THE TREE OF KNOWLEDGE:

CHILDREN'S KNOWLEDGE AND THEIR PERCEIVED MORALITY

BY

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ABSTRACT

People keep certain information from children. For example, adults censor objectionable media from children and support belief in Santa Claus, a fictional entity. One possible reason for these behaviors is that people perceive that children who are more knowledgeable are less innocent and pure, and therefore less moral. Two studies in this thesis tested whether increased knowledge held by a hypothetical child was negatively linked to perceptions of that child's moral behavior and whether perceived innocence would mediate this relationship. However, results found that increased knowledge was positively, not negatively, associated with perceived moral behavior and that perceived agency mediated this relationship. Results suggest that all knowledge is not negatively linked to perceptions of morality and that only certain types of knowledge have this effect.

INTRODUCTION

From Santa Claus not being real to the explicit details of sex to the family's current economic hardship, certain information is withheld from children. In addition, parents censor depictions of morally objectionable content from children, and that content can be considered a form of knowledge. One possible explanation for why adults withhold information from children is that adults expect children will be less moral due to these experiences. Previous research has found that learning the truth about Santa Claus makes hypothetical children seem less moral (Anderson & Masicampo, 2014a); in addition, participants are less likely to censor objectionable content from a hypothetical child who has already been exposed to harsh, immoral realities of life (Anderson & Masicampo, 2014b). That is, as a hypothetical child gains in experiences, participants are less inclined to hide objectionable content from that child and are less motivated by concerns for innocence since the child is already perceived to be less innocent. This suggests that a hypothetical child's experience, exposure to certain aspects of life, and potentially overall knowledge influences how people perceive and interact with that child. However, both of these examples are relatively narrow instances of knowledge and allow only an understanding of morally objectionable content (i.e., censorship) and fantastical beliefs (e.g., Santa Claus). Therefore, the purpose of the present thesis was to test the relationship between a hypothetical child's general knowledge and the perceived morality of that child, and whether this relationship was mediated through perceived innocence, perceived agency, or perceived patiency.

Children and Innocence

People often associate children with innocence and purity. Cultural portrayals of children commonly use tropes like "innocent creatures," "little angels," or "delicate flowers" (Gino & Desai, 2012). In many cultures, adults view children as pure and innocent, unmotivated by vices or selfish motives (James, Jenks, & Prout, 1998; Woodrow, 1999), and needing protection (Branscombe, Castle, Dorsey, Surbeck, & Taylor, 2000; Scott & Watson-Brown, 1997).

Not just children, but childhood in general, is also associated with innocence and morality. For instance, in three of their studies, Gino and Desai (2012) found that writing about childhood memories, regardless of whether the memories were positive or negative, increased prosocial behavior, like helping someone on a task or donating to charity. Furthermore, this effect was mediated through feelings of purity and innocence. In another study, writing about childhood memories increased endorsement of punishment of others' morally ambiguous behavior. Finally, participants who completed word scrambles with purity-related words donated about equally as much money to charity as participants who wrote about childhood memories. Taken together, these results suggest that not just children, but childhood in general, is linked to the concepts of purity, innocence, and moral behavior.

To be clear, the perception of children as pure and innocent is fairly accurate and should not be surprising. Research in developmental psychology has repeatedly shown that children are often fair and kind in their moral behavior (Hamlin, Wynn, & Bloom, 2007; Warneken & Tomasello, 2007). Specifically, research has found that children will spontaneously attempt to comfort those in distress by caressing them or offering them a

bottle or a toy (Dunn & Kendrick, 1979; Zahn-Waxler, Radke-Yarrow, & King, 1979) and will also attempt to reach over and help someone if they perceive that person to need help (Warneken, Hare, Melis, Hanus, & Tomasello, 2007). In addition, children will reward others for their prosocial behavior (Hamlin et al., 2007; Jacob & Dupoux, 2008).

Moral Foundations Theory

The constructs of purity and innocence are associated with the sanctity foundation of Moral Foundation Theory (MFT; Graham et al., 2011, 2013; Haidt & Graham, 2007). MFT explains the structure of what is descriptively considered moral and proposes five clusters of common moral concerns: care/harm, which praises nurturance and empathy and condemns causing harm or distress; fairness/cheating, which praises cooperation and equality and condemns cheating and inequity; loyalty/betrayal, which praises self-sacrifice for the group and condemns opposing one's own group; authority/subversion, which praises respect of tradition and hierarchy and condemns rebelliousness and disobedience; and sanctity/degradation, which praises purity, temperance, and chastity and condemns indulgence in impure or disgusting acts. These five foundations provide the basis for determining the general clusters of what people find moral and immoral.

People and cultures differ on how important each of these foundations is to their conception of morality (Graham et al., 2011). For example, one of the most consistent findings of MFT is that political attitudes play a role in endorsement of the five foundations. Across multiple studies, research has shown that for liberals, the care and fairness foundations are most important to their conception of morality, while loyalty, authority, and sanctity are less important; however, for conservatives, all five foundations are about equally important (Graham et al., 2009, 2011; Haidt & Graham, 2007; van

Leeuwen & Park, 2009). Indeed, much of the development of MFT stems from efforts to expand the psychological study of morality beyond the "traditional" concerns of fairness and justice (i.e., the work of Kohlberg, 1969) and care (i.e., the work of Gilligan, 1982) to include more "community" oriented moral concerns and the concerns of political conservatives (Haidt & Graham, 2007; Haidt & Joseph, 2004; Shweder, Much, Mahapatra, & Park, 1997).

Sanctity, Purity, and the Loss of Innocence

Specific moral values, like moral sanctity values, can be used to help understand the concept of innocence and ultimately the loss of innocence in a child. Additionally, the sanctity foundation has been linked to feelings of disgust (e.g., Horberg et al., 2009; Inbar, Pizarro, & Bloom, 2009) and to disapproving of pornography use (Koleva et al., 2012). These studies illustrate that innocence, due to its link with the sanctity foundation, is related to cleanliness and to impurity and to feelings associated with certain kinds of information, like graphic sexual content.

Building on the connection between moral sanctity and disgust, the perceived innocence of children can be reduced or lost. For example, in media portrayals of tragic events involving children, the event is seen as having taken away the children's innocence (Woodrow, 1999). A child's innocence thus needs to be guarded in order to be maintained. One possible reason that people have this perception about innocence and tragic events is that tragic events reveal hard truths (e.g., that people die, that people intentionally hurt others, etc.) about the world to children. In essence, these truths contaminate a child's perceived innocence.

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In addition, certain features of a child can make that child seem less innocent than other children. For example, research by Goff and colleagues (2014) suggested that the race of a child plays a role when people make judgments of that child's innocence. Across four studies, they found that past a certain age black boys were rated as older, less innocent, and less childlike than white boys. In addition, black boys were rated as more culpable of their actions when suspected of committing a felony than white boys. This research suggests that certain features of a child, like race, can make a child seem older, less innocent, and more responsible for their wrongdoing. In the present study, I aimed to test whether a different feature of children, their knowledge, has similar influences on their perceived moral qualities.

Knowledge and Innocence

Knowledge is a broad and complex topic with an entire branch of philosophy, epistemology, devoted to understanding it. For the purposes of the present research, I am concerned more with people's perceptions of knowledge and its influence on perceptions of other psychological traits than in a philosophical truth about knowledge. Therefore, I define knowledge as referring to facts, information, and skills acquired by a person through experience. When making perceptions based on others' knowledge, it is possible people are sensitive to the moral qualities of that knowledge. Some instances of knowledge can be seen as more morally relevant than other instances. In addition, people may also be sensitive to the moral valence of the knowledge. For instance, it is possible that people may perceive knowledge about first aid as morally praiseworthy, while knowledge about serial killers as morally condemning. However, in the present study I

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tested general knowledge in an attempt to divorce knowledge from potential moral qualities.

Evidence that learning knowledge relates to decreased perceptions of innocence comes from two sets of studies from Anderson and Masicampo (2014a, 2014b). In one set of studies (Anderson & Masicampo, 2014b), participants' moral sanctity values positively predicted their intentions and attitudes to censor immoral content from hypothetical young children. The more those participants valued the sanctity foundation, the more they censored. In addition, this relationship weakened as the child grew older or if the child had repeatedly witnessed immoral acts. Three conclusions can be drawn from these results. First, the more people value sanctity the more supportive they are of hiding information from young children. Second, the more that a child has already seen (i.e., by growing older or by being witness to immoral acts) the less important are moral sanctity values. Third, experiences are linked to perceptions of innocence and purity, and concerns for innocence and purity become less important when experiences increase.

In the other set of studies (Anderson & Masicampo, 2014a), participants perceived moral differences between a hypothetical child who no longer held a fantastical belief and gained knowledge about the world (e.g., that Santa Claus does not exist) as compared to a hypothetical child who held that fantastical belief. In Study 1, participants rated a hypothetical boy who did not believe in Santa Claus as less pure and innocent than a hypothetical boy who did believe in Santa Claus. In Study 2, the boy who did not believe in Santa Claus was rated as less innocent, less moral, less likely to act morally, and more likely to misbehave than the boy who did believe in Santa Claus. In addition, perceived innocence mediated the relationship between fantastical beliefs and perceived

morality. As these two studies demonstrate, learning a truth about the world (e.g., that Santa Claus does not exist) is linked to decreased ratings of purity, innocence, and moral behavior.

