does a **cheetah** have feelings, like happy & sad? (YES/NO) If yes, How much does a cheetah have feelings (happy & sad)?	0	1	2	3
	10	Does a **turtle** do things on purpose? (YES/NO) If yes, How much does a turtle do things on purpose?	0	1	2	3
	11	Does an **insect or bug** think for itself? (YES/NO) If yes, How much does an insect or bug think for itself?	0	1	2	3
	12	Does a **lizard** know it's a lizard? (YES/NO) If yes, How much does a lizard know it's a lizard?	0	1	2	3

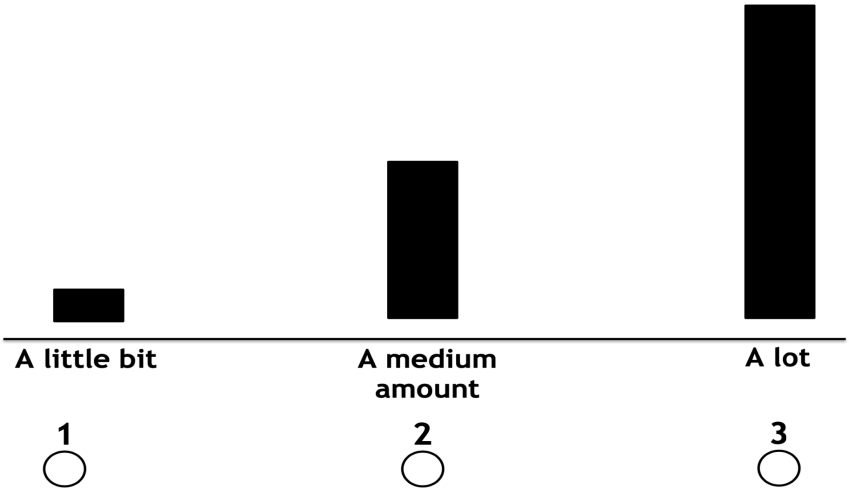
Scoring

- **Technology-Nature Subscale:** Calculate mean score for items 1-8 (Technology & Inanimate nature items).
- **Animal Subscale:** Calculate mean score for items 9-12 (Animal items).
- **Overall:** Calculate mean score for all items.

Appendix C

IDAQ-CF children measure four-point scale images





Appendix D

Parent and family questionnaire

SECTION 6: INFORMATION ABOUT YOUR CHILD AND FAMILY

Please remember you can choose to skip any or all questions.

1. How many ***siblings*** does the participating child have? _____

   If applicable, please list the dates of birth and gender/sex of siblings (from oldest to youngest):

Date of Birth (M/D/Y)	Gender/Sex	Date of Birth (M/D/Y)	Gender/Sex
(1)_____	_____	(4)_____	_____
(2)_____	_____	(5)_____	_____
(3)_____	_____	(6)_____	_____

2. Range of **family** income from **all sources**:

☐ 0 – 19,999
☐ 20,000 – 39,999
☐ 40,000 – 69,999
☐ 70,000 – 99,999
☐ 100,000-139,999
☐ 140,000 – 179,999
☐ 140,000 – 179,999
☐ 180,000 – 219,000
☐ 220,000 or greater

3. What religion, if any, does your family practice/affiliate with?

☐ Christian ☐ Buddhist ☐ Muslim/Islam ☐ Another religion: _____
☐ Jewish ☐ Hindu ☐ Nonreligious/Agnostic/Atheist

4. If applicable, how strongly do you hold your religious beliefs (i.e. not how often you follow your religious practices, but how strongly do you believe in them)? **[circle a number]**

[Not Very Strongly] **1 2 3 4 5 6 7** [Very Strongly]

5. Based on what you know about politics, are you [circle the number that best represents your political attitudes] **[circle a number]**

[Liberal] **1 2 3 4 5 6 7 8 9** [Conservative]

6. Based on what you know about politics, are you most likely to vote [circle the number that best represents your political attitudes] **[circle a number]**

[Democrat] **1 2 3 4 5 6 7 8 9** [Republican]

7. How many ***parents/legal guardians*** are involved in the participating child's life? _____

Information about ***Parent/Legal Guardian A*** (person completing this form)

8. **Relationship to child:**
   - ☐ Biological parent
   - ☐ Adoptive parent
   - ☐ Step parent
   - ☐ Legal guardian

9. **Sex/Gender:**
   - ☐ Female
   - ☐ Male
   - ☐ Another gender: _____

10. **Approximate percent of child's waking hours spent with you: _____%**

11. **Current age:**

☐ 17 or less	☐ 31 – 35	☐ 46 – 50	☐ 61 – 65
☐ 18 – 25	☐ 36 – 40	☐ 51 – 55	☐ 66 +
☐ 26 – 30	☐ 41 – 45	☐ 56 – 60	

12. **Current education level:**

☐ Does not apply/Unknown	☐ Some College/University	☐ Professional Degree
☐ Primary School	☐ Assoc./Trade Degree	☐ Doctoral Degree
☐ Some High School	☐ Bachelor's Degree	☐ Other, please specify:
☐ High School Diploma	☐ Master's Degree	_____

13. **Current Occupational status:** *if on leave, please also check status when *not* on leave.