To summarize, previous work (Anderson & Masicampo, 2014a, 2014b) suggests that hypothetical children who witness immoral actions (2014b) or learn truths about the world (2014a) experience a loss of innocence. Furthermore, this loss of innocence is also associated with being considered less good, more likely to misbehave, and to being less moral. Children who gain certain knowledge are considered less moral as if they had eaten from the tree of knowledge of good and evil.

The present research aimed to expand on the previous findings of Anderson and Masicampo (2014a, 2014b). Previous research suggests that under certain circumstances, people perceive hypothetical children with more knowledge as less moral and less innocent. One possible explanation for this phenomenon is that people perceive children with more knowledge in general as less moral and less innocent. Knowledge is potentially seen as a corrupting influence on children, making them more adult-like and less innocent by revealing negative aspects of the world and by painting information on a previously pure and clean canvas.

Knowledge and Agency/Patiency

In addition to innocence, knowledge has been linked to another set of moral constructs associated with mind perception: agency and patiency. Mind perception refers to the capacity to intuit and understand the mental capacities of another person (Gray, Young, & Waytz, 2012). Agency refers to the ability for planning, self-control, intentional action, and thought, while patiency refers to the ability for experiencing pain,

pleasure, and other emotional states (Gray, Gray, & Wegner, 2007). Agency and patiency are considered orthogonal, as some targets, like adults, are rated as being relatively high on both agency and patiency, while other targets are only high on one dimension, like God with agency and babies with patiency. Research suggests that when making a moral judgment, people apply a template to the judgment, dividing those involved in the moral situation into either moral agents or moral patients (Gray & Wegner, 2009, 2011a, 2011b; Gray, Young, & Waytz, 2012). That is, a moral judgment requires a moral dyad: two parties given different roles in the judgment (Gray & Wegner, 2009). In the moral dyad, the moral agent is the intentional cause of a moral act (e.g., a person who donates to an orphanage) while the moral patient is the experiencing recipient of that moral act (e.g., the orphans who benefit from a donation). In the context of morality, agents are perceived as having a mind that is intentional, capable, and responsible for either good or bad moral actions, while patients are perceived as having a mind that is experiencing, sensing, and feeling the consequences of those moral actions (Gray & Wegner, 2009).

Support for the moral dyad approach to moral judgments comes from a number of sources. For example, people tend to "complete the dyad" by inferring the presence of a moral agent (e.g., blaming God for a natural disaster) or a moral patient (e.g., the nation's youth being corrupted by gay marriage) if one perceives the presence of the other half of the dyad (Gray & Wegner, 2010; Gray, Young, & Waytz, 2012). Furthermore, harms are experienced as more painful if they are intentional than if they are unintentional (Gray & Wegner, 2008). That is, when people see an intentional agent is acting against them, the experienced pain is worse because they have taken on the role of moral patient, as being high on sensation and feeling. Additional support for the moral dyad comes from research

on moral typecasting, which refers to the phenomenon of moral agents and moral patients as being regarded as exclusively agents or as patients (e.g., Gray & Wegner, 2009). Both good and evil moral agents are perceived as experiencing less when good or evil has been done to them (i.e., having low patiency), while moral patients, as the recipients of moral actions, are perceived as less capable of enacting their own moral actions (i.e., having low agency).

Research into the moral dyad has found a number of different effects in support of the theory. For example, across three studies Gray (2010) found that people who acted either morally or immorally felt more agentic and had a temporary boost in physical endurance. This result suggests that agency can extend beyond just the moral realm into other capacities, and potentially from other capacities into the moral realm. A different effect includes that good moral agents are blamed more for misdeeds, but moral victims are held less accountable for their misdeeds (Gray & Wegner, 2011b). As described above, a component of moral agency is being perceived as being responsible, while patients are ascribed less agency due to moral typecasting and are therefore given less responsibility.

Important for the present study, more mentally capable people are rated as having more agency and less patiency than less mentally capable people (Gray & Wegner, 2009). For example, normal adults are seen as having more agency and less patiency than both children and mentally challenged adults (Gray & Wegner, 2009), suggesting that a target's mental capabilities play a role in the perceived agency and patiency of that target. Like knowledge decreasing a target's perceived innocence, knowledge may likewise increase perceived agency and decrease perceived patiency. Increasing a target's

perceived agency has been linked to increased perceptions of moral responsibility (Gray & Wegner, 2009), but changes in agency and patiency may also influence the perceived likelihood to act morally and immorally. That is, people who are high on moral agency are most likely seen as more likely to act both morally and immorally because moral agency refers to the ability to act in a moral fashion. In addition, knowledge may potentially decrease patiency by making children seem more adult-like, although there is less theoretical support for this possibility.

OVERVIEW OF PRESENT RESEARCH

I conducted two studies testing the relationship between children having

knowledge and perceptions of their morality. Both studies tested the hypothesis that when

a hypothetical child has more knowledge, that child is seen as less likely to do moral acts

and more likely to do immoral acts. Supporting this hypothesis, research shows that

hypothetical children who have certain knowledge (e.g., that Santa Claus does not exist)

are rated as less likely to do moral acts and more likely to misbehave than children who

do not have that knowledge and instead have a fantastical belief (e.g., that Santa Claus

does exist; Anderson & Masicampo, 2014a). I also tested whether concerns for moral

sanctity moderated these possible effects, a possibility given that moral sanctity values

played a role when censoring information from hypothetical young children (Anderson &

Masicampo, 2014b). I tested whether the relationship between knowledge and predicted

moral behavior operates more through perceived innocence, agency, or patiency.

Specifically, I hypothesized that the path from knowledge to judgments of future

behavior will be significant through both decreased perceived innocence and increased

agency, but not through patiency. Supporting this hypothesis, increased knowledge

concerning fantastical beliefs is linked to decreases in both perceived innocence and

perceived likelihood to act morally (Anderson & Masicampo, 2014a). In addition,

perceived agency is related to perceived capability (Gray, Young, & Waytz, 2012) and

capability is a requisite for acting. However, another possibility was that perceived

innocence and perceived agency interact to predict the perceived likelihood of increased

immoral action: perhaps knowledge both decreases perceived innocence and increases

perceived agency and this combination of being impure and agentic predicts the

likelihood to do bad acts. As such, I also tested the effects of the interactions involving perceived innocence, perceived agency, and perceived patiency on the perceived likelihood to act immorally. I also tested the effect of knowledge on perceived responsibility for moral actions, which I hypothesized would replicate the work by Gray and Wegner (2009) to be due to perceived agency more so than perceived innocence or perceived patiency.

The first study presented participants with one of three hypothetical target children who vary in general knowledge. Participants rated the level of innocence, agency, and patiency they perceived this target child having. Participants then rated the likelihood that this child would act morally and immorally and how much responsibility the child deserves for acting morally and immorally. Participants then completed a measure of their moral sanctity values.

The second study presented participants with one of four hypothetical target children who possess different skills, with those skills being either mental knowledge typically associated with children, mental knowledge typically associated with adults, a physical ability typically associated with adults, or a control. Like the first study, participants rated the level of innocence, agency, and patiency they perceived this target child having. Participants then rated how likely they thought this child will engage in certain moral and immoral behaviors and how much responsibility the child deserves for each of those behaviors. Participants then completed a measure of their moral sanctity values.

STUDY 1

In Study 1, I investigated whether the general knowledge held by a hypothetical child would influence moral perceptions of that child. I chose general knowledge to see if moral perceptions are sensitive to a broad and abstract form of knowledge. To distinguish between different levels of general knowledge, participants were assigned to one of three conditions. In all conditions, participants read about a hypothetical boy named Jon in the 2nd grade who recently completed a standardized general knowledge test. I chose the 2nd grade because 2nd graders are about 8 years old, which has been found in previous research (Anderson & Masicampo, 2014a, 2014b) as an age when adults will censor objectionable content from children and also see children differently based on their fantastical beliefs. The different conditions corresponded to different results on this test. In the *At Level* condition, participants read that Jon scored at the 2nd grade level on this knowledge test. In the *Ahead* condition, participants read that Jon scored at the 5th grade level on this knowledge test. In the *Advanced* condition, participants read that Jon scored at the 8th grade level on his knowledge test. I used two different "above grade-level" conditions to provide a gradient of different knowledge levels. In addition, I chose 5th grade and 8th grade as I felt they would be far enough away from 2nd grade to garner changes in perceived qualities, but not so far away as to provoke suspicion. In addition, past research has shown innocence decreases with perceived age, but this decrease levels off around age 14, when children are in 8th grade (Goff et al., 2014).

After reading about Jon's scores, participants completed a series of evaluations about Jon, including perceptions of the likelihood that Jon would act in a number of moral and immoral ways. I defined moral and immoral acts as those related to caring (e.g.,

helping someone) and harmful (e.g., hurting someone) actions as nearly all cultures and people value the care/harm foundation of MFT as being important to morality (Graham et al., 2011). In addition, some theorists argue that all morality can be distilled into perceptions of care and harm (e.g., Gray & Wegner, 2009). However, MFT also asserts that other types of behavior are also considered moral and immoral by some groups of people (Graham et al., 2009, 2011). As such, I included behaviors from the other four foundations for exploratory purposes. I did not have any specific hypotheses about what differences, if any, would emerge on the relationship between knowledge and perceptions of moral behavior across the different foundations. Each foundation's moral behavior (e.g., helping someone in need) and immoral behavior (e.g., hurting someone) were analyzed separately as it is possible that the likelihood of acting morally may change independently of the likelihood of acting immorally: simply because Jon is less likely to help someone does not make him more likely to hurt someone.

Participants

Study 1 included 214 participants: 131 undergraduates (58.8% female; M_{age} = 19.0, SD_{age} = 0.95) enrolled in an introductory psychology course who participated for course credit and 83 (60.2% female; M_{age} = 36.5, SD_{age} = 12.97) users of Amazon Mechanical Turk who participated online for monetary compensation. However, 12 participants failed to correctly answer at least one of two attentional manipulation checks, leaving 202 participants in subsequent analyses.

Materials

Scenarios. Participants read one of three possible scenarios (see Appendix A). Each participant read about a hypothetical boy named Jon in the 2nd grade who recently

completed a standardized general knowledge test. Participants in the *At Level* condition

read that Jon scored at the 2nd grade level. Participants in the *Ahead* condition read that

Jon scored at the 5th grade level. Participants in the *Advanced* condition read that Jon

scored at the 8th grade level.

Impression evaluation. Participants rated how much they liked Jon on a 1 (*Not at*

all) to 7 (*A lot*) scale. Participants also completed two items assessing how pure they

perceived Jon to be ("In general, how pure do you think Jon is?" and "In general, how

innocent do you think Jon is?") on a 1 (*Not at all*) to 7 (*A lot*) scale. Because the

perceived purity and the perceived innocence of Jon were highly correlated with each

other, r (199) = .71, $p < .001$, I averaged the responses to the pure and innocent items to

create the mean perceived innocence of Jon.

Agency and patiency evaluation. As seen in Appendix B, participants completed

three items assessing the perceived agency and six items assessing the perceived patiency

of Jon (three items assessing experienced pain and three items assessing experienced

pleasure) on a 1 (*None at all*) to 7 (*A lot*) scale. Because both subscales displayed high

reliability, I averaged the three agency items together ($\alpha = .89$) and the six patiency items

together ($\alpha = .80$) to create mean scores of agency and patiency.

Moral and immoral behaviors. Participants completed ten items assessing the

likelihood that Jon will behave in a particularly morally-relevant way (see Appendix C)

on a 1 (*Not at all*) to 7 (*Very*). These behaviors follow the five foundations of MFT

(Graham et al., 2011) with each foundation having one behavior that supports it and one

behavior that violates it.

Moral responsibility. Participants completed ten items assessing the perceived amount of responsibility Jon would deserve for enacting each of the ten moral and immoral behaviors, on a 1 (*None at all*) to 7 (*A lot*) scale (see Appendix D). Although research does suggest that intentionality may play different roles in judgments of wrongness for violations of different foundations (Young & Saxe, 2011), the present study investigated simply overall perceptions of responsibility, not how those perceptions of responsibility influenced judgments of wrongness. Given that responsibility (i.e., agency, intentionality, etc.) is often considered a single dimension applicable in different contexts (e.g., Gray & Wegner, 2009; Malle & Knobe, 1997), both the different moral responsibility items (by averaging items 1, 3, 5, 7, and 9; α = .88) and the immoral responsibility items (by averaging items 2, 4, 6, 8, and 10; α = .89) were collapsed across foundation into average moral responsibility and average immoral responsibility. I kept the distinction between moral responsibility and immoral responsibility because it is still possible that knowing what is right is different from knowing what is wrong.

Moral Foundations Questionnaire. Participants completed the two subscales of the MFQ: the Moral Relevance Questionnaire (MRQ) and the Moral Judgments Questionnaire (MJQ; Graham et al., 2011). The MRQ asks participants to indicate to what extent various concerns are relevant for the moral judgments (e.g., "Whether or not someone violated standards of purity and decency") from 1 (*Not at all relevant*) to 6 (*Extremely relevant*), while the MJQ asks participants to rate their agreement with various statements about morality (e.g., "People should not do things that are disgusting, even if no one is harmed") from 1 (*Strongly Disagree*) to 6 (*Strongly Agree*). An added benefit of both the MRQ and MJQ is that each features an attentional manipulation check.

The MRQ check asks "Whether someone was good at math" was relevant to morality and the MJQ check asks if "It is better to do good than bad." Participants who respond that being good at math as being morally relevant or who did not highly endorse doing good than bad will be considered to not be paying sufficient attention to the task and will be excluded. To calculate moral sanctity values, I averaged the three sanctity items from the MRQ and the three sanctity items from the MJQ to form a mean moral sanctity value (M = 3.59, SD = 1.11; α = .82). Although participants responded to the other four foundations, they were not included in any of the present analyses.

Procedure

After giving consent, participants were randomly assigned to read one of the three scenarios about Jon, his grade, and his score. After reading about Jon, participants completed the impression evaluation, the patiency evaluation, and the agency evaluation, with all 12 items presented in randomized order. Participants then completed the moral behaviors and moral responsibility items, with each responsibility item being presented immediately after its respective behavior item. Finally, participants completed the MFQ, filled out a short demographics survey, had the opportunity to provide any comments, and were then debriefed.

STUDY 1 RESULTS

Because our sample was drawn from two populations, analyses below controlled for population main effects (undergraduates vs. online participants) and all two-way interactions involving population. In addition, because of how liked a child is often correlates with other perceptions of that child, like innocence and morality (Anderson & Masicampo, 2014a), the following analyses control for how liked Jon is. See Table I for basic descriptive statistics for the ratings of Jon, separated by condition, and Table II for correlations between these perceptions.

Analyses for behavioral likelihood, behavioral responsibility, perceived innocence, perceived agency, and patiency agency follow a similar format: I entered condition (-1: At Level, 0: Ahead, 1: Advanced), moral sanctity values, and the two-way interaction term as predictors into a multiple regression model predicting each of the outcome variables. Condition was entered as a continuous rather than categorical variable into these models. I hypothesized that general knowledge, at least at the scale involved in these conditions, would follow a continuous linear relationship.

Knowledge and Behavioral Likelihood

I hypothesized that increased knowledge would be associated with increased perception to act immorally and decreased perception to act morally. Instead, I found that increased knowledge was significantly positively associated with the perception of acting morally for the care foundation, $\beta = .17$, $p = .02$, and this effect generalized to the loyalty, $\beta = .30$, $p < .001$, and sanctity foundations, $\beta = .15$, $p = .03$. As Jon performed better on the general knowledge test, participants rated him as more moral in his behavior. There

was no significant effect of knowledge on the fairness, $\beta = .04$, $p = .59$, or the authority

foundations, $\beta = .11$, $p = .12$. In addition, moral sanctity values were trending to predict

Table I
Perceptions of Jon in Study 1

Measure of Jon's Character	At-Level Condition		Ahead Condition		Advanced Condition	
Like	5.06	(1.03)	5.19	(1.19)	5.07	(1.28)
Innocence	5.17	(0.95)	5.02	(1.07)	5.04	(1.18)
Agency ***	4.24	(0.97)	5.06	(1.02)	5.16	(1.19)
Patiency	6.05	(0.75)	5.98	(0.63)	6.02	(0.63)
Moral Likelihood – Support Care *	4.64	(1.04)	4.94	(0.95)	5.06	(0.95)
Moral Likelihood – Support Fairness	4.70	(1.12)	4.85	(1.07)	4.81	(1.24)
Moral Likelihood – Support Loyalty ***	4.16	(1.11)	4.89	(1.14)	5.03	(1.13)
Moral Likelihood – Support Authority	5.30	(0.91)	5.60	(1.04)	5.59	(1.16)
Moral Likelihood – Support Sanctity *	4.78	(0.94)	5.10	(1.13)	5.17	(1.00)
Immoral Likelihood – Violate Care	3.00	(0.97)	2.98	(1.07)	2.87	(1.03)
Immoral Likelihood – Violate Fairness **	3.32	(1.06)	3.10	(1.14)	2.77	(1.26)
Immoral Likelihood – Violate Loyalty †	2.86	(1.06)	3.10	(1.12)	3.26	(1.46)
Immoral Likelihood – Violate Authority	3.64	(1.25)	3.72	(1.45)	3.52	(1.45)
Immoral Likelihood – Violate Sanctity ***	3.93	(1.34)	3.52	(1.13)	3.25	(1.08)
Moral Responsibility	5.43	(0.99)	5.47	(0.96)	5.59	(0.75)
Immoral Responsibility	5.12	(1.22)	5.27	(1.15)	5.42	(0.96)

Note. Scores ranged from 1 to 7, with 7 indicating greater endorsement of the notion.
Standard deviations in parentheses. † $p < .10$ (Test of the main effect of knowledge on the perception of Jon), * $p < .05$, ** $p < .01$, *** $p < .001$

Table II

Study 1 Perceptions of Jon Correlations

	Agency	Patiency	Moral Likelihood Support Care	Immoral Likelihood Support Care	Moral Responsibility	Immoral Responsibility
Innocence	.01	.33***	.18*	-.12†	.07	-.02
Agency		-.04	.46***	-.16*	.29***	.28***
Patiency			.12†	-.03	.13†	.10
Moral Likelihood — Support Care				-.28***	.36***	.30***
Immoral Likelihood — Violate Care					-.13†	.10
Moral Responsibility						.66***

Note: Correlations above are partial correlations, controlling for how liked Jon was. † $p < .1$; * $p < .05$; ** $p < .01$; *** $p < .001$.

moral behavior involving care, β = .13, *p* = .10. The exploratory analyses involving the other foundations found a marginally significantly positively predicted perceived fair behavior, β = .14, *p* = .096, significantly positively predicted perceived loyal behavior, β = .22, *p* = .005, and sanctity behavior, β = .21, *p* = .006. There were no significant sanctity by knowledge interactions for any of the moral behaviors, all *p*s >.37.