☐ Employed full-time	☐ Temporary leave*	☐ Student
☐ Employed part-time	☐ Stay-at-home	☐ Unemployed

If applicable, please provide information about other parents/legal guardians, otherwise skip to last page.

Information about ***Parent/Legal Guardian B***

14. **Relationship to child:**
   - ☐ Biological parent
   - ☐ Adoptive parent
   - ☐ Step parent
   - ☐ Legal guardian

15. **Sex/Gender:**
   - ☐ Female
   - ☐ Male
   - ☐ Another gender: _____

16. **Approximate percent of child's waking hours spent with Parent/Legal Guardian B: _____%**

17. **Current age:**

☐ 17 or less	☐ 31 – 35	☐ 46 – 50	☐ 61 – 65
☐ 18 – 25	☐ 36 – 40	☐ 51 – 55	☐ 66 +
☐ 26 – 30	☐ 41 – 45	☐ 56 – 60	

18. **Current education level:**

☐ Does not apply/Unknown	☐ Some College/University	☐ Professional Degree
☐ Primary School	☐ Assoc./Trade Degree	☐ Doctoral Degree
☐ Some High School	☐ Bachelor's Degree	☐ Other, please specify:
☐ High School Diploma	☐ Master's Degree	_____

19. **Current occupational status:** *if on leave, please also check status when *not* on leave.

☐ Employed full-time	☐ Temporary leave*	☐ Student
☐ Employed part-time	☐ Stay-at-home	☐ Unemployed

If applicable, please provide information about other parents/legal guardians, otherwise skip to last page.

Information about ***Parent/Legal Guardian C***

20. **Relationship to child:**	21. **Sex/Gender:**	22. **Approximate percent of child's waking hours spent with Parent/Legal Guardian C: _____%**
☐ Biological parent ☐ Adoptive parent ☐ Step parent ☐ Legal guardian	☐ Female ☐ Male ☐ Another gender: _____	

23. **Current age:**

☐ 17 or less	☐ 31 – 35	☐ 46 – 50	☐ 61 – 65
☐ 18 – 25	☐ 36 – 40	☐ 51 – 55	☐ 66 +
☐ 26 – 30	☐ 41 – 45	☐ 56 – 60	

24. **Current education level:**

☐ Does not apply/Unknown	☐ Some College/University	☐ Professional Degree
☐ Primary School	☐ Assoc./Trade Degree	☐ Doctoral Degree
☐ Some High School	☐ Bachelor's Degree	☐ Other, please specify:
☐ High School Diploma	☐ Master's Degree	_____

25. **Current Occupational status:** *if on leave, please also check status when *not* on leave.

☐ Employed full-time	☐ Temporary leave*	☐ Student
☐ Employed part-time	☐ Stay-at-home	☐ Unemployed

If applicable, please provide information about other parents/legal guardians, otherwise skip to last page.

Information about ***Parent/Legal Guardian D***

26. **Relationship to child:**	27. **Sex/Gender:**	28. **Approximate percent of child's waking hours spent with Parent/Legal Guardian D: _____%**
☐ Biological parent ☐ Adoptive parent ☐ Step parent ☐ Legal guardian	☐ Female ☐ Male ☐ Another gender: _____	

29. **Current age:**

☐ 17 or less	☐ 31 – 35	☐ 46 – 50	☐ 61 – 65
☐ 18 – 25	☐ 36 – 40	☐ 51 – 55	☐ 66 +
☐ 26 – 30	☐ 41 – 45	☐ 56 – 60	

30. **Current education level:**

☐ Does not apply/Unknown	☐ Some College/University	☐ Professional Degree
☐ Primary School	☐ Assoc./Trade Degree	☐ Doctoral Degree
☐ Some High School	☐ Bachelor's Degree	☐ Other, please specify:
☐ High School Diploma	☐ Master's Degree	_____

31. **Current Occupational status:** *if on leave, please also check status when *not* on leave.

☐ Employed full-time	☐ Temporary leave	☐ Student
☐ Employed part-time	☐ Stay-at-home	☐ Unemployed