Inconsistent with my hypothesis, there was no significant main effect of knowledge on the perceived likelihood to act immoral and violate care, β = -.07, *p* = .37. However, the exploratory analyses involving the other foundations did find that knowledge condition significantly negatively predicted perceived likelihood of immoral behavior violating fairness, β = -.19, *p* = .007, and violating sanctity, β = -.24, *p* < .001. As knowledge increased, participants thought Jon was less likely to violate norms of fairness and sanctity. There was a marginally significant positive main effect of condition on perceived likelihood to violate loyalty, such that as Jon had more knowledge he was seen as more likely to act disloyally, β = .13, *p* = .07. There was no significant main effect of knowledge on the perceived likelihood to violate authority, β = -.02, *p* = .80. There was a nonsignificant effect of moral sanctity values on the perceived likelihood to act immorally, β = -.04, *p* = .61. However, exploratory analyses found that there was a significant negative effect of moral sanctity values on perceived likelihood to violate fairness, β = -.17, *p* = .04, and sanctity, β = -.16, *p* = .04. Otherwise, there were no other significant main effects of moral sanctity values, all *p*s > .29, or sanctity by knowledge interactions, all *p*s > .33, on the perceived likelihood of immoral behaviors.

Knowledge and Behavioral Responsibility

I hypothesized that increased knowledge would be associated with increased perception of responsibility for both moral and immoral acts. For perceived moral responsibility, there were no significant effects of knowledge condition, $\beta = .07$, $p = .31$, moral sanctity values, $\beta = .07$, $p = .41$, nor the knowledge by sanctity values interaction, $\beta = .02$, $p = .80$. Furthermore, for perceived immoral responsibility, there were no significant effects of knowledge condition, $\beta = .11$, $p = .11$, moral sanctity values, $\beta = .004$, $p = .94$, nor the knowledge by sanctity values interaction, $\beta = .05$, $p = .46$. When controlling for population effects and the influence of liking, there was no unique effect of knowledge condition, participants' own moral sanctity values, or the knowledge by sanctity interaction on perceptions of Jon's responsibility for acting morally and immorally.

Knowledge and Innocence

I hypothesized that increased knowledge would be associated with decreased perceptions of innocence and that sanctity values would positively predict perceived innocence. In addition, I hypothesized significant sanctity interactions with the knowledge conditions; participants who most value sanctity will be most influenced by these manipulations. Instead, there was no significant effect of knowledge condition, $\beta = -.04$, $p = .57$, moral sanctity values, $\beta = .01$, $p = .91$, nor the knowledge by sanctity values interaction, $\beta = .06$, $p = .36$. This suggests that Jon's perceived innocence is not linked to his knowledge, the moral sanctity concerns of the perceiver, or an interaction between the two.

Knowledge and Agency

I hypothesized that increased knowledge will be associated with increased perceptions of agency and that sanctity values would negatively predict perceived agency. In addition, I hypothesized significant sanctity interactions with the knowledge conditions; participants who most value sanctity will be most influenced by these manipulations. There was a significant positive relationship between knowledge condition and perceived agency, such that as Jon performed better on the general knowledge test he was seen as more agentic, $\beta = .33$, $p < .001$. In addition, contrary to expectations, moral sanctity values positively predicted Jon's perceived agency, $\beta = .27$, $p < .001$. However, there was no significant knowledge condition by sanctity values interaction, $\beta = .09$, $p = .15$. These results suggest that a child's perceived agency is determined both by a child's knowledge and the perceiver's own moral sanctity values.

Knowledge and Patiency

Unlike perceived agency and knowledge (Gray & Wegner, 2009), there has been little work demonstrating a link between perceived patiency and knowledge. Therefore, I did not have a specific hypothesis concerning the relationship between perceived patiency and knowledge, and the following tests should be considered exploratory. However, I did hypothesize that moral sanctity values would positively predict perceived patiency, if patiency can be considered a state of purity and full of feeling. In addition, I hypothesized significant sanctity interactions with the knowledge conditions; participants who most value sanctity will be most influenced by these manipulations. Instead, there was no significant effect of knowledge condition, $\beta = -.03$, $p = .65$, moral sanctity values, $\beta = .01$, $p = .89$, nor the knowledge by sanctity values interaction, $\beta = -.05$, $p = .44$, on the

perceived patiency of Jon. This suggests that Jon's perceived patiency is not linked to his knowledge, the moral sanctity concerns of the perceiver, or an interaction between the two.

Test of Mediation for Behavioral Likelihood

Since my main hypothesis was concerning the care/harm foundation, the following mediational analyses of behavioral likelihood only focus on the moral behavior in support of care and the immoral behavior violating care. To test whether perceived innocence, perceived agency, perceived patiency, or a two-way or three-way interaction involving them mediated the relationship between perceived knowledge and perceived behavioral likelihood, I used bootstrapping techniques for testing multiple potential mediational pathways as outlined by Preacher and Hayes (2008). I hypothesized that innocence would be the strongest indirect pathway predicting likelihood of moral action; I also hypothesized that both innocence and agency would significantly mediate the indirect pathway predicting likelihood of immoral action. Using 1000 bootstrap samples, the bias corrected confidence intervals were calculated for the effects of perceived innocence, perceived agency, perceived patiency, and the associated two-way and three-way interactions.

Contrary to my hypothesis, results found that perceived agency was the only significant mediator between knowledge and predicted moral behavior, 95% CI [.10, .33]; neither perceived innocence, 95% CI [-.05, .01], perceive patiency, 95% CI [-.04, .02], the innocence by agency interaction, 95% CI [-.01, .06], the innocence by patiency, 95% CI [-.03, .02], the agency by patiency interaction, 95% CI [-.01, .05], nor the innocence by agency by patiency interaction, 95% CI [-.07, .01], significantly mediated the

relationship. Therefore, results suggest that the reason knowledge influenced perceptions of moral behavior was through perceived agency, not perceived innocence or perceived patiency.

When considering predicted immoral behavior, consistent with the lack of a direct effect from knowledge, there was no significant mediation through perceived innocence, 95% CI [-.01, .05], perceived agency, 95% CI [-.14, .02], perceived patiency, 95% CI [-.03, .01], the innocence by agency interaction, 95% CI [-.09, .002], the innocence by patiency, 95% CI [-.06, .01], the agency by patiency interaction, 95% CI [-.02, .03], nor the innocence by agency by patiency interaction, 95% CI [-.02, .04]. These results suggest that there was no indirect effect on perceived immoral behavior through perceived innocence, agency, patiency, or any two-way or three-way interaction.

Other foundations. As there were significant effects relating knowledge to moral behavior involving the loyalty and sanctity foundations and to immoral behavior involving the fairness and sanctity foundations, I also conducted exploratory analyses for possible indirect effects through perceived innocence, perceived agency, perceived patiency, or an interaction involving them. There was significant positive mediation through perceived agency for moral behavior in support of the loyalty foundation, 95% CI [.18, .47], and the sanctity foundation, 95% CI [.06, .25]. In addition, perceived agency negatively mediated the relationship between knowledge and perceived likelihood to violate fairness, 95% CI [-.20, -.01], and sanctity foundation, 95% CI [-.19, -.01]. There were no other significant mediators for these moral or immoral behaviors.

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Test of Mediation for Behavioral Responsibility

Following the outline described above for perceived moral and immoral behavior, I used the same multiple mediational analyses to test pathways to perceived moral and immoral responsibility. Consistent with my hypothesis, perceived agency significantly mediated the relationship to both moral responsibility, 95% CI [.06, .25], and immoral responsibility, 95% CI [.07, .28]. Perceived innocence did not significantly mediate the relationship to either moral responsibility, 95% CI [-.04, .01], or immoral responsibility, 95% CI [-.01, .04]. In addition, perceived patiency did not significantly mediate the relationship to either moral responsibility, 95% CI [-.04, .03], or immoral responsibility, 95% CI [-.05, .03]. For moral responsibility, neither the innocence by agency interaction, 95% CI [-.03, .02], the innocence by patiency, 95% CI [-.07, .002], the agency by patiency interaction, 95% CI [-.01, .03], nor the innocence by agency by patiency interaction, 95% CI [-.05, .006], emerged as significant mediators of an indirect effect.

Similarly, for immoral responsibility, neither the innocence by agency interaction, 95% CI [-.06, .01], the innocence by patiency, 95% CI [-.06, .01], the agency by patiency interaction, 95% CI [-.06, .004], nor the innocence by agency by patiency interaction, 95% CI [-.05, .01], emerged as significant mediators of an indirect effect. Despite there being no significant direct effect between knowledge condition and perceived responsibility, perceived agency emerged as a significant mediator of an indirect link between the two. Therefore, knowledge influences perceived agency and perceived agency influences perceived responsibility, echoing past research (Gray & Wegner, 2011).

STUDY 1 DISCUSSION

Contrary to my hypothesis, more knowledgeable hypothetical children were not perceived as less moral, more immoral, more responsible, or less innocent than less knowledgeable children. Instead, more knowledgeable hypothetical children were rated as more likely to act morally, and this effect also generalized to moral concerns involving loyalty and sanctity. In addition, more knowledgeable children were rated as more agentic than less knowledgeable children. Furthermore, perceivers' own moral sanctity values only slightly positively predicted perceived likelihood of moral behavior, although exploratory analyses found some effects for other possible moral concerns. In addition, moral sanctity values positively predicted perceived agency, but unexpectedly did not predict perceived innocence. There was no support for knowledge impacting perceived likelihood of immoral behavior, although exploratory analyses found that there were effects for other possible moral concerns.

Taken together, these results suggest that people do not see general knowledge as a potentially corrupting influence on hypothetical children, but instead that knowledge makes children more likely to act morally, but no change in immoral behavior. One potential reason that results not only failed to support my hypotheses but in several cases were in the opposite direction is that the participants held a favorable view of knowledge and did not see it as a corrupting influence on children's innocence and morality. Another potential explanation is that simply performing better on a test does not make a child seem more adult-like. Relative to children, adults are given less moral protection, like harsher sentences for crimes (*Thompson v. Oklahoma*, 1998). Therefore, what is really

crucial to link knowledge to decreased perceptions of morality is not that knowledge has

been gained but that the target is more adult-like because of that knowledge.

STUDY 2

While Study 1 was designed to assess whether a hypothetical child having an abstract "general knowledge" influenced moral perceptions, Study 2 tested more specific types of knowledge. The essence of the hypothesis is that hypothetical children having knowledge makes them seem mentally more like adults, thus reducing their innocence and making the children seem less moral. Therefore, Study 2 presented participants with different hypothetical children who possess specific skills that, based on pretesting, are generally associated with either children or adults. There were four conditions. In the *Child Knowledge* condition, participants read about a child possessing a knowledge-based skill typically associated with children. In the *Adult Knowledge* condition, participants read about a child possessing a knowledge-based skill typically associated with adults. To test whether the crucial component is having adult-like knowledge and not just being more adult-like in general, participants in the *Adult Physical* condition read about a child possessing a physically-based skill typically associated with adults. Finally, participants in the *Control* condition just read about a child, with no mention of specific skills.

Essentially, I tested whether having adult-like knowledge, relative to the control, would make a child seem less moral for the care foundation, more immoral for the care foundation, more responsible for moral behavior and immoral behavior, less innocent, and more agentic. I then tested whether these differences were generalizable to other forms of knowledge by comparing the control to the child knowledge condition and to other adult-like skills by comparing the control to the adult physical condition.

Participants

Study 2 included 296 participants: 107 undergraduates (37.4% female; M_{age} = 19.0, SD_{age} = 1.05) enrolled in an introductory psychology course who participated for course credit and 189 (42.9% female; M_{age} = 35.0, SD_{age} = 12.14) users of Amazon Mechanical Turk who participated online for monetary compensation. However, 27 participants failed to correctly answer at least one of two attentional manipulation checks, leaving 269 participants in subsequent analyses.

Materials and Procedure

Scenarios. Participants read one of four possible scenarios (see Appendix E). In all conditions, participants read about a hypothetical child named Jon who likes to play games and hang out with friends. In the Child Knowledge condition, participants additionally read that Jon has memorized the names of all the Pokémon. In the Adult Knowledge condition, participants additionally read that Jon knows all the major battles and key people involved in World War II. In the Adult Physical condition, participants additionally read that Jon is capable of finishing half-marathons[1].

Besides the change in conditions, Study 2 was the same as Study 1. After reading about Jon, participants completed the impression evaluation, the patiency evaluation (α = .75), and the agency evaluation (α = .87), with all 12 items presented in randomized order. Participants then completed the moral behavior, immoral behavior, moral responsibility (α = .87), and immoral responsibility items (α = .86), with each responsibility item being presented immediately after its respective behavior item. Like in Study 1, how pure and how innocent Jon was seen were significantly and positively correlated with each other, r (267) = .69, $p < .001$, and were thus averaged together.

Finally, participants completed the MFQ with the moral sanctity items ($M = 3.50$, SD = 1.15; $\alpha = .83$), filled out a short demographics survey, had the opportunity to provide any comments, and were then debriefed.

STUDY 2 RESULTS

Because our sample was drawn from two populations, analyses below controlled for population main effects (undergraduates vs. online participants) and the two-way interactions involving population. As in Study 1, analyses also control for how liked Jon was. See Table III for basic descriptive statistics for the ratings of Jon, separated by condition, and Table IV for correlations between the different perceptions.

Analyses for behavioral likelihood, behavioral responsibility, perceived innocence, perceived patiency, and perceived agency follow a similar format, as I conducted multiple regression analyses predicting the outcome variables, with moral sanctity values, dummy codes for the three skill conditions comparing against the control condition, and the two-way sanctity by condition interactions.

Skill and Behavioral Likelihood

I hypothesized that when children have more adult-like knowledge, like being very familiar with World War II, participants would see that child as less likely to act morally and more likely to act immorally, relative to no mention of any skill. Although there were no significant differences between the control condition and any of the skill conditions for moral behavior in support of the care foundation, all ps > .27, exploratory analyses found that there was a marginally significant difference between the adult knowledge condition and the control condition for perceived likelihood to act in support of the fairness foundation, $\beta = .13$, $p = .09$, the loyalty foundation, $\beta = .21$, $p = .007$, the authority foundation, $\beta = .17$, $p = .03$, and the sanctity foundation, $\beta = .17$, $p = .03$, such that when Jon had adult-like knowledge he was rated as more likely to act morally in these foundations. In addition, this effect generalized to adult-like skill for the loyalty

Table III
Perceptions of Jon in Study 2

Measure of Jon's Character	Control		Child Knowledge		Adult Knowledge		Adult Physical	
Like	5.23	(1.18)	4.76	(1.46)*	5.43	(0.90)	5.22	(0.98)
Innocence	5.38	(1.04)	5.47	(0.91)	5.07	(0.98)†	5.35	(0.86)
Agency	4.06	(1.11)	4.68	(1.10)**	4.80	(1.06)***	4.75	(1.23)***
Patiency	6.03	(0.62)	5.99	(0.67)	5.98	(0.67)	5.74	(0.57)
Moral Likelihood -- Support Care	4.98	(1.06)	4.78	(1.06)	5.22	(1.01)	5.10	(0.99)
Moral Likelihood -- Support Fairness	5.06	(1.19)	5.18	(1.11)	5.47	(1.09)*	5.12	(1.11)
Moral Likelihood -- Support Loyalty	4.27	(1.30)	4.57	(1.16)	4.90	(1.09)**	5.07	(1.23)***
Moral Likelihood -- Support Authority	5.15	(1.11)	5.31	(1.02)	5.54	(0.92)*	5.35	(0.84)
Moral Likelihood -- Support Sanctity	4.97	(1.07)	5.16	(1.02)	5.41	(0.93)*	5.09	(1.03)
Immoral Likelihood -- Violate Care	2.84	(1.12)	2.47	(0.74)*	2.85	(1.05)	2.83	(1.10)
Immoral Likelihood -- Violate Fairness	3.19	(1.17)	3.00	(0.83)	3.03	(0.99)	3.17	(1.06)
Immoral Likelihood -- Violate Loyalty	2.55	(1.18)	2.50	(0.97)	2.33	(0.96)	2.52	(1.11)
Immoral Likelihood -- Violate Authority	3.34	(1.30)	3.51	(1.25)	3.43	(1.61)	3.18	(1.16)
Immoral Likelihood -- Violate Sanctity	3.66	(1.47)	3.25	(1.21)†	3.54	(1.23)	3.43	(1.21)
Moral Responsibility	5.27	(0.90)	5.52	(0.81)†	5.66	(0.85)*	5.47	(0.86)
Immoral Responsibility	4.98	(1.15)	5.22	(1.00)	5.34	(1.09)†	5.27	(1.04)

Note. Scores ranged from 1 to 7, with 7 indicating greater endorsement of the notion. Standard deviations in parentheses. † $p < .10$ (Test of contrast that the skill condition was significantly different from the control condition), * $p < .05$, ** $p < .01$, *** $p < .001$

foundation, $\beta = .28$, $p < .001$. There were no significant differences between the child

knowledge condition and the control condition on perceived likelihood of acting morally,

all ps > .14. These results suggest that mentioning an adult-like mental skill does not

Table IV

Study 2 Perceptions of Jon Correlations

	Agency	Patiency	Moral Likelihood Support Care	Immoral Likelihood Support Care	Moral Responsibility	Immoral Responsibility
Innocence	.03	.30***	.10†	-.18***	.11†	-.01
Agency		-.06	.37***	-.08	.22***	.22***
Patiency			.20**	.01	.27***	.17***
Moral Likelihood — Support Care				-.05	.41***	.32***
Immoral Likelihood — Violate Care					-.06	-.01
Moral Responsibility						.68***

Note: Correlations above are partial correlations, controlling for how liked Jon was. † $p < .1$; * $p < .05$; ** $p < .01$; *** $p < .001$.

make a kid seem less moral, although the exploratory results suggest that adult knowledge may actually increase perceived likelihoods of other possible moral concerns. Although there were no significant differences between the control condition and the adult knowledge condition, all ps > .24, or the adult physical condition, all ps > .32, there was a significant negative effect with the child knowledge condition for the perceived likelihood to violate the care foundation, β = -.18, p = .02, and exploratory analyses found a marginally significant negative effect for the sanctity foundation, β = -.14, p = .08, such that when Jon had child-like knowledge, he was rated as less likely to act immorally in violating the care and sanctity foundations. There were no other significant differences between the control and the child knowledge conditions, all ps > .29.

I hypothesized that sanctity values would positively predict the perceived likelihood to act morally and negatively predict the perceived likelihood to act immorally. Moral sanctity values did not significantly predict perceived moral behavior, β = -.09, p = .49, or immoral behavior, β = .19, p = .14. However, exploratory analyses into other possible moral concerns found that the only significant main effect of moral sanctity values was a positive main effect on the perceived likelihood of acting immorally in violation of the fairness foundation, β = .27, p = .04. Otherwise, there were no other significant main effects and no significant interaction with condition for the perceived likelihood of acting morally or immorally, all ps >.20.

Skill and Behavioral Responsibility

I hypothesized that when children have more adult-like knowledge, like being very familiar with World War II, participants would see that child as being more responsible for moral and immoral behavior, relative to or no mention of any skill.

Analyses revealed that there was a significant difference between the control condition and the adult knowledge condition, such that having adult-like knowledge made Jon seem more responsible for his moral behavior, $\beta = .18$, $p = .01$. Similarly, results found a significant difference between the control condition and the child knowledge condition, $\beta = .17$, $p = .03$. However, there was no significant differences between the control condition and the adult physical condition, $\beta = .11$, $p = .14$. These results suggest that mentioning a mental skill, whether more child-like or adult-like, makes a child seem more responsible for their good acts relative to no mention of a skill. Furthermore, when Jon held adult-like knowledge, he was rated as significantly more responsible for his immoral behavior than in the control condition, $\beta = .16$, $p = .04$, and this marginally generalized to the adult physical condition, $\beta = .13$, $p = .09$, but no to the child knowledge condition, $\beta = .12$, $p = .12$.

I hypothesized that sanctity values would positively predict perceived responsibility for both moral and immoral behavior. There was no significant main effect of sanctity values or any interaction with condition for perceived moral responsibility, all ps > .15. However, there was a significant negative main effect of sanctity values on perceived immoral responsibility, such that higher sanctity values predicted reduced immoral responsibility, $\beta = -.25$, $p = .04$. In addition, there was a significant child knowledge by sanctity values interaction, $\beta = .22$, $p = .008$, and a significant adult knowledge by sanctity values interaction, $\beta = .26$, $p = .002$. Breaking these interactions down, for participants high in moral sanctity values (i.e., 1 SD above the mean), there was a significant difference between the control condition and both the child knowledge condition, $\beta = .33$, $p = .004$, and the adult knowledge condition, $\beta = .38$, $p < .001$.

However, for participants low in moral sanctity values (i.e., 1 SD below the mean), there was no significant difference between the control condition and either the child knowledge condition, $\beta = -.09$, $p = .38$, or the adult knowledge condition, $\beta = -.06$, $p = .52$. The effect of adult knowledge and child knowledge was stronger for participants high in moral sanctity values that for participants low in moral sanctity values. There was no significant adult physical versus control condition by sanctity interaction, $\beta = .12$, $p = .16$.

Skill and Innocence

I hypothesized that when children have more adult-like knowledge, like being very familiar with World War II, participants would see that child as less innocent, relative to no mention of any skill. As hypothesized, when Jon held an adult-like mental skill, he was rated as significantly less innocent than in the control condition, $\beta = -.15$, $p = .03$. However, this effect did not generalize to the child knowledge condition, $\beta = .11$, $p = .14$, or the adult physical condition, $\beta = -.02$, $p = .78$. When Jon had an adult-like mental skill, such as knowing important figures and battles of World War II, participants rated him as less innocent than simply being a child with no mention of any special skills.

I hypothesized that sanctity values would positively predict perceived innocence. Unexpectedly, there was a marginally significant negative relationship between sanctity values and perceived innocence, $\beta = -.19$, $p = .099$, and a significant interaction with the adult physical condition, $\beta = .22$, $p = .01$. Breaking these interactions down, for participants high in moral sanctity values (i.e., 1 SD above the mean), there was a trending positive effect of the adult physical condition, $\beta = .16$, $p = .104$. However, for participants low in moral sanctity values (i.e., 1 SD below the mean), there was a

significant negative effect of adult physical skill versus control condition, $\beta = -.20$, p

$= .049$. The effect of an adult physical skill was positive for participants high in moral

sanctity values and negative for participants low in moral sanctity values. Overall, these

results suggests that the more someone values moral sanctity, the less they perceive Jon

as being innocent, and an interactive relationship between moral sanctity values and

perceived innocence. However, because these effects were not hypothesized, they may

be just Type 1 errors.

Skill and Agency

I hypothesized that when children have more adult-like knowledge, like being

very familiar with World War II, participants would see that child as having more agency,

relative to no mention of any skill. Analyses revealed that relative to the control condition,

mentioning a child-like knowledge skill, $\beta = .28$, $p < .001$, an adult-like knowledge skill,

$\beta = .27$, $p < .001$, or an adult-like physical skill, $\beta = .28$, $p < .001$, made Jon seem more

agentic. These results suggest that highlighting any skill makes a child seem more agentic

relative to simply being a child with no mention of any special skills.

I hypothesized that sanctity values would positively predict perceived agency.

However, there was no significant main effect of sanctity values or any interactions, all

ps $> .30$.

Skill and Patiency

As in Study 1, I did not have a specific hypothesis concerning the relationship

between perceived patiency and knowledge, and the following tests should be considered

exploratory. There was no significant difference between the control condition and the

adult knowledge condition, $\beta = -.04$, $p = .58$, or the child knowledge condition, $\beta = .01$, p

= .86. However, there was a significant difference between the control condition and the adult physical condition, such that Jon was seen as experiencing less in the adult physical condition than the control condition, $\beta = -.18$, $p = .01$.

I hypothesized that sanctity values would positively predict perceived patiency. Unexpectedly, there was a marginally significant negative relationship between sanctity values and perceived patiency, $\beta = -.20$, $p = .097$. In addition, there were significant interactions with the child knowledge condition, $\beta = .18$, $p = .02$, the adult knowledge condition, $\beta = .16$, $p = .049$, and the adult physical condition, $\beta = .20$, $p = .02$. Breaking these interactions down, for participants high in moral sanctity values (i.e., 1 SD above the mean), there was a marginally significant positive effect of child knowledge versus the control condition, $\beta = .20$, $p = .08$, but no significant effects for adult knowledge versus the control condition, $\beta = .10$, $p = .33$, or adult physical versus the control condition, $\beta = -.03$, $p = .73$. For participants low in moral sanctity values (i.e., 1 SD below the mean), there was a trending negative effect of child knowledge versus the control condition, $\beta = -.17$, $p = .102$, a marginally significant negative effect of adult knowledge versus the control condition, $\beta = -.18$, $p = .08$, and a significant negative effect of the adult physical versus the control condition, $\beta = -.35$, $p = .001$. This suggests that participants who do not value moral sanctity, any type of skill makes Jon seem less experiencing than the control condition, but for participants who do highly value moral sanctity, skill either has no effect on perceived patiency or has a positive effect in the case of the child knowledge condition. However, because these effects were not hypothesized, they may be just Type 1 errors.

Test of Mediation for Behavioral Likelihood

For the following mediational analysis, I tested whether adult knowledge versus control differences in perceived likelihood to act morally or immorally in regards to the care foundation were mediated through perceived innocence, perceived agency, perceived patiency, or an interaction involving these mediators. As described above, while there was no significant direct effect between having adult knowledge and acting morally in support of the care foundation, the following analysis can test for indirect effects. I followed the same analyses of multiple mediational pathways used in Study 1. Contrary to my hypothesis but consistent with Study 1, perceived agency emerged as the strongest significant mediator between having an adult-like knowledge relative to the control and the perceived likelihood of acting morally in support of the care foundation, 95% CI [.01, .22]. Neither perceived innocence, 95% CI [-.10, .02], perceive patiency, 95% CI [-.03, .07], the innocence by agency interaction, 95% CI [-.01, .04], the innocence by patiency, 95% CI [-.06, .01], the agency by patiency interaction, 95% CI [-.01, .04], nor the innocence by agency by patiency interaction, 95% CI [-.05, .01], significantly mediated the relationship.

When considering predicted immoral behavior violating the care foundation, there was a significant mediation through perceived innocence, 95% CI [.01, .16], but not through perceived agency, 95% CI [-.09, .01], perceived patiency, 95% CI [-.16, -.04], the innocence by agency interaction, 95% CI [-.06, .02], the innocence by patiency, 95% CI [-.05, .01], the agency by patiency interaction, 95% CI [-.08, .01], nor the innocence by agency by patiency interaction, 95% CI [-.05, .01]. These results suggest that there

was an indirect effect on perceived immoral behavior through perceived innocence, but not through perceived agency, patiency, or any two-way or three-way interaction.

Other foundations. As there were significant positive effects relating adult knowledge to moral behavior involving the fairness, loyalty, authority, and sanctity foundations, I also conducted exploratory analyses for possible indirect effects through perceived innocence, perceived agency, perceived patiency, or an interaction involving these mediators. There was significant positive mediation through perceived agency for moral behavior in support of the fairness foundation, 95% CI [.01, .20], the loyalty foundation, 95% CI [.01, .37], the authority foundation, 95% CI [.01, .17], but not for the sanctity foundation, 95% CI [-.003, .22]. There were no other significant mediators for these other moral behaviors.

Test of Mediation for Behavioral Responsibility

As in Study 1, I also tested the multiple mediational pathways between having adult knowledge versus the control condition and perceived moral and immoral responsibility. For perceived moral responsibility, no significant mediators emerged; neither perceived innocence, 95% CI [-.11, .05], perceived agency, 95% CI [-.04, .22], perceived patiency, 95% CI [-.18, -.04], the innocence by agency interaction, 95% CI [-.01, .11], the innocence by patiency, 95% CI [-.03, .05], the agency by patiency interaction, 95% CI [-.05, .03], nor the innocence by agency by patiency interaction, 95% CI [-.09, .03], significantly mediated the relationship between having adult-like knowledge and being seen as responsible for moral behavior.

Likewise, for immoral responsibility, no significant mediators emerged; neither perceived innocence, 95% CI [-.03, .18], perceived agency, 95% CI [-.04, .26], perceived

patiency, 95% CI [-.19, -.03], the innocence by agency interaction, 95% CI [-.10, .03], the

innocence by patiency, 95% CI [-.07, .02], the agency by patiency interaction, 95% CI [-

.03, .05], nor the innocence by agency by patiency interaction, 95% CI [-.09, .05],

significantly mediated the relationship between having adult-like knowledge and being

seen as responsible for immoral behavior.

STUDY 2 DISCUSSION

Inconsistent with my hypothesis, when hypothetical children have adult-like knowledge, they are not seen as less likely to act morally than when there is no mention of a skill, but there were positive effects of knowledge on perceived likelihood of other possible moral concerns. Mediation tests revealed that these exploratory effects were mostly due to changes in perceived agency. Consistent with past literature (e.g., Gray & Wegner, 2009), gaining knowledge makes someone appear more agentic, and increased agency leads to greater perceived likelihood of acting morally. In addition, there was a significant indirect effect for acting immorally through perceived innocence. In addition, one hypothesis that was supported by the results was that having adult-like knowledge made Jon seem less innocent.

GENERAL DISCUSSION

Across two studies, I tested the influence of knowledge held by hypothetical children on moral perceptions of those children. In both studies, contrary to my hypothesis, knowledge failed to decrease perceived morality, and in Study 1 actually increased it. Exploratory analyses involving moral concerns beyond care and harm found this effect was somewhat generalizable – knowledge makes children seem more likely to act moral and less likely to act immoral for some potential moral concerns. The main mechanism that facilitated this process was through perceived agency, a construct linked to perceptions of planning, self-control, and intention (Gray & Wegner, 2009). Children who had more knowledge were seen as more agentic and therefore more likely to act morally. Children with more knowledge were also given more responsibility for their moral and immoral behavior, although these effects were less consistent. Contrary to my expectations, perceived innocence had inconsistent importance in the relationship between knowledge and morality, only emerging as a significant mediator in Study 2 predicting the perceived likelihood of immoral behavior.

While the present results did not support my hypotheses, the results did support the work on the moral dyad (e.g., Gray & Wegner, 2009). Just as more mentally capable people are perceived to have more agency (Gray & Wegner, 2009), more knowledgeable children are perceived to have more agency. In both studies, this relationship is intuitive and expected, especially considering the operationalization of agency. Participants were detecting that self-control, willpower, and planning are necessary in order to perform above grade level on a general knowledge test or to learn a topic well like memorizing names of lots of figures. However, perhaps less intuitive from the design of the studies is

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the relationship between agency and perceived morality, unless the work on the moral dyad is considered. Based on this study, people seem to think that, at least for children, self-control, willpower, and planning are important components for behaving morally – that is, people's folk theory of moral behavior seems to operate through perceptions of agency. The way agency was operationalized in the present studies – self-control, willpower, and planning – suggest a construct associated with deliberation and not quick intuitions.

The view that moral behavior is due to deliberative agency is similar to the view that self-control is key to improving moral behavior (e.g., Baumeister & Juola Exline, 1999, 2000), but more at odds with recent research suggesting that quicker, intuitive processes, rather than slower, deliberative processes, lead to more moral behavior (Rand, Greene, & Nowak, 2012). For example, Rand, Greene, and Nowak (2012) found that people tend to cooperate more when forced to make a quick decision and cooperate less when forced to take relatively longer to make a decision. These results suggest that moral behavior may operate more due to quicker processes rather than self-control and planning. Furthermore, time taken to make a moral decision influences moral judgments of the actor of that decision. For example, Critcher, Inbar, and Pizarro (2012) found that observers judge actors who make a moral decision quickly, versus slowly, as more moral, but likewise judge actors who make an immoral decision quickly, versus slowly, as more immoral. That is, people use decision time to make inferences of decision makers' moral character. Essentially, if decision time is considered a proxy for the role of self-control, planning, and deliberation in making the decision, then people see deliberation in making

moral decisions as indicative of being less moral than quick intuition, but see deliberation in making immoral decisions as indicative of being more moral than quick intuition.

This conclusion about deliberation and moral judgments may seem contrary to the conclusions of the present study that agency and deliberation are positively related to perceptions of moral behavior. However, there are a number of differences between the present study and the Critcher et al. (2012) study that may explain this discrepancy. Most importantly, in the present study, participants made predictions of potential future moral behavior, while in the Critcher et al. study participants made judgments of actual moral behavior that had presumably already occurred. Similarly, in the present study, participants used character qualities, like knowledge, to inform predictions of moral behavior, while in the Critcher et al. study, participants used moral behavior to inform predictions of character qualities. Potentially less important but also a difference between the studies is the age of the target, as the actors in the Critcher et al. study were adults versus children as in the present study. It is possible that the age of the target moderates the relationship between deliberation and morality. Children are seen as less agentic than adults (Gray & Wegner, 2009), and this difference could translate into different expectations about the moral behavior of adults versus children. For example, self-control and planning with moral behavior may be more impressive and indicative of morality for children than it is for adults. Future research should address these issues concerning the perceived morality of children relative to adults by combining the methods used in the present study with the methods used by Critcher and colleagues.

Beyond looking at the qualities associated with the target children, I also tested for the personality effects of moral sanctity values on perceptions of children, but these

effects were either weak or inconsistent across the two studies. Therefore, it is hard to conclude what role, if any, moral sanctity values play in understanding how knowledge held by a child influences moral perceptions of that child. Although moral sanctity values were not significantly involved in these processes, another potential personality variable that could influence the results is attitude toward education. If participants in the present studies held a favorable view of education and view it as a force for good in the world, then it is to be expected that knowledge would make children seem more moral. However, if I had looked at the role of attitudes toward education, it is possible that those who view education negatively, or at least less positively, may view children with more knowledge as less moral.

The present study offers a set of boundary conditions for past research into censorship (Anderson & Masicampo, 2014b) and fantastical beliefs (Anderson & Masicampo, 2014a). In the research on censorship (Anderson & Masicampo, 2014b), moral sanctity values play a key role in determining whether to censor, but this relationship decreases as the child grows in age or in exposure to immoral experiences. Anderson and Masicampo (2014b) conclude that censorship is ultimately about protecting a child's innocence. In the research on fantastical beliefs (Anderson & Masicampo, 2014a), children who hold fantastical beliefs are rated as more innocent and more moral than children who do not hold fantastical beliefs, with perceived innocence mediating the relationship between fantastical beliefs and perceived morality. Both of these studies provided the basis for the present study and suggested the initial set of hypotheses: gaining experience negatively impacts perceived morality, and knowledge influences perceived innocence and perceived morality. However, the results of the

present study suggest an alternative possibility: not all knowledge, but only certain knowledge and certain experiences negatively influence perceived innocence and perceived morality. The present results suggest that objectionable content, exposure to immoral experiences, and the truth about fantastical beliefs are qualitatively different than simply knowledge in general, and the key component may be that the former concepts are more strongly linked to innocence and morality than the latter concept. Future research may more closely explore the relationship between certain types of knowledge or experience and innocence.

Judgments of Moral Qualities

Furthermore, the present work also speaks to the importance and validity of understanding not just judgments of moral acts but also judgments of moral qualities. For much of its history, moral psychology often operated on the assumption that moral judgments are assessments of another's moral behavior – for example, why certain acts are deemed acceptable or unacceptable (e.g., Greene et al., 2001; Haidt, 2001; Kohlberg, 1969). For example, Haidt (2001) asked people whether it was moral that two siblings engaged in consensual, safe sex with each other. In addition, acts that treat others fairly and equally or nurture those in need are generally considered moral (Graham et al., 2011).

Although moral evaluations are clearly sensitive to the specifics of behavior, observers also attend to others' behavior in order to form impressions of their character and personality (Funder, 2004). Along those lines, more recent theoretical approaches have taken the stance that moral judgments are also assessments of another's moral character (for a review, see Pizarro & Tannenbaum, 2011). Research suggests that even from a young age (Hamlin, Wynn, & Bloom, 2007), we evaluate others' moral character

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with a strong desire to determine if we can trust them (Cottrell, Neuberg, & Li, 2007; Todorov, Said, Engell, & Oosterhof, 2008). Research on economic games (e.g., DeSteno et al., 2012) also supports the perspective that moral character plays a vital role in moral judgments and decision-making. For example, people take into account reputation (i.e., a judgment of another's character) when deciding whether to cooperate with others (Piazza & Bering, 2008).

In the present research, participants examined how certain qualities of a child, like his knowledge, innocence, and agency, speak to that child's morality. Just as another's reputation influences how people judge and interact with that person (Piazza & Bering, 2008), a child's knowledge and agency influence how people see that child's morality and likelihood of acting morally. The present research offered a number of possible routes for investigating judgments of moral character. For example, one possibility is to not simply look at adjective descriptions of morality (e.g., Jon is moral, Jon is caring, etc.), but to investigate predictions of future behavior. If the goal of moral judgments operates on whether future interactions with the actor will be worthwhile (e.g., DeSteno et al., 2012; Piazza & Bering, 2008), predictions of future behavior may be more valid measurements of perceived morality than a simple adjective measurement.

Furthermore, the present research used the knowledge held by a child to understand the influence of knowledge on perceived moral qualities. Although this is certainly not the first time that research has been done into how certain aspects of a child influence other perceptions (e.g., Goff et al., 2014), future research can investigate not only how other qualities (e.g., perceived personality traits) are influenced by the knowledge held by a child, but also how other experiences influence moral perceptions.

In addition, future research can also look more closely into the mechanics of what occurs when children have more knowledge, such as whether high knowledge is attributed to intelligence, personality traits like conscientiousness, or some combination of the two. Future research should follow in these veins by examining how other qualities of child and adult targets, and not just the content of their actions, influence how people make moral judgments and judgments of character.

Limitations

One hypothesis that was supported in Study 2 was that having an adult-like knowledge skill would make a child seem less innocent than when there was no mention of any skill. However, it is possible that this effect was not due to the fact that the skill that was mentioned was an adult-like knowledge skill, but the particular skill of knowing all the names of important figures and battles of World War II. Any cursory glance at history will quickly reveal the horrors and atrocities associated with World War II and it is possible that when Jon knew about World War II, participants saw not the adult-like knowledge required for this skill but instead the negative influence of the violence and war on Jon's innocence. In addition, due to the strongly moral nature of World War II of the Allies against the Axis, participants may have inferred that children familiar with World War II should behave more morally. That is, one possible explanation for why participants rated Jon as more likely to behave morally when he was familiar with World War II than the control condition was that participants thought that Jon would behave morally because he was familiar with and understood the consequences of immoral behavior of World War II. Therefore, future research should use a more morally neutral adult-like mental skill.

In addition, there was another possible issue with the child-like knowledge condition in Study 2. Although not reported above but descriptively visible in Table II, participants in this condition liked Jon significantly less than in the control condition, $t(265) = -2.35$, $p = .02$, partial $\eta^2 = .02$, the adult knowledge condition, $t(265) = -3.36$, $p = .001$, partial $\eta^2 = .04$, and the adult physical condition, $t(265) = -2.30$, $p = .02$, partial $\eta^2 = .02$. Although perceived liking of Jon was controlled for when possible, future research should use a child-like knowledge skill that is less associated with potentially negative connotations of nerd culture, as knowing all the Pokémon could be.

Closing

Together, the present studies failed to support a "fall from grace" perspective of how people make moral judgments of knowledgeable children. Ultimately, this may be for the best, as the alternative was supported: more knowledgeable children are seen as more likely to act morally. Of course, future research should be done to replicate these findings with the appropriate starting hypothesis. Hopefully, future research will help illuminate the role that knowledge plays in perceptions of a child's morality.

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ENDNOTE

[1] We recruited 22 participants from Amazon Mechanical Turk to screen 27 possible skills for how adult-like, indicative of being mentally-capable, and indicative of being physically-capable they were, from 1 (*Not at all*) to 7 (*Very*). Based on mean ratings, I decided on these three conditions for the child knowledge condition being seen as less adult like-than the other two conditions, for the child knowledge and adult knowledge having similar levels of being indicative of being mentally capable and more than the adult physical condition, and the adult physical condition being more indicative of being physically capable than the other two. To be sure, I conducted paired t-tests from this pretest sample. Pretest results indicated that the child knowledge condition ($M = 1.90$) was rated as significantly less adult-like than the adult knowledge condition ($M = 5.48$), t (21) = -11.69, $p < .001$, and the adult physical condition ($M = 5.52$), t (21) = -12.46, $p < .001$, but the adult knowledge and adult physical conditions did not significantly differ, t (21) = -.18, $p = .86$. Pretest participants rated the child knowledge condition ($M = 4.55$), t (20) = 4.56, $p < .001$, and the adult knowledge condition, ($M = 5.04$), t (21) = 4.82, $p < .001$, as significantly more indicative of being mentally capable than the adult physical condition ($M = 2.50$), but the child knowledge and the adult knowledge conditions did not significantly differ, t (20) = -1.71, $p = .103$. Finally, pretest participants rated the child knowledge condition ($M = 1.67$), t (21) = -11.31, $p < .001$, and the adult knowledge condition, ($M = 1.67$), t (21) = -11.75, $p < .001$, as significantly less indicative of being physically capable than the adult physical condition ($M = 6.38$), but the child knowledge and the adult knowledge conditions did not significantly differ, t (21) = 0.00, $p = 1.00$.

Appendix A
Study 1 Conditions

1. <u>At Level</u>: Jon is in the 2nd grade. Recently, everyone in his class took a standardized general knowledge test. When Jon received his scores back, the results indicated that Jon testing at the 2nd grade level. These scores indicate that Jon was as knowledgeable as his peers.
2. <u>Ahead</u>: Jon is in the 2nd grade. Recently, everyone in his class took a standardized general knowledge test. When Jon received his scores back, the results indicated that Jon testing at the 5th grade level. These scores indicate that Jon was more knowledgeable than his peers.
3. <u>Advanced</u>: Jon is in the 2nd grade. Recently, everyone in his class took a standardized general knowledge test. When Jon received his scores back, the results indicated that Jon testing at the 8th grade level. These scores indicate that Jon was a lot more knowledgeable than his peers.

Appendix B
Agency and Patiency Evaluation

Patiency

If Jon was stung by a bee, how much pain would he feel?

If Jon's parents got divorced, how much distress would he feel?

If Jon's friends didn't want to play with him, how much sadness would he feel?

If Jon got exactly the present he wanted for his birthday, how much happiness would he feel?

If Jon is praised, how much pride would he feel?

If Jon visits his favorite grandparents' house, how much love would he feel?

Agency

In general, how much planning is Jon capable of?

In general, how much self-control is Jon capable of?

In general, how much will-power is Jon capable of?

Appendix C
Moral and Immoral Behaviors

Moral Behaviors

In general, how likely is it that Jon would help someone in need?

In general, how likely is it that Jon would treat others equally?

In general, how likely is it that Jon would maintain his commitments?

In general, how likely is it that Jon would obey his teacher?
In general, how likely is it that Jon would act upright and decent?
Immoral Behaviors

In general, how likely is it that Jon would hurt someone else?

In general, how likely is it that Jon would cheat?
In general, how likely is it that Jon would desert his group of friends?
In general, how likely is it that Jon would not listen to his elders?
In general, how likely is it that Jon would do something disgusting?

Appendix D
Moral and Immoral Responsibility

Moral Behaviors

If Jon did help someone in need, how much responsibility would he deserve?
If Jon did treat others equally, how much responsibility would he deserve?

If Jon did maintain his commitments, how much responsibility would he deserve?
If Jon did obey his teacher, how much responsibility would he deserve?
If Jon did act upright and decent, how much responsibility would he deserve?
Immoral Behaviors

If Jon did hurt someone else, how much responsibility would he deserve?
If Jon did cheat, how much responsibility would he deserve?
If Jon did desert his group of friends, how much responsibility would he deserve?
If Jon did not listen to his elders, how much responsibility would he deserve?
If Jon did do something disgusting, how much responsibility would he deserve?

Appendix E
Study 2 Conditions

1. <u>Control</u>: Jon is a young boy, about eight years old. In his spare time, Jon likes to play games and hang out with his friends.
2. <u>Child Knowledge</u>: Jon is a young boy, about eight years old. In his spare time, Jon likes to play games and hang out with his friends. In addition, Jon plays the video game Pokémon and has memorized the names and abilities to all 716 Pokémon.
3. <u>Adult Knowledge</u>: Jon is a young boy, about eight years old. In his spare time, Jon likes to play games and hang out with his friends. In addition, Jon likes to read history and knows all of the major battles and key people involved in World War II.
4. <u>Adult Physical</u>: Jon is a young boy, about eight years old. In his spare time, Jon likes to play games and hang out with his friends. In addition, Jon likes to run and is capable of finishing half-marathons.

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Masicampo, E. J., Martin, S. R., & Anderson, R. A. (under review). Understanding and overcoming self-control depletion.

Anderson, R. A., & Masicampo, E. J. (in preparation). Protecting the innocence of youth: Moral sanctity values underlie censorship from young children.

Conference Presentations

Anderson, R. A., Costello, C. K., Helzer, E. G., Furr, R. M., & Fleeson, W. (2014, February). *Individual and situational predictors of helping: Results from a 10-week longitudinal study*. Talk presented at the Morality and Justice Preconference held at the Annual Meeting of the Society for Personality and Social Psychology, Austin, TX.

Anderson, R. A., & Masicampo, E. J. (2014, February). *Concerns of moral sanctity drive censoring from young children*. Poster presented at the Annual Meeting of the Society for Personality and Social Psychology, Austin, TX.

Anderson, R. A., & Masicampo, E. J. (2013, November). *Concerns of moral sanctity drive censoring from young children*. Poster presented at the Annual Meeting for the Society for Southeastern Social Psychologists, Augusta, GA.

Anderson, R. A., & Masicampo, E. J. (2013, March). *Concerns of moral purity drive censoring from young children*. Poster presented at the annual Wake Forest University Graduate Student & Post Doc Research Day, Winston-Salem, NC.

Grants/Fellowships/Awards

2013	Wake Forest Graduate School – Alumni Travel Award
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May 2013-August 2013	Research Assistant for The Character Project, WFU
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